ROTORAMA

Bandit Nano

RadioMaster · ExpressLRS 868/915 MHz transmitter module

User Manual



Read the entire manual before first use. Never power on the module without the antenna attached. Observe the radio regulations of your country (Ch. 3).

www.rotorama.com

Contents

1. Safety Instructions
2. Product Description
3. Radio Frequencies and Legal Conditions
4. Installation and Power Supply
5. Setup and Binding
6. Firmware and Further Guides
7. Maintenance and Troubleshooting
8. Information for the EU and Czech Market
9. Warranty and rights arising from defective performance

1. Safety Instructions

The Bandit Nano is an RC transmitter module that controls an aircraft or drone over long distances. An error in setup or operation can lead to loss of control of the model, property damage or injury. Before first use, read this entire manual as well as the manuals of your radio and receiver.

1.1 Radio transmission and antenna

- **Never power on the module without the antenna attached.** Transmitting without an antenna can damage the module's RF circuitry.
- Use only the antenna supplied by the manufacturer or an antenna offered by the manufacturer for this module (e.g. RadioMaster Moxon). Transmit only with an antenna specified by the manufacturer and without additional amplifiers.
- The manufacturer's certification documents state that during transmission the antenna should be kept **at least 20 cm** away from the body of any person.
- Set the output power and frequency band only within the limits of the regulations of the country in which you operate the module – see Chapter 3.
- Never change the Packet Rate or output power during flight.

1.2 Power supply and heat

- Connect only a power source within the range of **6–16.8 V DC** to the XT30 connector and observe the correct polarity.
- Insert the module into the radio and remove it only with the radio switched off and the external power supply disconnected.
- The module heats up while transmitting. Do not cover the heat sink or air vents and do not obstruct the fan.
- Charge an external Li-Po battery only under supervision on a non-flammable surface, and store an undamaged battery at 3.8 V/cell. Do not use a swollen or damaged battery.

1.3 Operating environment

- Protect the module from water, moisture, dust, drops and direct sunlight in a closed car.
- Before every flight, check the link to the model and the failsafe set on the receiver or flight controller (FC).
- Do not open or modify the module. Maintenance is described in Chapter 7.

2. Product Description

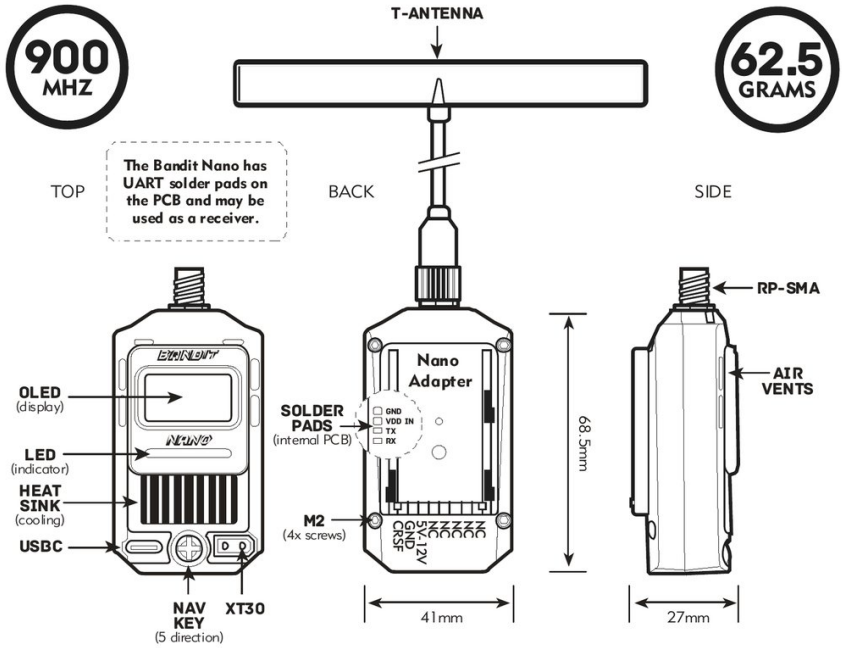
2.1 Introduction

Featuring maximum 200 Hz packet rates and an innovative convection cooling system, the Bandit Nano ExpressLRS (ELRS) module for the 868/915 MHz band represents the cutting edge in ELRS technology. The module is inserted into a radio with a **Nano** type module bay – the manufacturer lists the RadioMaster Zorro, Pocket and MT12 radios.

The included T-shape antenna is designed for general purpose flying. An optional RadioMaster Moxon antenna is available separately for directional applications.

❉ The Bandit Nano fits Nano style module bays only. For radios with JR style or micro JR (Lite) module bays, the manufacturer offers the Bandit and Bandit Micro modules.

2.2 Parts description



Front view (TOP), rear view (BACK) and side view (SIDE). Labels are taken from the manufacturer's original.

Label	Meaning
T-ANTENNA	T-shape antenna (900 MHz), included
RP-SMA	antenna connector

Label	Meaning
OLED (display)	display for settings and module status
LED (indicator)	status indicator
HEAT SINK (cooling)	heat sink
AIR VENTS	air vents
USBC	USB-C connector
NAV KEY (5 direction)	5-way navigation key
XT30	external power connector 6–16.8 V DC
Nano Adapter	connector for the Nano bay (8 pins)
CRSF, GND, 5V-12V, NC	connector pins: CRSF signal, ground, 5–12 V power from the radio, not connected
SOLDER PADS (internal PCB)	UART solder pads on the internal PCB: GND, VDD IN, TX, RX
M2 (4x screws)	4 M2 housing screws

2.3 Specifications

Manufacturer, model	RadioMaster Bandit Nano ExpressLRS RF Module
Factory regulatory domain	FCC915 (can be changed in firmware, see Ch. 6.1)
MCU	ESP32 (main) ESP8285 (aux, as ESP backpack)
RF chip	SEMTECH SX1276
Refresh rate min/max	25 Hz / 200 Hz
Radio connector	Nano standard, 8 pins
Display	OLED, built-in
XT30 power supply voltage	6–16.8 V DC
Weight	62.5 g (with antenna)
Dimensions	68.5 × 41 × 27 mm (without antenna)
Antenna connector	RP-SMA
Pre-installed firmware	ExpressLRS, target *RadioMaster Bandit Nano 900MHz TX*
Wireless interface	WiFi and Bluetooth

Frequency bands and output power are given in Chapter 3.2.

2.4 Features

- packet rates up to 200 Hz
- optimized circuitry for ultra-low power consumption
- built-in TCXO oscillator
- low noise, high comfort
- high contrast OLED display and 5-directional nav key
- innovative convection cooling design with built-in fan
- WiFi and Bluetooth support, built-in ExpressLRS backpack
- 915/868 MHz T antenna included

2.5 Package contents



Bandit Nano module and T-shape antenna

- 1× Bandit Nano module
- 1× 900 MHz T-antenna
- 1× manufacturer's manual

Not included: radio, receiver, external battery and USB-C cable.

3. Radio Frequencies and Legal Conditions

3.1 The law of the country of operation applies

Directive 2014/53/EU (RED) applies in all member states of the European Union, but the conditions for the use of radio frequencies – permitted bands, maximum output power and duty cycles – are set by each state individually. The information in this chapter describes the situation in the Czech Republic. If you operate the module in another country, you must comply with the regulations of the state in which you operate it.

3.2 Frequency bands and output power

The frequency band is determined by the regulatory domain of the ExpressLRS firmware. Source: ExpressLRS project.

Domain	Frequency range	Note
FCC915	903.5–926.9 MHz	factory setting
EU868	863.275–869.575 MHz	selectable in firmware

Selectable output power: **100 / 250 / 500 / 1000 mW**, default 100 mW, maximum 1000 mW.

The stated power values are transmitter output (conducted) power, not radiated power e.r.p.

3.3 Operating conditions in the Czech Republic

The use of frequencies by short range devices is governed by the general authorisation of the Czech Telecommunication Office **No. VO-R/10/05.2025-5** (effective from 15 June 2025). For non-specific short range devices, which include remote control, it sets out in the **863–870 MHz** band in particular:

- a maximum radiated power of **25 mW e.r.p.** and a duty cycle of 0.1 % (or 1 %), unless the device uses spectrum access and mitigation techniques,
- operation only with an antenna specified by the manufacturer and without additional amplifiers,
- the device must not be electrically or mechanically modified, must not cause interference and is not entitled to protection from interference.

The 902–928 MHz band used by the FCC915 domain is not listed for this purpose in this general authorisation. Therefore, do not use the FCC915 domain in the Czech Republic.

❖ The lowest output power offered by the firmware is 100 mW (conducted). The user is responsible for compliance with the general authorisation or the rules of the country of operation (www.ctu.cz).

4. Installation and Power Supply

4.1 Attaching the antenna

Screw the T-shape antenna onto the module's RP-SMA connector by hand. Tighten the nut by hand only, without tools. Always attach the antenna **before** switching on the radio.

4.2 Inserting the module into the radio

① Switch off the radio.

② If the bay is covered, remove the cover.

③ Slide the module with its Nano connector into the bay so that the pins engage and the module sits firmly.

④ Switch on the radio and configure the module according to Chapter 5.

4.3 Power supply

The module is powered from the radio via the **5V-12V** pin of the Nano connector. The **XT30** connector allows power from an external source in the range of **6–16.8 V DC**. Connect an external source with the correct polarity and only within the stated voltage range.

4.4 Module controls

- **OLED display and 5-way key** – configuration directly on the module, without the Lua script in the radio.
- **LED** – status indicator.
- **USB-C** – connection to a computer for firmware updates.
- **Fan and air vents** – cooling of the module during transmission.

5. Setup and Binding

5.1 Model setup in EdgeTX

① In *Model Setup*, switch off the internal RF module (*Internal RF* → *OFF*).

② Set the external RF module (*External RF*) to **CRSF** mode.

③ Set the *Baudrate* to **400K** – according to the ExpressLRS project it is sufficient for packet rates up to 250 Hz and works with most radios.

5.2 ExpressLRS Lua script

Download the ExpressLRS Lua script as described at expresslrs.org and copy it to the radio's SD card into the *SCRIPTS/TOOLS* folder. Run it from *SYS* → *Tools* → *ExpressLRS*. Among other things, the script lets you set:

- *Packet Rate* – link rate,
- *Max Power* and *Dynamic* – maximum and dynamic output power (see Chapter 3),
- *WiFi Connectivity* – enabling WiFi for firmware updates,
- *Bind* – binding to a receiver.

5.3 Binding to a receiver

The module and receiver bind if they have the **same regulatory domain**, compatible firmware versions (the first number of the version must match) and either the same **binding phrase**, or if they are bound using the *Bind* button.

▶ Binding with a binding phrase

The binding phrase is any password that you set when flashing the firmware (ExpressLRS Configurator or WiFi) to both the module and the receiver. With a matching phrase the devices bind automatically after power-up.

▶ Binding without a binding phrase

① Power cycle the receiver three times in a row; it will enter binding mode.

② In the ExpressLRS Lua script, select *Bind*.

③ A solid receiver LED indicates successful binding.

5.4 Before flight

- Check that the antenna is firmly tightened and undamaged.
- Check the link: stick movements must be correctly reflected in the flight controller (FC) or on the servos.
- Check the failsafe: after switching off the radio, the model must go into a safe state (Disarm, motor off).
- Check the set output power and regulatory domain according to Chapter 3.

6. Firmware and Further Guides

6.1 Regulatory domain and flashing the firmware

The regulatory domain is selected when building the firmware in **ExpressLRS Configurator**. Select the target *RadioMaster Bandit Nano 900MHz TX*, set the domain (for Europe *EU868*), optionally a binding phrase, and flash the firmware. The receiver must use the same domain. The firmware can be flashed via WiFi or via the serial interface (UART).

6.2 Updating via WiFi

① In the Lua script, select *WiFi Connectivity → Enable WiFi*.

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

③ Open **http://10.0.0.1/** in a browser and upload the firmware file (.bin).

④ Do not disconnect the module or switch off the radio during the update.

6.3 Other uses

The manufacturer states that the module has UART solder pads on the internal PCB and may also be used as a receiver, and that it is compatible with alternative firmware from the Meshtastic and mLRS projects. These uses require intervention in the PCB or different firmware and are not covered by this manual.

6.4 Further guides

Official documentation:

EdgeTX
edgetx.org

ExpressLRS
www.expresslrs.org

We wish to thank the ExpressLRS team for their support and testing during the development of the Bandit series (manufacturer's note).

7. Maintenance and Troubleshooting

7.1 Maintenance and storage

- Keep the air vents and heat sink clean; remove dust with a dry brush or compressed air.
- Check the antenna and the RP-SMA connector – replace a damaged antenna.
- Check the pins of the Nano connector; bent or dirty pins can cause dropouts.
- Store in a dry place, without the external battery, with the antenna attached.

7.2 Troubleshooting

Problem	Cause and solution
The radio does not detect the module, the Lua script does not load	External RF is not set to CRSF or the internal module is on – see 5.1. Check that the module is seated properly in the bay.
The receiver does not bind	Different binding phrase, regulatory domain or major firmware version on module and receiver – align them according to 5.3 and 6.1.
Short range, link dropouts	Loose or damaged antenna, low output power, unsuitable receiver antenna position.
The module overheats	Covered air vents or a non-working fan. Clean the vents and let the module cool down.
WiFi update fails	The device is not connected to the ExpressLRS TX network or a file for a different target was selected – use the RadioMaster Bandit Nano 900MHz TX target.

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 (Bandit Nano) is given on the product; the firmware version is shown by 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.