RadioMaster Bandit

ExpressLRS 868/915 MHz RF Module
User Manual



Read the entire manual before first use. Never switch the module on without an antenna attached. Before use in the EU, select the EU868 regulatory domain (Chapter 3.2).

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1. Safety instructions

1.1 Before you start

The RadioMaster Bandit RF module is intended for radio remote control of RC models (drones, aircraft, vehicles) using the ExpressLRS system. This product is not a toy and must be kept out of the reach of children. Read this entire manual before first use and keep it for future reference.

- **Never transmit without an antenna attached.** Always connect the antenna before switching the module on – operating without an antenna may damage the RF stage.
- While transmitting, keep the antenna **at least 20 cm away from people**. This distance is stated in the radio certification documents of the module (FCC).
- Use only the antennas supplied by the manufacturer or antennas specified by the manufacturer for this module. Do not connect any additional RF amplifiers.
- Do not cover the module and do not obstruct the airflow through the air vents and the fan. The aluminium case acts as a heat sink and may become noticeably warm at higher power.
- Connect external power to the XT30 connector only within the range of **DC 6–16.8 V** and observe the correct polarity.
- Do not expose the module to water, moisture, dust or direct sunlight in a closed car. Do not open the case or tamper with the electronics.

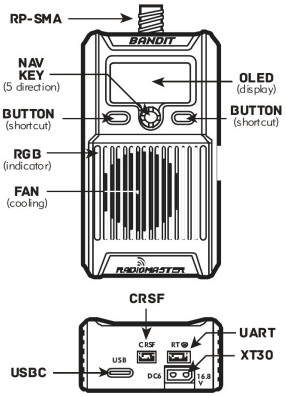
1.2 Safe operation of the model

- Before each use, check that the model is linked to the radio system and responds correctly to all commands.
- Before the first flight, set up and test the **failsafe** – the behaviour of the model when the signal is lost (for a drone, typically motor stop).
- **Never change the module settings in flight.** Changing the packet rate forces a disconnect between the module and the receiver. Change parameters only when the model is disarmed (Disarm, motors off).
- When the model is armed (Arm, motors on), the buttons and the navigation key of the module are locked to prevent unintended changes of settings.
- The user is responsible for operating the model in accordance with the regulations and for the choice of regulatory domain and transmit power (Chapter 3).

2. Product description

Featuring an OLED display, a directional menu key and two assignable shortcut keys, the RadioMaster Bandit is an external ExpressLRS RF module for the 900 MHz band that can be configured directly, without a Lua script. It is built with a rugged CNC machined aluminium case that aids the high-efficiency cooling system as a heat sink. The module features a built-in ExpressLRS Backpack, WiFi and Bluetooth, an accelerometer and RGB LEDs.

2.1 Parts



Front and bottom of the module (manufacturer's drawing)

Label	Meaning
RP-SMA	antenna connector
OLED	display
NAV KEY	5-direction navigation key (up, down, left, right, press)
BUTTON	two shortcut buttons with assignable function (Chapter 5.2)
RGB	RGB LED – status indication (Chapter 5.5)
FAN	cooling fan
USBC	USB-C connector for connection to a computer (firmware update, Chapter 5.6)
CRSF	connector for the supplied Futaba CRSF cable (Chapter 4.3)
UART	RT connector for the supplied UART cable
XT30	external power input DC 6–16.8 V (Chapter 4.4)

The back carries the connector for the module bay adapter and the holes for its mounting screws. The air vents are on the top. A removable clear plastic cover is included.

2.2 Specifications

Parameter	Value
Manufacturer	Shenzhen Radiomaster Co., Ltd, China (www.radiomasterrc.com)
Factory Regulatory Domain	FCC915 – change before use in the EU (Chapter 3.2)
MCU	ESP32 (main), ESP8285 (aux, as ESP backpack)
RF chip	SEMTECH SX1276
Packet rate (min./max.)	25 Hz / 200 Hz
Module bay adapters	Micro (JR) – standard 5-pin socket; Nano – standard 8-pin socket
Display	OLED 64 × 128 px
WiFi and Bluetooth	yes
Accelerometer (G-sensor)	yes
RGB light strip	yes
XT30 power supply voltage	DC 6–16.8 V
Antenna connector	RP-SMA
Weight	172 g with Moxon antenna 150 g with T antenna 126 g without antenna
Dimensions	95 × 51 × 25 mm (without antenna)
Pre-installed firmware	ExpressLRS, target RadioMaster Bandit 900MHz TX
Power levels (per ExpressLRS)	100 mW, 250 mW, 500 mW, 1000 mW

The power levels are taken from the hardware definition of the module in the ExpressLRS project. The available settings depend on the firmware and the selected regulatory domain.

▶ Antennas included (manufacturer's data)

Antenna	Type	Band	Gain
Moxon	directional, beam width 145° (−3 dB)	860–930 MHz	4.6 dBi
T antenna	omnidirectional	860–930 MHz	2.7 dBi

2.3 Package contents

- 1× Bandit ExpressLRS RF Module

- 1× Moxon antenna, 1× T antenna
- 1× Micro (JR) adapter, 1× Nano adapter
- 1× Futaba CRSF socket cable, 1× UART cable
- 1× removable clear plastic cover
- 1× 1.55 mm Allen key, 6× M2 × 6 screws, 1× manufacturer's manual

※ The package does **not** include a radio (transmitter handset), a receiver or a battery for external power.

3. Radio frequencies and operating conditions

3.1 The law of the country of operation applies

The rules for the use of radio frequencies are based on European Union legislation, but the specific permitted bands, maximum transmit power and other conditions are set by each country. The information in this chapter describes the situation in the Czech Republic. **In any other country, follow the regulations of the country in which you use the module.**

3.2 Regulatory Domain

The regulatory domain determines the frequency range used by the ExpressLRS firmware in the 900 MHz band. The manufacturer states that the module is set to the **FCC915** domain at the factory (903.5–926.9 MHz according to the ExpressLRS firmware, intended for the USA).

The FCC915 domain uses frequencies that are not permitted for this type of equipment in the Czech Republic. Before first use in the EU, check and set the EU868 regulatory domain.

The regulatory domain is selected in ExpressLRS Configurator (*Regulatory Domain*) when flashing the firmware (Chapter 5.6). The module and the receiver must use the same regulatory domain, otherwise they will not connect.

3.3 Frequency bands and transmit power

Radio section	Frequency band	Power
ExpressLRS, EU868 domain	863.275–869.575 MHz	adjustable 100–1000 mW (Max Power)
WiFi and Bluetooth	2400–2483.5 MHz	see EU declaration of conformity (from the importer, Ch. 8)

In the Czech Republic, the general authorisations of the Czech Telecommunication Office (ČTÚ) **VO-R/10** (VO-R/10/05.2025-5, effective from 15 June 2025) and **VO-R/12** (VO-R/12/11.2021-11) apply; current versions at www.ctu.gov.cz:

Band	Max. power	Conditions
863–870 MHz	25 mW e.r.p.	duty cycle 0.1 % or 1 % depending on the sub-band, or a spectrum access technique
869.40–869.65 MHz	500 mW e.r.p.	duty cycle 10 %, or a spectrum access technique; limited channel width
2400–2483.5 MHz	100 mW e.i.r.p.	VO-R/12

- The lowest power level of the module (100 mW) is higher than the 25 mW limit for most of the 863–870 MHz band. **The user is responsible for settings that comply with the regulations of the country of operation.**

4. Installation and connection

4.1 Antennas

Screw the antenna onto the RP-SMA connector by hand, without tools, always **before switching the module on**.

- The **T antenna** is omnidirectional and suitable for general use.
- The **Moxon antenna** is directional and provides increased link quality and stability in its direction. Point it towards the area in which the model operates.
- According to the manufacturer, both antennas can be used in vertical or horizontal polarisation.

4.2 Adapter and installation in the module bay

① Choose the adapter that matches the module bay of your radio: **Micro (JR)** for a JR bay, **Nano** for a Nano (Lite) bay.

② Attach the adapter to the back of the module with the supplied M2 screws using the 1.55 mm Allen key. Do not overtighten the screws.

③ Switch the radio off and slide the module with the adapter into the bay until it clicks into place.

④ On an EdgeTX radio, set the external module to the **CRSF** protocol in *Model Setup*. The ExpressLRS documentation states a bus speed of up to 3.75 Mbaud for the Bandit; select the highest rate your radio supports.

⑤ Switch the radio on. When the module starts, its status appears on the display.

4.3 Futaba radios – CRSF cable

The module can be connected to Futaba radios whose firmware supports the CRSF function. Procedure according to the manufacturer:

① Please make sure your Futaba radio firmware supports the CRSF function (information and software are available from Futaba).

② Follow the Futaba manual to set the *servo test* port to CRSF.

③ Connect the Bandit to the radio with the supplied Futaba CRSF cable.

④ Connect a 2S–4S LiPo battery to the Bandit via the XT30 connector.

4.4 External power – XT30

The XT30 connector is used for external power of the module, for example when it is connected by cable without a module bay. The supply voltage must be within **DC 6–16.8 V** – this corresponds to a 2S–4S LiPo battery. A fully charged LiPo cell has 4.20 V, so a fully charged 4S pack has 16.8 V. A 4S LiHV pack (4.35 V/cell) has 17.4 V when charged and would exceed the upper limit of the supply voltage – do not use it.

5. Operation and settings

The module is supplied with ExpressLRS firmware pre-installed. Functions and menu item names may differ between firmware versions. The information in this chapter is based on the documentation of the ExpressLRS project.

5.1 Display and navigation key

Action	Function
long press of the centre or long press right (on the home screen)	opens the main menu
up / down (on the home screen)	shows link statistics (LQ, RSSI, SNR)
up / down (in the menu)	previous / next item
press or right	enter the item, confirm the value
left	back one level

The main menu contains the items *Packet Rate, Switch Mode, TX Power* (*Max Power, Dynamic Power*), *Telem Ratio, BLE Gamepad, Bind Mode, WiFi Admin* and *VTX Admin*. Without further input, the menu closes automatically after approx. 20 s. When the model is armed, the navigation key and the shortcut buttons are locked.

5.2 Shortcut buttons

The function of both shortcut buttons and the colour of their illumination are set in the web interface of the module on the *Buttons* tab (Chapter 5.6). According to the ExpressLRS documentation, the following actions can be assigned (exact names may differ depending on the firmware version):

- *None / Unused* – the button has no function,
- *Increase Power* – increases the transmit power by one step,
- *Go to VTX Band Menu / Go to VTX Channel Menu* – goes directly to the band / channel menu of the video transmitter (VTX),
- *Send VTX Settings* – sends the VTX settings,
- *Start WiFi* – switches on the WiFi of the module,
- *Enter Binding Mode / Send Bind Command* – starts binding,
- *Start BLE Joystick* – switches on the Bluetooth joystick (Chapter 5.7).

5.3 Link settings

- **Packet Rate** – for the 900 MHz band, the modes 25 Hz, 50 Hz, 100 Hz, 100 Hz Full, 200 Hz and D50 are available. A higher rate means lower latency but lower sensitivity and range.
- **Telem Ratio** – telemetry ratio (*Off*, 1:128 to 1:2, *Std*, *Race*). *Race* works like *Std* but disables telemetry while armed.

- **Max Power** – the maximum power at which the module transmits (Chapter 3.3).
- **Dynamic Power** – power control according to link quality. The function requires telemetry; if no telemetry is received while armed, the power is raised to the configured maximum.
- The **fan** is controlled by the firmware; with the ExpressLRS default settings it switches on at a power of 250 mW and above.

Never change the packet rate in flight – the change forces a disconnect.

5.4 Binding to a receiver

The module binds to an ExpressLRS receiver for the 900 MHz band. The module and the receiver must have **the same first number of the firmware version** and the same regulatory domain.

▶ Binding phrase (recommended)

When flashing the firmware or in the web interface, enter the same *Binding Phrase* on the module and on the receiver – at least 8 alphanumeric characters are recommended. Devices with the same phrase connect automatically. The phrase is neither a password nor an encryption key.

▶ Traditional binding

① Power-cycle the receiver three times until its LED shows a quick double blink – the receiver is in binding mode.

② Start binding on the module – with the *Bind Mode* menu item, with a shortcut button assigned to binding or with the *[Bind]* button in the ExpressLRS Lua script.

③ When the receiver LED turns solid, the receiver is bound. The ExpressLRS Lua script shows the letter **C** (Connected) in the upper right corner.

5.5 RGB LED status indication

LED	Meaning
rainbow fade	module starting up
green heartbeat	WiFi enabled (update mode)
blue heartbeat	Bluetooth joystick enabled
one orange flash every second	no connection to the radio (handset)
solid single colour	connected to the receiver, colour indicates the packet rate
fading single colour	no connection to the receiver
red, flashing quickly	radio chip not detected – contact the retailer

Colour by packet rate: red 200 Hz, yellow-green 100 Hz Full, green 100 Hz, light blue 50 Hz, blue 25 Hz, purple D50.

5.6 Web interface and firmware update

The module is supplied with ready-to-use ExpressLRS firmware and does not need to be reflashed for normal use. In the web interface you can change the binding phrase and other parameters and upload new firmware.

▶ Connecting via WiFi

① Switch WiFi on in the module menu (*WiFi Admin*), with a shortcut button or in the ExpressLRS Lua script. The LED pulses green.

② Connect your computer or phone to the **ExpressLRS TX** network, password **expresslrs**.

③ Open **10.0.0.1** in a web browser. If you have entered your home WiFi credentials on the module, the interface is also available at http://elrs_tx.local.

▶ Firmware update

① In ExpressLRS Configurator, select the manufacturer RadioMaster, the 900 MHz band and the device **RadioMaster Bandit 900MHz TX**.

② Set the regulatory domain (*Regulatory Domain* – mandatory, **EU868** in the EU), the binding phrase and, if required, your home WiFi credentials.

③ Upload the firmware either via WiFi (on the *Update* tab of the web interface, drag the firmware.bin file into the upload field and click *Update*) or via the USB-C cable using the UART method. When connecting by cable, remove the module from the radio; if the computer does not recognise it, install the CP210x driver.

④ Do not disconnect or switch off the module during the update and wait for the success message.

※ The manufacturer states that the module is also compatible with the open-source mLRS system. Flashing firmware other than ExpressLRS changes the functions described in this manual.

5.7 Bluetooth joystick for simulators

The *BLE Gamepad* function (*BLE Joystick* in the Lua script) switches the module to Bluetooth wireless joystick mode – you can connect the radio to a computer running a simulator without a cable. The LED pulses blue in this mode. Reboot or change models to exit this mode.

5.8 Further documentation

Official documentation of the projects: www.expresslrs.org (ExpressLRS) and edgetx.org (EdgeTX). To learn more and support the ExpressLRS project, visit https://www.expresslrs.org.

6. Maintenance and storage

- Keep the air vents and the fan clean. Remove dust with a dry brush or compressed air.
- Regularly check the antenna connector and the antennas. Replace a damaged antenna.
- Clean the case with a dry or slightly damp cloth, without solvents.
- Store the module in a dry place, out of the reach of children, with the external battery disconnected. Use the supplied protective cover for transport.
- Store the battery for external power at 3.8 V/cell (2S 7.6 V, 3S 11.4 V, 4S 15.2 V).

7. Troubleshooting

Problem	Possible cause and solution
The module does not bind to the receiver	Different binding phrase, different first number of the firmware version or different regulatory domain on the module and the receiver. Align the settings (Chapters 3.2 and 5.4).
The LED flashes orange every second	The module has no connection to the radio. Check the seating of the adapter in the bay and that the external module is set to CRSF (Chapter 4.2).
The navigation key and the shortcut buttons do not respond	The model is armed – in this state the controls of the module are locked. Disarm the model.
The web interface does not open	Check that WiFi of the module is on (LED pulses green) and that you are connected to the ExpressLRS TX network. Enter the address 10.0.0.1.
The computer does not recognise the module via USB	Use a USB-C data cable and install the CP210x driver.
The module overheats	Clear the air vents, check that the fan is running and reduce the transmit power if necessary.
Short range, signal dropouts	Check the connection and orientation of the antenna and the packet rate and power settings.

If the problem persists, contact the retailer (Chapter 8.1).

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 product designation (RadioMaster Bandit) is shown on the module housing; the firmware version is displayed by the ExpressLRS web interface or the ExpressLRS Lua script.

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.