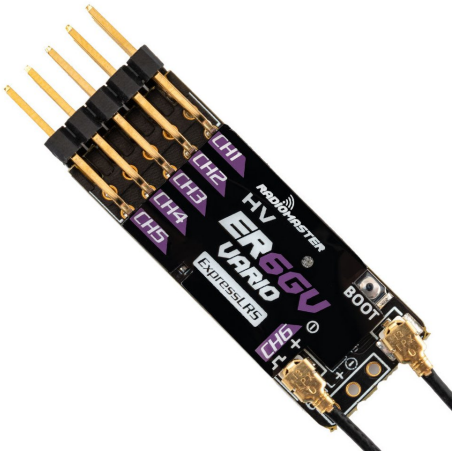
RadioMaster ER6GV

ExpressLRS 2.4 GHz receiver – 6 PWM channels + vario
User Manual



Read this entire manual before first use and keep it for future reference.

www.rotorama.com

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1. Safety instructions

The receiver controls the servos, the electronic speed controller (ESC) and therefore the model's power system. Incorrect wiring or setup may result in loss of control of the model, damage to property or personal injury.

- When working on the model with the flight battery connected, **remove the propeller** or make sure the motor cannot start unexpectedly.
- Power the receiver only within the voltage range given in the specifications. A higher voltage will destroy the receiver.
- Observe the polarity of the servo and power connectors. Never use channel CH6 as a power input (chapter 4.1).
- Before every flight, check the link to the radio, the throw and direction of all control surfaces, and the failsafe function (behaviour of the model on signal loss).
- Do not fly if the radio reports poor link quality or low receiver voltage.
- Do not cover the antennas with metal or carbon parts and do not shorten them.
- Protect the receiver from moisture, dust, vibration and mechanical damage. Do not make any modifications to the board that are not described in this manual.
- The receiver is not a toy. Keep it and its small accessories out of the reach of children.

2. Product description

2.1 Purpose of the receiver

The RadioMaster ER6GV is a compact and slim receiver for the **ExpressLRS** system in the 2.4 GHz band, specially designed for glider pilots. It can drive up to **6 servos** (PWM outputs) and has a built-in high-precision air pressure sensor – a **vario**.

The receiver has built-in receiver voltage telemetry and flight battery telemetry, with the ability to automatically detect which voltage input to use. It features a dual antenna (diversity) with telemetry power up to 50 mW and can be used with a 1S LiPo receiver battery. It is compatible with all 2.4 GHz ExpressLRS modules and transmitters with built-in 2.4 GHz ExpressLRS.

2.2 Specifications

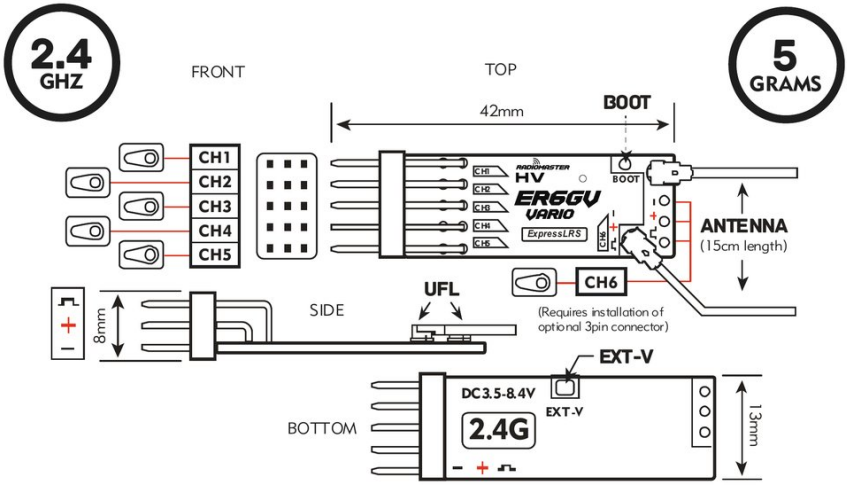
Size	42 × 13 × 8 mm
Weight	5 g
Power supply	DC 3.5–8.4 V
Antennas	2× 15 cm (high sensitivity)
Wireless protocol	ExpressLRS 2.4 GHz (pre-installed)
Output channels	6 × PWM
Telemetry power	max. 50 mW (adjustable in Lua)
Flight battery voltage detection range	DC 3.0–26 V
Sensor	air pressure sensor (vario)
Updates and configuration	Wi-Fi, web interface (WebUI)

2.3 Package contents

Qty	Item
1×	RadioMaster ER6GV 2.4 GHz ELRS PWM receiver
1×	voltage telemetry wire (Type-A)
2×	heat-shrink tube
1×	User Card

※ The radio, servos, power battery and the 3-pin connector for channel CH6 are not included.

2.4 Receiver layout



Front (FRONT), top (TOP), side (SIDE) and bottom (BOTTOM) view

Element	Description
CH1–CH5	Servo / ESC outputs, 2.54 mm pin headers. Pin order: signal on top, + in the middle, − at the bottom (next to the board).
CH6	Sixth output – solder pads (signal, +, −). Connecting a servo requires installation of the optional 3-pin connector, which is not included.
BOOT	Button: holding it for 10 s resets the receiver into bind mode (chapter 5.3).
ANTENNA	Two 15 cm antennas with UFL connectors.
EXT-V	Solder pad on the bottom side for flight battery voltage measurement (chapter 4.2).
DC 3.5–8.4 V	Receiver power supply range.

3. Operating a radio device

3.1 The law of the country of use applies

Radio equipment and the operation of models are regulated by European Union legislation, but national implementing rules differ from country to country – permitted frequency bands, maximum transmit power, rules for flying models and compulsory insurance. The information in this chapter describes the situation in the Czech Republic. If you use the receiver in another country, you must comply with the regulations of the country in which you use it.

3.2 Frequency band and transmit power

- The receiver operates in the **2.4 GHz** band. In addition to receiving commands, it transmits telemetry back to the radio; according to the manufacturer, the telemetry power is **max. 50 mW** and can be reduced in the ExpressLRS Lua script.
- For firmware updates and configuration, the receiver temporarily starts its own Wi-Fi network (chapter 5.2).
- In the Czech Republic, operation in the 2400–2483.5 MHz band is governed by the general authorisations of the Czech Telecommunication Office (www.ctu.cz). The user is responsible for the transmit power setting of the whole system, i.e. both the radio and the receiver.
- For the 2.4 GHz band, ExpressLRS also offers a firmware version with the LBT (Listen Before Talk) function intended for the EU. The transmitter module and the receiver must use the same version, otherwise they will not bind.
- Product conformity and the EU declaration of conformity – see chapter 8.2.

4. Installation and wiring

4.1 Powering the receiver and servos

- Power the receiver with **DC 3.5–8.4 V** from the ESC BEC, from a separate UBEC or from a receiver battery. A 1S LiPo battery can also be used.
- Power from an ESC or receiver battery must only be applied to **channels CH1 to CH5**. Channel CH6 must not be used as the power input channel; use it only as a servo output.
- Make sure that the power supply current of the ESC BEC matches the power consumption requirements of the servos used. If using high-voltage and high-torque servos, the manufacturer recommends using a **2S 7.4 V** battery for direct power supply or a suitable high-current UBEC.

4.2 Flight battery voltage measurement (EXT-V)

The flight battery voltage is measured via the **EXT-V** solder pad on the bottom of the PCB. A single wire must be soldered to this pad and connected to the positive wire of the battery or ESC.

- The detection range is **DC 3.0–26 V**; do not connect a battery with a higher voltage. According to the manufacturer, a voltage above **35 V** on the EXT-V input will damage the receiver.
- If no EXT-V power source is found, the receiver defaults to reading the voltage on the receiver pins. Only one voltage input can be used at any given time.
- Insulate the soldered joint with the heat-shrink tube from the package.

4.3 Antenna placement

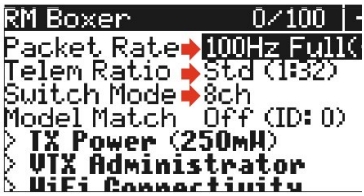
- Route the ends of both antennas outside the fuselage or as far as possible from metal and carbon parts, power wiring and the ESC.
- If possible, route the antennas perpendicular to each other so that the receiver has a good signal in any attitude of the model.
- Do not shorten or kink the antennas and do not pull on the UFL connectors.

5. Binding and setup

5.1 Recommended radio settings

The recommended ExpressLRS Lua settings on the radio end are:

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



Settings in the ExpressLRS Lua script

5.2 Passphrase binding

The bind phrase is a binding password that must be the same in the radio and in the receiver. ※ Bind phrases are not secret and can be read.

Transmitter (TX) Wi-Fi	Value
Network (SSID)	ExpressLRS TX
Password	expresslrs
URL (open in browser)	http://10.0.0.1/

① Open the ExpressLRS Lua script on the radio and navigate to the *WiFi Connectivity* page. Select *Enable WiFi* and connect to your radio's Wi-Fi with a mobile phone, tablet or PC (see table). Open http://10.0.0.1/ in a browser, choose a unique bind phrase and 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 to the receiver's Wi-Fi (by ExpressLRS default named *ExpressLRS RX*, password *expresslrs*), open http://10.0.0.1/, enter the matching bind phrase previously entered on your radio and select *Save and Reboot*.

③ Once both radio and receiver have the same bind phrase set, they will bind automatically.

5.3 Traditional binding

① The first time you power on the 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 the radio and use *[Bind]* in the ExpressLRS Lua script, which sends out a binding pulse.

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



The [Bind] item in the ExpressLRS Lua script

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 this does not work, hold down the BOOT button for 10 seconds or use the bind phrase.

Warning: resetting with the BOOT button erases all previous receiver settings, which must be re-entered.

5.4 Channel CH5 and Arm state

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

Using the ExpressLRS Lua script or the receiver's Wi-Fi WebUI, you can assign a different radio channel to the CH5 output of the receiver. In the example below, channel CH7 is assigned to output CH5.

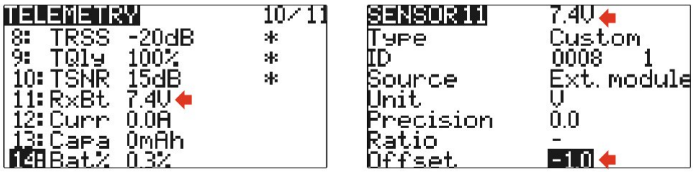
Receiver output	CH1	CH2	CH3	CH4	CH5	CH6
Radio channel	CH1	CH2	CH3	CH4	**CH7**	CH6

To learn more on the importance of setting up Arm, visit www.expresslrs.org.

5.5 Telemetry voltage calibration

Calibration of the telemetry voltage is 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 using a fully charged battery of the cell count intended for use in the model (LiPo 4.20 V/cell, e.g. 2S = 8.40 V).



RxBt sensor on the TELEMETRY page and adjusting the Offset value

5.6 Vario

The ER6GV receiver has a built-in air pressure sensor (vario). Its data is transmitted to the radio as telemetry. After binding, run the sensor search on the radio's *TELEMETRY* page (*Discover new*); vario sounds and announcements are set up in the radio software.

6. Firmware and further documentation

The receiver is supplied with ExpressLRS firmware installed as standard. The firmware can be updated via Wi-Fi using the ExpressLRS Configurator; the receiver switches to Wi-Fi mode 60 seconds after power-on without a link to the radio.

Device Category	Radiomaster 2.4Ghz
Device	RadioMaster ER6GV (may be listed in the Configurator as “RadioMaster ER6-GV 2.4GHz Diversity+6xPWM+Vario RX”)

The transmitter module and the receiver must have a compatible major ExpressLRS firmware version. When updating, update both devices.

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

7. Maintenance and troubleshooting

7.1 LED indication

LED	Meaning
quick double blink	bind mode
solid	receiver is bound and has a link
rapid blinking (60 s after power-on without a link)	Wi-Fi mode

7.2 Maintenance

- Regularly check the servo connectors, solder joints and the condition of the antennas, especially after a hard landing.
- Clean the receiver with a dry brush or compressed air; do not use solvents.
- Store it in a dry place without condensation, away from direct sunlight and heat sources.

7.3 Troubleshooting

Problem	Possible cause and solution
Receiver does not bind	Different bind phrase or incompatible firmware versions in the transmitter module and receiver. Check the bind phrase, align the firmware versions, or use traditional binding (5.3).
LED is off	The receiver is not powered. Check the power supply and polarity on channels CH1–CH5.
Servo on CH6 does not work	No connector is installed on the CH6 pads, or the servo is connected the wrong way round.
Telemetry voltage does not match	Telemetry is not calibrated (5.5). Check the EXT-V wire connection.
Servos jitter or receiver resets	Insufficient BEC current. Use a more powerful UBEC or power from a 2S battery (4.1).
Short range	Damaged or covered antennas. Check the antennas and their routing (4.3) and the power setting on the radio.

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 (ER6GV) is printed on the receiver board and stated on the packaging; the firmware version is shown in the receiver's web interface (chapter 5.2).

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

Rights of the buyer under Czech law

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.