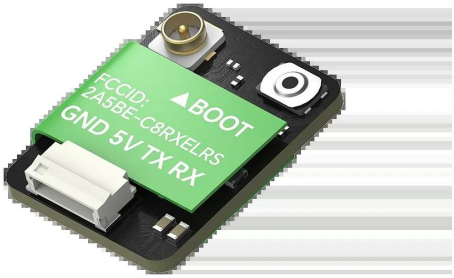
ELRS Nano 2.4G T

iFlight – ExpressLRS 2.4 GHz receiver
with T antenna (40 mm / 70 mm)



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

Rotorama, s.r.o. · www.rotorama.com

Contents

1. Safety instructions
2. Product description
3. Radio frequencies and operation in the Czech Republic and the EU
4. Installation
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

1.1 Before you start

- The receiver is a component intended for installation in an RC model or FPV drone. Installation and setup should be carried out by a user with basic soldering skills and knowledge of flight controller configuration.
- The product is not a toy. Keep it out of the reach of children – small parts may be swallowed.
- Disconnect the flight battery before any work on the model's electronics.
- **Remove the propellers** for all setup and bench testing. Once the receiver is bound, the model may respond to radio commands and the motors may spin up unexpectedly.

1.2 Electrical installation

- Power the receiver **only with 5 V** from the 5 V output of the flight controller. Connecting it directly to the flight battery voltage will destroy the receiver.
- Follow the wiring in Chapter 4.2. Reversed power (5V and GND) may damage the receiver permanently.
- After soldering, check for short circuits between adjacent pads and remove any flux residue.
- Power up for the first time after installation with the propellers removed. If the receiver LED does not light up after power is applied, disconnect power immediately and check the wiring.
- Protect the receiver from moisture, water and conductive dust (e.g. carbon dust from a carbon frame).

1.3 Operating a radio device

- The receiver is a radio device – in addition to receiving commands, it also transmits telemetry back to the radio. Operate it only with the supplied antenna or an antenna specified by the manufacturer.
- Select the regulatory domain in the firmware that matches the country of operation (Chapter 3.3).
- Check the link and the failsafe setup before every flight (Chapter 5.5). A model without a working failsafe may fly away or cause damage after signal loss.

2. Product description

2.1 What the receiver is for

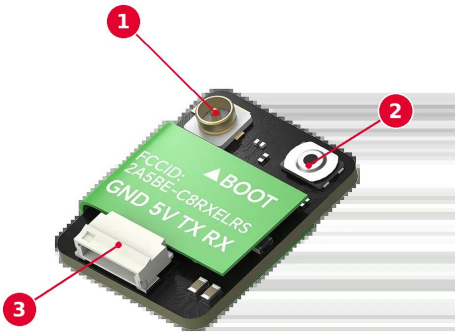
The iFlight ELRS Nano 2.4G T is a miniature receiver for the open-source **ExpressLRS (ELRS)** RC system in the 2.4 GHz band. It receives commands from a radio equipped with an ExpressLRS 2.4 GHz transmitter module and passes them to the flight controller (FC) using the **CRSF** protocol. It sends telemetry (e.g. signal strength or battery voltage) back to the radio.

With its dimensions of 10 × 13 mm and a weight of 0.5 g, it is intended mainly for smaller drones – the manufacturer recommends it for drones below 5". The receiver uses a temperature-compensated crystal oscillator (TCXO) for a stable frequency. The “T” version is supplied with a T-shaped dipole antenna.

2.2 Package contents and versions

Package contents	1× ELRS Nano 2.4G receiver 1× T antenna (dipole) with IPEX connector 1× connection cable
Versions	**40 mm** or **70 mm** – T antenna cable length; the receiver is the same in both versions
Not included	radio with an ExpressLRS 2.4 GHz module, flight controller (FC), USB–UART adapter, flight battery

2.3 Parts description



Top side of the receiver

① **IPEX antenna connector** – connection of the T antenna.

② **BOOT button** – bootloader for updating via UART; with current firmware also switches to binding mode (Chapter 5.3).

③ **SUR0.8 connector** – cable connection to the flight controller; the pin order GND, 5V, TX, RX is marked on the label.



Bottom side – RX, TX, 5V, GND solder pads

The **RX, TX, 5V and GND solder pads** on the bottom side allow wires to be soldered directly instead of using the cable with connector.

2.4 Technical data

Parameter	Value
Product designation	ELRS Nano 2.4GHz (iFlight)
System / firmware	ExpressLRS, target *iFlight 2.4GHz Nano RX*
Frequency band	2.4 GHz ISM
Telemetry power	12.3 dBm (17 mW)
Protocol to FC	CRSF
Interface	RX, TX, 5V, GND
Connectors	SUR0.8 (to FC), solder pads, IPEX (antenna)
Supply voltage	5 V
Oscillator	TCXO
Dimensions	10 × 13 mm
Weight	0.5 g
Antenna	T dipole, 40 mm or 70 mm cable
Manufacturer	iFlight Intelligent Technology Ltd., F6, Building B2, Galaxy IMC, Beixin Road, No. 6, Zhongkai Avenue, Huizhou 516006, Guangdong, China; support@iflight.com

3. Radio frequencies and operation in the Czech Republic and the EU

3.1 The law of the country of operation applies

Radio equipment and the operation of unmanned aircraft are governed by European Union regulations, but national implementing rules differ from country to country – permitted frequency bands, maximum transmit power, operator registration, geographical zones and mandatory insurance. The information in this chapter describes the situation in the Czech Republic. **If you operate the model in another country, you must comply with the regulations of the country in which you operate it.**

The operation of the drone in which the receiver is installed is subject to Regulation (EU) 2019/947 and the rules of the Civil Aviation Authority of the Czech Republic (ÚCL). The pilot is responsible for complying with the operating rules.

3.2 Frequency band and transmit power

Frequency band	2.4 GHz ISM
Max. transmit power of the receiver (telemetry)	12.3 dBm (17 mW) – manufacturer's data

In the Czech Republic, operation in the 2400–2483.5 MHz band is governed by the general authorisations of the Czech Telecommunication Office (ČTÚ):

Band	Limit	Regulation
2400–2483.5 MHz	25 mW e.i.r.p.	VO-R/10 (short-range devices), Art. 3(j)
2400–2483.5 MHz	100 mW e.i.r.p.	VO-R/12 (wideband data transmission)

The device may only be operated with an antenna specified by the manufacturer and without additional amplifiers. The user is responsible for the setup and operation of the entire RC system (including the output power of the transmitter module in the radio). Current text of the general authorisations: ctu.gov.cz/vseobecna-opravneni.

3.3 Regulatory domain in the firmware

When building the firmware in the ExpressLRS Configurator, you must select the **regulatory domain** (*Regulatory Domain*) according to the country of operation. For the 2.4 GHz band, ExpressLRS offers the *ISM_2400* and *EU_CE_2400* domains; according to the ExpressLRS project, the EU domains comply with the LBT (Listen Before Talk) requirement. In EU countries use **EU_CE_2400**. The receiver and the transmitter module must use the same domain, otherwise they will not connect.

4. Installation

4.1 What else you need

- a radio with an **ExpressLRS 2.4 GHz** transmitter module (internal or external),
- a flight controller (FC) with a free full serial port (UART) and a 5 V output,
- a computer with an FC configurator (e.g. Betaflight Configurator) and the ExpressLRS Configurator,
- depending on the connection method, soldering equipment; for updating via UART, a USB–UART adapter.

4.2 Connecting to the flight controller (FC)

Connect the receiver to any free UART of the flight controller. The signal wires are **crossed** – receiver TX to the FC RX pad and receiver RX to the FC TX pad of the same UART.

Receiver	Flight controller (FC)
GND	GND (ground)
5V	5 V (or 4.5 V)
TX	RX pad of the selected UART (e.g. R2)
RX	TX pad of the same UART (e.g. T2)

- The pin order is marked on the label as **GND 5V TX RX** for the connector and as **RX TX 5V GND** for the solder pads. Before connecting the cable, always check the wire colours and order against the diagram of your flight controller.
- Avoid UARTs that the FC manufacturer reserves for SBUS receivers. They often have a pull-down resistor on the RX input, which can put an ESP-based receiver into the bootloader at power-up (the LED then stays solid).
- With digital FPV systems connected to the FC with all wires, disconnect the SBUS/DJI HDL wire if it conflicts with the receiver UART.
- Do not cover the receiver with heat shrink until you have verified that it works (Chapter 4.4). The heat shrink must not press permanently on the BOOT button.

4.3 Antenna placement

- Connect the antenna to the IPEX connector by pressing it straight down until it clicks. The connector is fragile – do not pull on the antenna cable and secure it against being torn off (e.g. with tape or a cable tie).
- According to the manufacturer, place the antenna **away from conductive or magnetic components** – carbon, metal and motors.
- Route the active ends of the T dipole out of the frame so that they are not covered by carbon plates, and protect them from the propellers.

4.4 First power-up and LED check

With the propellers removed, connect the flight battery (or power the FC via USB if its 5 V output powers the receiver). The receiver LED should **blink slowly (500 ms)** – the receiver is waiting for a connection with the transmitter module. If the LED does not light up, disconnect power immediately and check the wiring. The meaning of the other LED states is given in Chapter 7.2.

If the LED stays solid even with the radio switched off, the receiver is in the bootloader. Check that nothing is pressing the BOOT button and move the receiver to another UART (Chapter 4.2).

5. Setup and binding

5.1 Flight controller setup

The setup is similar in Betaflight, INAV and other flight controller firmware. The names and locations of the options may differ between configurator versions.

① On the *Ports* tab, enable *Serial RX* on the UART to which the receiver is connected.

② On the *Receiver* tab, set *Receiver Mode* to *Serial* and *Serial Receiver Provider* to **CRSF**.

③ Enable *Telemetry* (in INAV on the *Configuration* tab).

④ Leave *RSSI Channel* and *RSSI ADC* disabled.

⑤ In the *CLI* tab, use *get serialrx* to check that *serialrx_inverted = off* and *serialrx_halfduplex = off*; if necessary, set them with the *set* command and save with *save*.

⑥ Close the configurator and unplug and replug the USB cable.

5.2 Binding with a binding phrase

Recommended method. When building the firmware in the ExpressLRS Configurator (or later in the receiver web interface), enter a **binding phrase** – the same phrase as in the transmitter module. Devices with the same phrase connect automatically without further binding. A unique phrase of at least 8 Latin letters and digits is recommended, e.g. your pilot handle. The phrase is not a password; it serves to distinguish you from other pilots.

※ The receiver and the transmitter module will only connect if they have the same major ExpressLRS firmware version (first digit of the version) and the same regulatory domain.

5.3 Traditional binding

Put the receiver into binding mode using one of these methods:

- **Power-cycle 3 times:** switch off the radio; power the receiver and, as soon as the LED lights up, disconnect power within 2 seconds. Repeat three times in total.
- **BOOT button:** with current firmware, press the button on the powered receiver for about 1.5 s.
- **FC configurator:** the *Bind Receiver* button on the *Receiver* tab in newer Betaflight versions (or the *bind_rx* command in the CLI).

The receiver LED starts double-blinking repeatedly. Switch on the radio, run the ExpressLRS Lua script and select **[Bind]**. Once bound, the LED stays solid. If a binding phrase is set in the receiver, older firmware may refuse traditional binding – in that case use the procedure in 5.2.

5.4 Link check

On the radio, open the system menu (*SYS*) → *Tools* → *ExpressLRS*. The letter **C** in the top right corner of the script means that the transmitter module and the receiver are connected. On the *Receiver* tab of the FC configurator, check that stick movements correspond to the channels. The *Model Mismatch* message (LED triple-blinks) indicates a *Model Match* mismatch – disable the function, or briefly disable and re-enable it for the current model.

5.5 Failsafe

Failsafe (behaviour on signal loss) is set in the flight controller, e.g. on the *Failsafe* tab in Betaflight. Always test it with the **propellers removed**: Arm (start the motors), switch off the radio and check that the motors stop or that the model performs the configured action. Repeat the test after every firmware or setup change.

6. Firmware and further guides

6.1 Correct firmware target

The specific firmware version of the supplied receiver may vary depending on the production batch. When flashing firmware in the ExpressLRS Configurator, select *Device Category*: **iFlight 2.4 GHz** and *Device*: **iFlight 2.4GHz Nano RX**. An incorrect target results in very poor range or failure to connect. Always set the regulatory domain (Chapter 3.3) and the binding phrase (Chapter 5.2).

6.2 Update methods

▶ Via the flight controller (Betaflight Passthrough)

The receiver stays connected to the FC. Close the FC configurator, disconnect the battery and replug the USB. In the ExpressLRS Configurator, select the *BetaflightPassthrough* method and click *Flash*. If the receiver is not powered via USB, connect the battery and make sure the video transmitter (VTX) is cooled.

▶ Via WiFi

In the ExpressLRS Configurator, select the *WiFi* method and click *Build*; this creates the file *firmware.bin.gz* (do not unzip it). Switch the receiver to WiFi mode – power it up without a connection to the radio and wait about 60 s, or use *WiFi Connectivity → Enable RX WiFi* in the Lua script. Connect to the **ExpressLRS RX** network (password **expresslrs**), open the address **10.0.0.1** in a browser and upload the firmware file on the *Update* tab.

▶ Via a USB–UART adapter

Disconnect the receiver from the FC and connect it to a USB–UART adapter (again TX–RX crossed). Hold the **BOOT** button, plug the adapter into USB and release the button – the LED must stay solid. In the ExpressLRS Configurator, select the *UART* method and click *Flash*.

After a successful update the LED returns to slow blinking. If the WiFi update reports insufficient space (*Not Enough Space*), use the Passthrough or UART method.

6.3 Further guides

Detailed and up-to-date procedures can be found on the official project websites:

- ExpressLRS – www.expresslrs.org (receiver setup, binding, firmware update),
- EdgeTX – edgetx.org (radio operation, models, Lua scripts).

7. Maintenance and troubleshooting

7.1 Maintenance and storage

- After a crash, check the antenna, the IPEX connector and the solder joints. Replace a damaged antenna – a damaged antenna significantly reduces range.
- Keep the receiver dry and clean; remove dirt with a dry brush.
- Store in a dry place at room temperature, away from direct sunlight.

7.2 LED indication

LED	Status
solid on	connected to the transmitter, or bootloader
double blink, then pause	binding mode
slow blink (500 ms)	waiting for connection from the transmitter
triple blink, then pause	connected, but *Model Match* mismatch
blinking 100 ms	radio chip not detected
fast blinking (25 ms)	WiFi mode

Indication according to the ExpressLRS project documentation for receivers with a single-colour LED.

7.3 Troubleshooting

Problem	Cause and solution
LED does not light up	No 5 V supply or incorrect wiring. Disconnect power immediately and check the GND and 5V wires.
LED solid even without the radio	The receiver is in the bootloader. Check that the BOOT button is not pressed; move the receiver to another UART (FC RX input with a pull-down resistor).
Cannot bind	Different binding phrase, regulatory domain or major firmware version between the module and the receiver. Align the settings and firmware.
Connected, but the FC does not respond	Check the TX/RX crossing, *Serial RX* on the correct UART, the CRSF protocol and *serialrx_inverted/halfduplex = off*.
Short range, dropouts	Wrong firmware target, damaged or poorly placed antenna (covered by carbon, near motors), loose IPEX connector.
LED triple-blinks	Model Match mismatch – adjust the setting in the Lua script (Chapter 5.4).

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 (ELRS Nano 2.4GHz) is given on the receiver label; the firmware version can be checked in the ExpressLRS Lua script on the radio or in the receiver web interface.

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.