Radiomaster ER6G

ExpressLRS 2.4 GHz receiver with 6 PWM outputs
User manual



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

Rotorama, s.r.o. · www.rotorama.com

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1. Safety instructions

The Radiomaster ER6G receiver is intended for radio-controlled models. Incorrect installation or setup may result in loss of control of the model, damage to property or injury. Read the entire manual before the first installation.

- This product is not a toy. It is not intended for children without adult supervision.
- The power supply voltage of the receiver is **DC 3.5–8.4 V**. A higher voltage will damage the receiver.
- Power from an ESC or receiver battery must only be applied on **channels CH1 to CH5**. Channel CH6 must not be used as the power input channel.
- Never apply more than **35 V** to the EXT-V input (flight battery voltage telemetry) – the receiver would be damaged.
- Observe the correct polarity of the connectors (−, +, signal). Always disconnect the power before soldering and wiring.
- The power source (BEC / UBEC) must supply a current matching the consumption of all connected servos.
- Before every flight or run, check the function of all channels, the link range and the behaviour of the model on signal loss (failsafe).
- When working on a model with an electric motor and a fitted propeller, expect that the motor may start unexpectedly. Remove the propeller during setup.
- Protect the receiver from moisture, dust, vibration and mechanical damage. Do not use a damaged receiver or damaged antennas.
- The user is responsible for setting the transmit power and for complying with radio regulations. The regulations of the country in which the product is operated apply.

2. Product description

2.1 Introduction

Thank you for purchasing the Radiomaster ER6G ExpressLRS receiver. The ER6G receiver is based on the revolutionary ExpressLRS system. It offers high performance, high reliability, flexible configuration, fast response speed and ultra-long range.

The Radiomaster ER6G receiver has been specially designed for glider pilots who require a compact and slim receiver. It can drive up to 6 servos and has built-in receiver voltage telemetry and flight battery telemetry with the ability to automatically detect which voltage input to use. The ER6G features a dual antenna (diversity) with telemetry power up to 50 mW.

The ER6G receiver has the same functionality as the ER6GV, only without a built-in vario (altimeter), for competitions that prohibit the use of a vario or simply for users who do not need a vario on their receiver. The ER6G can be used with a 1S LiPo receiver battery.

2.2 Specifications

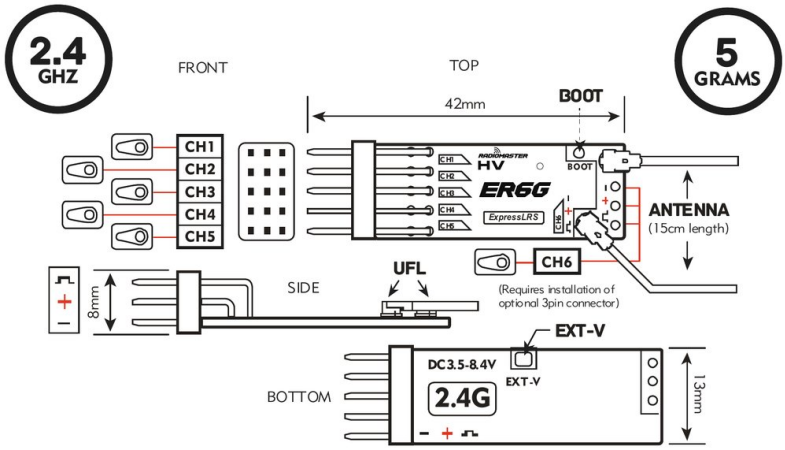
Parameter	Value
Size	42 × 13 × 8 mm
Weight	5 g
Power supply	DC 3.5–8.4 V
Antennas	2× high-sensitivity antenna, 15 cm length, UFL connector
Wireless protocol	ExpressLRS (pre-installed)
Frequency band	2.4 GHz
Output channels	6× PWM
Telemetry power	max. 50 mW (adjustable in ExpressLRS Lua)
Telemetry battery voltage detection range	DC 3.0–26 V
Max. voltage at EXT-V input	35 V

2.3 Package contents

- 1× Radiomaster ER6G 2.4 GHz ELRS PWM receiver
- 1× voltage telemetry wire (Type-A)
- 2× heat-shrink tube
- 1× user card

3. Receiver layout and wiring

3.1 Receiver layout



Front, top, side and bottom view

Label	Meaning
CH1–CH5	PWM outputs for servos and ESC on the pin header (−, +, signal); also serve as the power input
CH6	PWM servo output; requires installation of the optional 3-pin connector; **must not** be used as the power input
BOOT	button – hold for 10 s to reset the receiver to bind mode
UFL / ANTENNA	connectors of the two antennas, antenna length 15 cm
EXT-V	solder pad on the bottom of the PCB for flight battery voltage telemetry
DC 3.5-8.4V	power supply voltage range

3.2 Power supply and servo connection

- Connect the servos and the ESC to outputs CH1 to CH5, a sixth servo to CH6 (after soldering on the connector).
- Power from an ESC BEC or receiver battery must only be applied on channels CH1 to CH5. Channel CH6 may only be used as a servo output channel.
- Please ensure 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, it is recommended to use a 2S 7.4 V battery for direct power supply or a suitable high-current UBEC.

※ The 3-pin connector for channel CH6 is not fitted – it is optional and must be soldered on to use CH6.

3.3 Flight battery voltage telemetry (EXT-V)

The EXT-V (external voltage input) of the ER6G 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.

If no EXT-V power source is found, the ER6G will default to reading the voltage on the receiver pins. Only one voltage input can be used at any given time.

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

3.4 Antennas

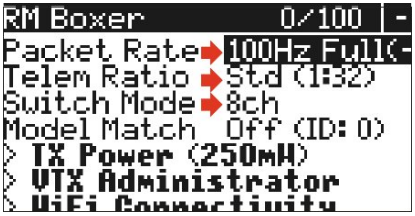
Route the antennas as far as possible from carbon parts, metal parts, the motor and high-current wires. The antenna ends must not be kinked or pinched. For best reception, route the two antennas in different directions.

4. Set-up

4.1 Recommended ExpressLRS 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 if unsure	Std (1:128)
Switch Mode	8ch	8ch

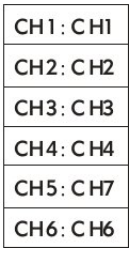


Recommended settings in ExpressLRS Lua

4.2 Channel 5 and the Arm state

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 will provide benefits such as dynamic power.

Using the ExpressLRS Lua or the WiFi WebUI, you can assign different channels to the CH5 output of your receiver. In the example below, receiver output CH5 is mapped to radio channel CH7.



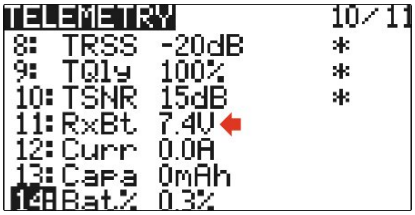
Example:
CH5 ← CH7

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

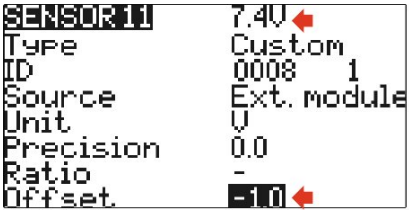
4.3 Telemetry voltage calibration

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

5. Binding

5.1 Traditional binding

① The first time you power on your receiver, the LED does a quick double blink, which indicates 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 radio and use the **[Bind]** button in the ExpressLRS Lua script, which sends out a binding pulse.

③ If the receiver has a solid light, it's bound.



[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 you cannot enter bind mode with the 3 power cycle method, hold down the BOOT button for 10 seconds or use the bind phrase method.

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

5.2 Bind phrase binding

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

② Power on the receiver and wait 60 seconds for the LED to blink rapidly, indicating WiFi mode. Connect to the receiver's WiFi (see the table below), open http://10.0.0.1/ and enter the matching bind phrase previously entered on your radio. Save and reboot.

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

※ Bind phrases are not secret and can be read.

5.3 WiFi access details

	Radio (TX)	Receiver (RX)
WiFi network name	ExpressLRS TX	ExpressLRS RX
Password	expresslrs	expresslrs
Address (URL)	http://10.0.0.1/	http://10.0.0.1/

5.4 LED indication

LED	Receiver state
quick double blink	bind mode
rapid blinking	WiFi mode
solid light	bound, link established

6. Firmware and further guides

6.1 Firmware target selection

The receiver is supplied with ExpressLRS firmware pre-installed. When updating the firmware (e.g. with the ExpressLRS Configurator), select:

Device Category	Radiomaster 2.4Ghz
Device	RadioMaster ER6G (newer versions of the configurator may list it as *RadioMaster ER6-G 2.4GHz Diversity+6xPWM RX*)

※ The RF module in your radio and the receiver must run compatible ExpressLRS firmware versions.

6.2 ExpressLRS guides

Official ExpressLRS documentation – binding, configuration, firmware updates and troubleshooting: www.expresslrs.org

7. Troubleshooting and maintenance

Problem	Possible solution
The receiver does not bind	Check that the receiver is in bind mode (LED double blinks). With bind phrase binding, check that the receiver and the radio have exactly the same bind phrase. Check that the firmware versions are compatible.
The LED blinks rapidly and the receiver does not respond	The receiver has entered WiFi mode. Switch on the radio and restart the receiver.
Servos do not respond	Check the power supply on channels CH1–CH5, the connector polarity, the Switch Mode setting and the channel mapping.
Telemetry voltage is incorrect	Calibrate the RxBt sensor (chapter 4.3). Check the EXT-V wire connection.
Short range	Check the antennas (damage, kinks, routing near carbon and metal) and the power setting.

Maintenance

- Regularly check the antennas, UFL connectors and solder joints.
- Keep the receiver dry and clean; do not clean it with solvents.
- After a crash, check the receiver and the antennas and perform a range test before further use.

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 (ER6G) is printed on the top side of the receiver; the installed firmware version can be found in the receiver's web interface (WiFi mode).

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.