ROTORAMA

NOMAD

ExpressLRS Gemini Xrossband transmitter module
2× LR1121 · 2.4 GHz / 868 MHz



Never power on the module without both antennas connected. Use only the settings and output power permitted in the country of operation.

User manual · www.rotorama.com

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1. Safety instructions

1.1 Before you start

- Read the entire manual before first use and keep it. If you pass the module on, hand over this manual too.
- The product is intended for persons **aged 14 and over**. It is not a toy.
- The module is a radio transmitter. Use it only in the bands, with the settings and with the output power permitted in the country of operation (see chapter 3).
- Do not open or modify the module. Interference with the electronics or housing voids the warranty.

1.2 Antennas and transmission

- **Never power on the module without both antennas connected.** Transmitting without an antenna can permanently damage the transmitter.
- Do not connect or disconnect the antennas while the module is running, and do not touch them during operation.
- Do not use the module near medical devices (e.g. pacemakers), on aircraft or wherever radio equipment is prohibited.
- The user is responsible for setting the regulatory domain, mode and output power.

1.3 Power supply and heat

- The module is normally **powered from the RC radio** through the external module bay, even at the highest output power.
- The contact pins on the back of the adapter are used **exclusively for powering the module from the RC radio** and for connecting to it. Do not connect any other voltage source to them.
- The optional external power supply via the XT30 connector is rated for **DC 6–16.8 V**. A higher voltage will damage the module. Observe the correct polarity.
- The module has active cooling. Do not cover the ventilation openings.
- The housing heats up at high output power; handle it with care after prolonged use.
- Charge and store the external power battery according to its manual; never leave it connected unattended.

1.4 Operating environment

- Protect the module from moisture, rain, dust, sand and direct sunlight.
- Do not switch on a damp module; let it dry thoroughly first.
- Protect the module from impacts and drops, especially the antenna connectors.

2. Product description

RadioMaster Nomad is an external ExpressLRS transmitter module with twin dual-band Semtech LR1121 transceivers. It supports **ELRS Gemini** in the 2.4 GHz and 868/900 MHz bands and the **Gemini Xrossband** mode, in which one transceiver operates in the 2.4 GHz band and the other in the 868/900 MHz band. The module slides into the external module bay of the radio.

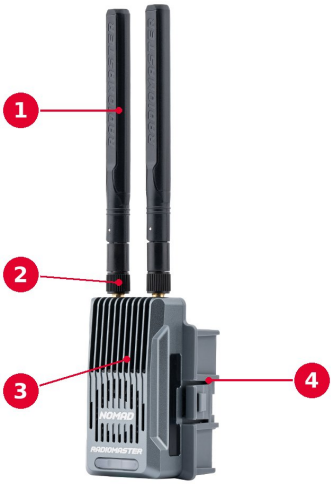
2.1 Package contents

- 1× Nomad Dual 1-watt Gemini Xrossband ExpressLRS Module with Micro adapter fitted
- 2× dual-band 2.4 GHz / 915 MHz antennas
- 1× Nano adapter
- 1× manual card



Package contents (illustrative photo)

2.2 Parts overview



Nomad module with adapter fitted



Connectors on the underside of the module

No.	part
①	dual-band antennas (2 pcs)
②	antenna connectors
③	module body with cooling system
④	module bay adapter (Micro or Nano), fixed with 3 M2×5 screws
⑤	XT30 connector for optional external power DC 6–16.8 V
⑥	USB-C connector

2.3 Features

- Twin dual-band 1 W transceivers
- Experience unmatched reliability with dual-band ELRS Gemini Xrossband
- ELRS Gemini 2.4 GHz
- ELRS Gemini 868/900 MHz
- Powerful cooling system – with dual 1-watt transceivers, the Nomad boasts serious power, complemented by an advanced cooling system to keep your module cool even on the hottest days

2.4 Specifications

Data as stated by the manufacturer on the module's manual card.

parameter	value
Item	Nomad Dual Band Module with Micro Adapter
Regulatory domain	ISM 2.4 GHz, FCC915 MHz
MCU	ESP32 (main), ESP32-C3 (aux, as ESP backpack)
RF chip	Semtech LR1121 × 2
RF	Dual 1000 mW, dual-band Gemini ELRS
Frequency range	2400–2479 MHz / 903–927 MHz
Maximum packet rate	500 Hz
Minimum receiver refresh rate	50 Hz
RF output power	1000 mW × 2
Module bay adapters	Micro (standard 5-pin socket), Nano (standard 8-pin socket)
Wi-Fi support	yes
Bluetooth support	yes
RGB light	built-in RGB light strip
XT30 power supply voltage	DC 6–16.8 V
Weight	87.20 g (with antennas) / 71.10 g (without antennas)
Dimensions	80 × 45 × 40 mm (without antennas)

※ The frequency range and output power in this table correspond to the FCC915 regulatory domain. Parameters verified for the EU market are given in chapter 2.5.

2.5 Radio parameters according to the EU certificate

According to the EU-type examination certificate under Directive 2014/53/EU (RED), issued by notified body No. 3052, the module transmits in the EU in the following bands with this maximum measured output power:

function	frequency band	max. power
ELRS 2.4 GHz	2402.4–2479.4 MHz	18.81 dBm e.i.r.p.
ELRS 868 MHz (LoRa)	863.8–868.9 MHz	10.87 dBm e.r.p.
Wi-Fi	2412–2472 MHz	15.95 dBm e.i.r.p.
Bluetooth	2402–2480 MHz	4.70 dBm e.i.r.p.

The module complies with ETSI EN 300 328, EN 300 220-1, EN 300 220-2, EN 301 489-1, -3 and -17, EN IEC 62311 and EN IEC 62368-1.

3. Radio frequencies and output power

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 using radio frequencies – permitted bands, maximum output power and duty cycle limits – are set by national regulations and differ from country to country. 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 country in which you operate it.

3.2 Conditions in the Czech Republic

In the Czech Republic, the operation of short-range radio devices is governed by the general authorisations of the Czech Telecommunication Office (ČTÚ). The following applies to the bands in which the module transmits:

band	max. power	regulation and conditions
863–870 MHz	25 mW e.r.p.	VO-R/10/05.2025-5, Art. 3 – non-specific short-range devices; transmission with a spectrum access technique according to harmonised standards, or with a limited duty cycle
2400–2483.5 MHz	100 mW e.i.r.p.	VO-R/12/11.2021-11 – wideband data transmission systems

The e.r.p. and e.i.r.p. values include the antenna gain. The module can transmit with up to 1000 mW, which **exceeds the limits permitted in the Czech Republic many times over**. The user is responsible for setting the regulatory domain and output power.

Do not use output power above the limits applicable in the country of operation. Operation with unauthorised power is a breach of electronic communications regulations.

3.3 Recommended settings for operation in the EU

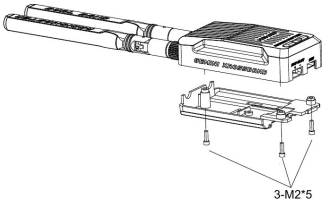
- Set the firmware of both module and receiver to the **EU868** regulatory domain for the 868 MHz band and use a build with the **EU_CE_2400** option (EU LBT) for the 2.4 GHz band.
- With the EU_CE_2400 option, the module checks channel occupancy in the 2.4 GHz band before transmitting (LBT – Listen Before Talk) and limits the output power to a maximum of 25 mW in the 868 MHz band and 100 mW in the 2.4 GHz band.
- Module and receiver must have the **same regulatory domain**, otherwise they will not bind.
- Set the output power within the limits of the country of operation (ELRS Lua script, *TX Power*).

4. Installation in the radio

4.1 Choosing the adapter

The module is supplied with the **Micro** adapter (standard 5-pin socket) fitted for a JR-standard module bay. For radios with a **Nano** module bay (standard 8-pin socket), the package includes a Nano adapter.

4.2 Changing the adapter



The adapter is fixed to the module with three M2×5 screws

① Disconnect the module from the radio and from any external power supply.

② Remove the three M2×5 screws and take off the adapter.

③ Fit the other adapter and secure it with the same three screws. Tighten the screws gently.

4.3 Connecting the antennas and inserting the module

① With the radio switched off, screw both dual-band antennas onto the module.

② Slide the module into the module bay of the radio until the adapter is fully seated and locked.

③ Switch on the radio.

4.4 EdgeTX radio settings

- In the model settings, set *Internal RF* to **Off** – even on radios with a built-in ELRS module.
- Set *External RF* to the **CRSF** protocol.
- Choose the *Baudrate* according to the packet rate: 400K up to 250 Hz, 921K up to 500 Hz (if supported by the radio). Then check in the ELRS Lua script that the module is detected.

4.5 Power supply

The module is powered from the radio's module bay, even at the highest output power. In addition, the underside of the module has an XT30 connector for optional external power **DC 6–16.8 V**. When using it, observe the correct polarity and do not exceed the stated voltage.

5. Binding with a receiver

The Nomad module requires ExpressLRS firmware of the 3.x series or later. First make sure that your receiver also uses ExpressLRS firmware of the 3.x series or later and has the **same regulatory domain** as the module.

5.1 Bind by radio Lua

① Enter the ELRS Lua script on the radio.

② Re-power your ELRS receiver 3 times to put it into bind mode (LED double blink).

③ Press *Bind* in the Lua menu.

5.2 Bind with Binding Phrase

The module and receiver can also be bound by entering the same *Binding Phrase* into the firmware of both devices. Learn more in the ExpressLRS documentation: www.expresslrs.org/quick-start/binding.

5.3 ExpressLRS documentation

Official ExpressLRS documentation – binding, regulatory domains, output power settings, packet rate and firmware updates.

www.expresslrs.org

6. Settings and operation

6.1 Gemini and Gemini Xrossband modes

- **Gemini** – every packet is transmitted simultaneously on two different frequencies within one band. This increases the link's resistance to interference; it does not increase range.
- **Gemini Xrossband** – the module transmits simultaneously in the 2.4 GHz and the 868/900 MHz band. Select the packet rate *X100 Full* or *X150*.
- In Xrossband modes, antenna ANT1 transmits in the 868/900 MHz band and antenna ANT2 in the 2.4 GHz band; the *Antenna Mode* option is locked to Gemini.
- Xrossband mode requires a receiver that supports Gemini Xrossband (GemX). Single-band ELRS receivers can be used with the module in the other modes.

6.2 Firmware update via Wi-Fi

① Power on the module – in the radio or via the external XT30 power supply.

② After approximately 60 s the module enters Wi-Fi mode and the LED starts breathing slowly in green.

③ Connect to the Wi-Fi network **ExpressLRS TX** (password *expresslrs*) and open **http://10.0.0.1** in your browser.

④ Upload the firmware file on the *Update* tab. The regulatory domain for the 868/900 MHz band can be set on the *Options* tab.

EU LBT mode for the 2.4 GHz band is set with the EU_CE_2400 option when building the firmware (ExpressLRS Configurator / Web Flasher), not on the Options tab.

7. Maintenance and troubleshooting

7.1 Maintenance and storage

- After use, disconnect the module from power and check the antennas and their connectors.
- Keep the ventilation openings clean; remove dust with a dry brush or compressed air.
- Do not clean the module with water or solvents.
- Store in a dry place at room temperature, out of the reach of children. Store the battery for external power disconnected.

7.2 Troubleshooting

problem	possible cause and solution
Module will not bind	The receiver is not in bind mode, has a different regulatory domain or an incompatible firmware version. Match the domain and firmware series and repeat the procedure in chapter 5.
ELRS Lua script does not detect the module	The external module is not enabled in the radio or does not use the CRSF protocol. Check the model settings (chapter 4.4) and that the module is fully seated in the bay.
Short range, dropouts	Check the connection and condition of the antennas, the output power setting and the mode. Route the receiver antennas away from carbon and metal parts.
Module overheats	Covered ventilation openings or high output power in hot weather. Clear the airflow, reduce the output power.
Xrossband does not connect	The receiver does not support Gemini Xrossband or has a different regulatory domain. Use a GemX receiver with the same domain.

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 (NOMAD) is given on the module housing and on the packaging.

Simplified EU declaration of conformity: Shenzhen RadioMaster Co., Ltd hereby declares that the radio equipment type NOMAD (transmitter module) is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available from the importer at info@rotorama.cz.

Manufacturer: Shenzhen RadioMaster Co., Ltd, 4F Yangtian Building, Xin'an Street, Bao'an District, Shenzhen, Guangdong, 518101, China.

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. 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.