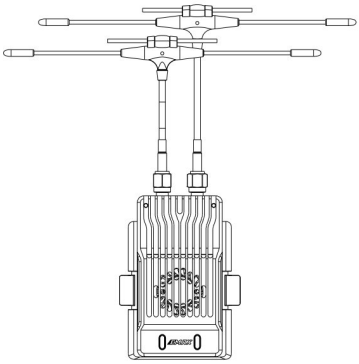
Aeris Link Dual

ExpressLRS TX 1000mW · JR Dual-Band TX Module
2.4 GHz + 868/915 MHz · Gemini / X-Band



Read the entire manual before first use, especially chapters 1, 3 and 4. Never power on the module without the antennas installed. Operate the 868/915 MHz band only in accordance with the regulations of the country of operation – in the Czech Republic in the EU868 domain; the 902–928 MHz band (FCC915) is not permitted in the Czech Republic.

Translation of the original manufacturer's manual · Rotorama, s.r.o. · www.rotorama.com

Contents

1. Safety Precautions

2. Product Overview

3. Legal Requirements in CZ and the EU

3.1 The law of the country of operation applies

3.2 Radio frequencies and output power

3.3 Operating a model aircraft

4. Installation and Power

4.1 Installing the antennas

4.2 Installing the module in the radio

4.3 External power input (XT30)

5. Configuration

5.1 CRSF protocol setup

5.2 ExpressLRS LUA script

5.3 Selecting the operating mode

5.4 LUA script parameters

5.5 WiFi and firmware updates

6. Binding and Operation

6.1 Binding the receiver

6.2 Configuring receiver parameters

6.3 RGB indicators

6.4 Pre-flight check

7. Maintenance and Troubleshooting

8. Information for the EU and Czech Market

9. Warranty and rights arising from defective performance

1. Safety Precautions

Before you start

- Read this entire manual before first use and keep it for future reference. If you pass the product on to another person, include this manual.
- This product is intended for persons aged 14 and over. It is not a toy.
- Assemble and operate this product according to the instructions in this manual. Do not disassemble or modify the product, or use parts and accessories outside the specified configuration.
- Avoid dropping or striking the product, as this may cause a malfunction. Do not use a damaged transmitter module; doing so may cause a short circuit or fire.
- Do not immerse this product in water. Do not use it in adverse conditions such as strong winds, rain, lightning or snow, or in a strong electromagnetic environment.

Antennas, power and cooling

- **Before powering on, always install both supplied dual-band T antennas.** Otherwise, the PA chip may be damaged.
- External power via the XT30 connector must stay within **DC 5–26 V (2–6S)**. Higher voltage may damage the module's internal power-management chip (chapter 4.3).
- When using high output power, supply power through the external XT30 input – the radio may not provide sufficient power.
- Do not block the air intake or cooling exhaust, as this may cause overheating.
- Observe the correct polarity. When handling Li-Po and Li-ion batteries, follow their manufacturer's instructions and never charge them unattended.

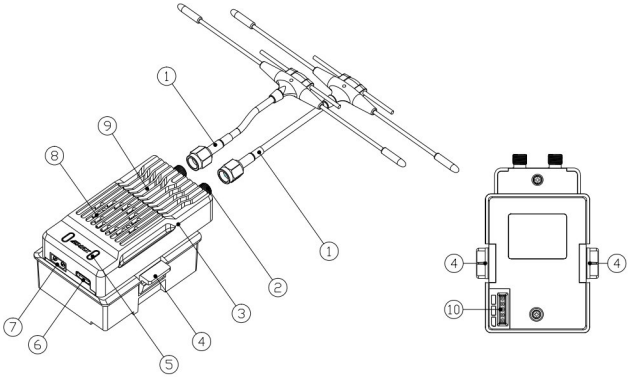
Pilot and operation

- Do not use this product after consuming alcohol or drugs, while affected by medication or anesthesia, or when dizzy, fatigued or mentally impaired. If you feel unwell during use, stop immediately and resume only with a physician's approval. Avoid prolonged use.
- Before every flight, check the link to the model and the failsafe setting (chapter 6.4).
- Set the frequency band and output power in accordance with the regulations of the country in which you operate the model (chapter 3).

2. Product Overview

The **Aeris Link Dual ExpressLRS TX 1000mW** (JR Dual-Band TX Module) is a dual-band transmitter module for radios with a standard 5-pin JR bay. It is developed from the open-source ExpressLRS project, which offers long range, stable links, low latency, high packet rates and flexible configuration.

The module accepts Crossfire Serial Data Protocol (CRSF) signals from the radio and is configured with the ExpressLRS LUA script. It has two RF outputs with dual-band antennas and three operating modes: both antennas at 2.4 GHz, both antennas at 868/915 MHz, or one antenna in each band (X-Band). Output power is adjustable from 10 to 1000 mW. The aluminum housing acts as a heat sink; the module also offers WiFi, Bluetooth, an ESP32-C3 auxiliary MCU for the ELRS Backpack, a Type-C port for firmware flashing and an XT30 external power input.



Product overview (right: rear view)

①	Dual-band T antenna (SMA-J, internal thread/male pin)
②	Antenna SMA connector (SMA-KY, external thread/female contact)
③	Aluminum heat-sink housing
④	Installation/quick-release latch
⑤	Indicator – RGB LED
⑥	Type-C port (firmware flashing)
⑦	External power input (XT30)
⑧	Air intake
⑨	Cooling exhaust
⑩	Standard 5-pin JR bay connector

2.1 Product Specifications

Model	Aeris Link Dual ExpressLRS TX 1000mW (JR Dual-Band TX Module)
Radio interface	Standard 5-pin JR bay connector
Support	Crossfire Serial Data Protocol (CRSF), OpenTX / EdgeTX radios
RF bands	ISM 2.4 GHz (2400–2480 MHz) / FCC 915 MHz (860–960 MHz); in the Czech Republic 868 MHz only (chapter 3.2)
MCU	ESP32-PICO-D4 (main), ESP32-C3 (Backpack)
Firmware	ExpressLRS, target EMAX LR1121
RF power	dual output; adjustable 10 / 25 / 50 / 100 / 250 / 500 / 1000 mW, 50 mW default; limited in the EU (chapter 3.2)
Packet rate 2.4 GHz	50 Hz, 100 Hz Full, 150 Hz, 250 Hz, 333 Hz Full, 500 Hz, DK250, DK500
Packet rate 915 MHz	D50 Hz, 25 Hz, 50 Hz Full, 100 Hz, 100 Hz Full, 200 Hz, 200 Hz Full, 250 Hz
Packet rate X-Band	100 Hz Full, 150 Hz
Operating modes	2.4 GHz Gemini · 915 MHz Gemini · X-Band (2.4 GHz + 915 MHz)
SMA port	SMA-KY (external thread/female contact)
T antenna	2× 2.4 GHz & 915 MHz dual-band T antenna, connector SMA-J (internal thread/male pin)
WiFi / Bluetooth	yes / yes
LED indicator	2× RGB LED
USB port	Type-C (firmware flashing)
External power input	XT30 connector, DC 5–26 V (2–6S)
Size	81 × 55 × 40 mm (excluding antennas)
Weight	approx. 70 g (excluding antennas)
Manufacturer	EMAX YINYAN MODEL LTD. www.emaxmodel.com · www.emax-usa.com (updates and technical support)

2.2 Package Contents

- Aeris Link Dual ExpressLRS TX 1000mW transmitter module – 1×
- Dual-band T antenna – 2×
- Manual website card and ELRS warning card – 1×

3. Legal Requirements in CZ and the EU

3.1 The law of the country of operation applies

Radio equipment and model aircraft are governed by EU law (Directive 2014/53/EU, Regulation (EU) 2019/947), but national rules differ – bands and power levels, registration, pilot age, zones and insurance. This chapter describes the situation in the Czech Republic. In another country, follow the regulations of the country in which you fly.

3.2 Radio frequencies and output power

The module transmits in the **2400–2480 MHz** and **860–960 MHz** bands with adjustable output power of up to **1000 mW** (manufacturer's data). The module's WiFi and Bluetooth operate in the 2.4 GHz band. The following limits apply in the Czech Republic:

Band	Limit in the Czech Republic	Regulation
2400–2483.5 MHz	100 mW e.i.r.p. (FHSS)	VO-R/12/11.2021-11
863–870 MHz	25 mW e.r.p., limited duty cycle	VO-R/10/05.2025-5
902–928 MHz (FCC915, AU915)	operation not permitted	mobile networks and GSM-R railway network

- In the EU, the module must run firmware with the **EU_CE_2400** (2.4 GHz) and **EU_868** (sub-GHz) regulatory domains; the receiver must use the same domain. Do not use FCC915, AU915 or IN866 in the Czech Republic.
- EU-domain firmware limits output power to **100 mW** at 2.4 GHz and to **25 mW** whenever the 868 MHz band is used (including X-Band). Limits apply to radiated power incl. antenna gain; the user is responsible for the power setting.
- The module may be supplied with firmware for another market (e.g. FCC915). The LUA script shows the domain on the firmware version line at the bottom of the menu (chapter 5.5).

3.3 Operating a model aircraft

Model aircraft and drones are unmanned aircraft under Regulation (EU) 2019/947; the Czech authority is the ÚCL, www.caa.gov.cz. Basic rules of the open category:

- Operators of a model weighing 250 g or more, or equipped with a camera, must register (in the Czech Republic at dron.caa.gov.cz) and display the registration number on the model.
- Fly within visual line of sight, max. 120 m above ground and never over assemblies of people; with FPV goggles, an observer must stand next to the pilot.
- Model clubs and associations may fly under an ÚCL authorisation (Article 16 of the Regulation). We recommend liability insurance.

4. Installation and Power

4.1 Installing the antennas

Before powering on the dual-band transmitter module, screw both supplied dual-band T antennas ① onto the module's SMA connectors ②. Tighten the connectors by hand only, without tools. Both antennas are dual-band, so either connector can be used in all operating modes.

IMPORTANT: Never power on the module without the antennas installed – otherwise, the PA chip may be damaged! Connect and disconnect the antennas only with the module switched off and use only the antennas supplied by the manufacturer.

4.2 Installing the module in the radio

① Switch off the radio.

② Slide the module into the JR bay at the back of the radio so that the 5-pin connector ⑩ engages with the bay connector and both latches ④ click into place.

③ Check that the module is held firmly in the bay. To remove it, press both latches ④ and pull the module out.

4.3 External power input (XT30)

At lower output power, the module is powered by the radio through the JR bay. When using high output power, connect an external battery to the **XT30** input ⑦ – otherwise, the radio may not provide sufficient power. The permitted voltage range is **DC 5–26 V (2–6S)**.

Battery	Fully charged	XT30 input (max. 26 V)
2S Li-Po / LiHV	8.4 V / 8.7 V	OK
4S Li-Po / LiHV	16.8 V / 17.4 V	OK
6S Li-Po	25.2 V	OK
6S LiHV	26.1 V	**exceeds – do not use**

IMPORTANT: Do not exceed 26 V – higher voltage may damage the module's internal power-management chip! Observe the correct polarity and disconnect the battery after use.

5. Configuration

5.1 CRSF protocol setup

The module accepts Crossfire Serial Data Protocol (CRSF) signals by default, so a radio capable of CRSF output is required. The following procedure uses a RadioMaster TX16S running OpenTX as an example; radios with EdgeTX are set up in a similar way.

① Install the module in the radio (chapter 4.2), power it on and open the *MODEL SETUP* screen.

② Set *Internal RF Mode* to *OFF* and *External RF Mode* to *CRSF*.

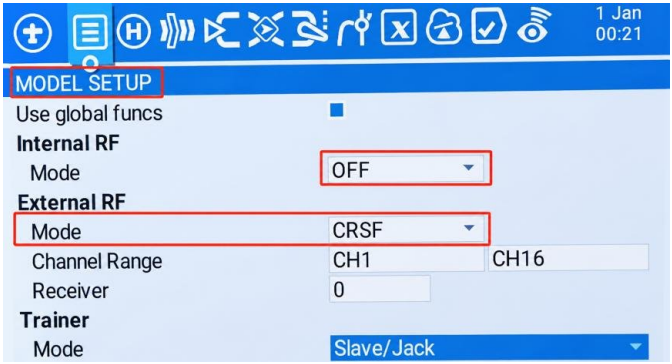


Fig. 1 – Internal RF OFF, External RF CRSF

5.2 ExpressLRS LUA script

The module is configured with the ExpressLRS LUA script (usually named *elrs.lua*), which is included in the official ExpressLRS firmware package. Always download the latest version.

① Copy the script to the radio's SD card – for EdgeTX / OpenTX 2.3+, use */SCRIPTS/TOOLS/* in the SD card root directory.

② From the radio system menu, open *Tools*. Select the *ELRS* or *ExpressLRS* script icon to launch the LUA script.

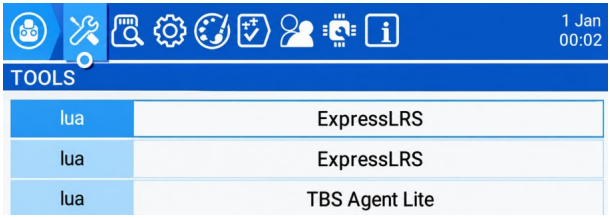


Fig. 2 – launching the LUA script from Tools

Detailed documentation of the ExpressLRS system, the LUA script and firmware updates is available on the project website www.expresslrs.org (QR code on the left).

5.3 Selecting the operating mode

The operating mode is selected in the LUA script with the *RF Band* item. In Gemini mode, both antennas transmit simultaneously.

RF Band	Mode	Antennas
2.4GHz	2.4 GHz Gemini	both antennas transmit at 2.4 GHz
915MHz	915 MHz Gemini	both antennas transmit at 868/915 MHz
X-Band	2.4 GHz & 915 MHz Gemini	one antenna transmits at 2.4 GHz and the other at 868/915 MHz



Fig. 3 – 2.4 GHz Gemini mode (RF Band 2.4GHz)

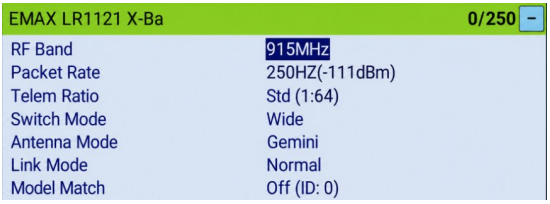


Fig. 4 – 915 MHz Gemini mode (RF Band 915MHz)

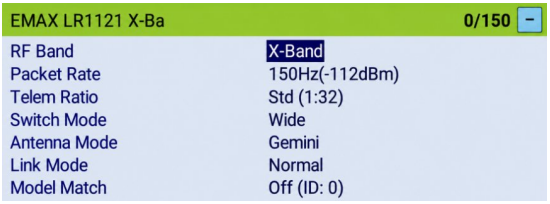


Fig. 5 – dual-band Gemini mode (RF Band X-Band)

※ Use the 868/915 MHz band only with a regulatory domain permitted in the country of operation – in the Czech Republic EU868 only (chapter 3.2).

5.4 LUA script parameters

Parameter	Description
Packet Rate	data packet rate
Telem Ratio	telemetry ratio (transmitter-to-receiver ratio)
Switch Mode	switch mode
Antenna Mode	antenna selection (multi-antenna transmitters only)
Link Mode	link mode (typically affects dynamic power/response)
Model Match	model matching (disabled by default)
TX Power	transmit power
VTX Administrator	VTX frequency management
WiFi Connectivity	WiFi connection mode (for firmware updates or web configuration)
Backpack	ELRS Backpack module settings
BLE Joystick	Bluetooth joystick mode – the radio connects via Bluetooth as a game controller, e.g. to a simulator
Bind	bind the receiver
Exit	exit the script

5.5 WiFi and firmware updates

Selecting *WiFi Connectivity* → *Enable WiFi* switches the module to web update mode – the LEDs pulse green. Connect a phone, tablet or computer to the module's WiFi network and open the ExpressLRS web interface in a browser:

WiFi network	Password	Address
ExpressLRS TX	expresslrs	http://10.0.0.1/

Firmware is flashed with **ExpressLRS Configurator** via WiFi or via the Type-C port ⑥. Observe the following:

- The manufacturer specifies the module firmware as **EMAX LR1121**. The latest firmware and update instructions are available on the manufacturer's websites (chapter 2.1).
- For operation in the Czech Republic, select the **EU_CE_2400** and **EU_868** regulatory domains (chapter 3.2). If no 900 MHz domain is selected, the program uses FCC915.
- The firmware of the module and the receivers must have the same ExpressLRS major version.
- Do not disconnect the module from power during the update.

6. Binding and Operation

6.1 Binding the receiver

The receiver must support the selected band and run ExpressLRS firmware compatible with the module, with the same regulatory domain. X-Band mode requires a Gemini X receiver (dual-band receiver with two LR1121 chips).

① Power-cycle the receiver (aircraft side) three times in succession, keeping each interval below 1.5 seconds.

② The receiver LED double-flashes to indicate binding mode.

③ In the module's LUA script on the radio, select *[Bind]* to start binding.

④ When the receiver LED remains solid, the radio and receiver are successfully bound.

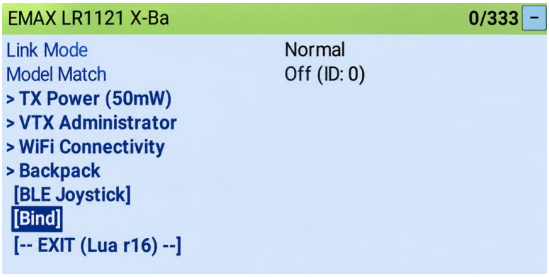


Fig. 6 – the [Bind] item in the LUA script

6.2 Configuring receiver parameters

The parameters of a bound receiver can be configured directly from the LUA script – shown here with the EMAX C3 LR1121 receiver:

① Select *Other Devices* to open the receiver list.

② Select the receiver (here *EMAX C3 LR1121 R*) to open the receiver menu.

③ Configure receiver parameters, such as receiver power.

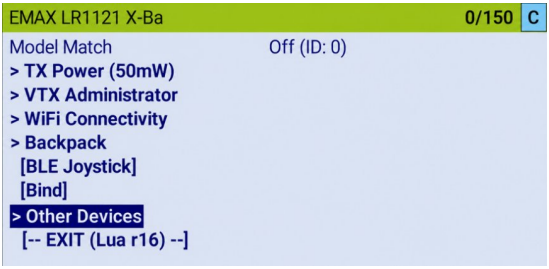


Fig. 7 – the Other Devices item



Fig. 8 – receiver list

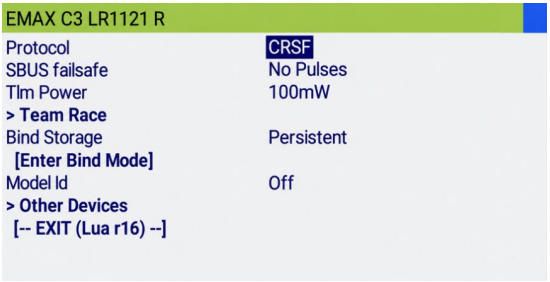


Fig. 9 – receiver menu

6.3 RGB indicators

The module has two identical RGB indicators ⑤:

LED	Meaning
rainbow fade	starting up
green breathing/pulsing	web update mode (WiFi)
rapid red flashing	RF chip not detected
orange flash once per second	not connected to the radio
solid single color	connected to the RX receiver; color indicates the packet rate
breathing/fading single color	module operating but not connected to the RX receiver

6.4 Pre-flight check

- Check that both antennas are firmly attached and undamaged and that the module is held firmly in the bay.
- At higher output power, connect an external battery (chapter 4.3) and check its voltage.
- Check that the module LEDs are solid – the link to the receiver is established.
- Check the output power and band against the regulations of the country of operation (chapter 3.2).
- Check the failsafe: with the model secured and the propellers removed, switch off the radio and check that the model behaves according to the failsafe setting.
- Check that the model responds correctly to all controls.

7. Maintenance and Troubleshooting

7.1 Maintenance and storage

- Keep the module dry and clean and keep the air intake and cooling exhaust free. Do not clean it with solvents.
- Regularly check the antenna connectors, antennas, the bay connector and the XT30 connector.
- Store the module in a dry place at room temperature, with the battery disconnected.
- Update the firmware only with the correct device selected and with the regulatory domain permitted in the country of operation (chapter 5.5).

7.2 Troubleshooting

Problem	Possible cause and solution
Orange LED flashes once per second	The module is not connected to the radio – check its seating in the bay and the External RF CRSF setting (chapter 5.1).
Rapid red LED flashing	RF chip not detected – do not use the module and contact your dealer.
LED breathing, receiver does not connect	The receiver is not bound or does not support the selected band; the regulatory domain or firmware version differs. Bind the receiver (chapter 6.1).
ExpressLRS script missing in Tools	Check that the script is in the /SCRIPTS/TOOLS/ folder (chapter 5.2).
Module restarts or loses link at high power	The radio does not provide sufficient power – connect external power via XT30 (chapter 4.3).
Module overheats	Clear the air intake and cooling exhaust, or reduce the output power.

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 (Aeris Link Dual ExpressLRS TX 1000mW) is shown on the product or its packaging; the firmware version and regulatory domain are displayed 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

Rights of the buyer under Czech law

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.