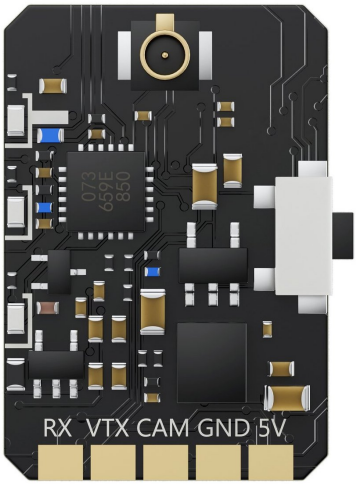
RAD Tiny

GEPRC RAD Tiny 5.8G 400mW VTX
Analogue 5.8 GHz video transmitter – user manual



Always connect the antenna before applying power. In the Czech Republic, only 25 mW and channels within 5725–5875 MHz may be used without a licence – see Chapter 3.

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1. Safety instructions

1.1 Before you start

The GEPRC RAD Tiny is an analogue 5.8 GHz video transmitter (VTX) designed to be installed in an FPV drone. Installation requires soldering and basic knowledge of electronics and of flight controller (FC) setup. Before installation, read this entire manual as well as the manuals of the flight controller and camera you are connecting the video transmitter to.

- This product is not a toy and is not intended for children.
- Only solder and connect wires with the drone battery disconnected.
- This product is radio equipment. Read Chapter 3 before switching it on for the first time – transmit power and usable channels are restricted in the Czech Republic.

1.2 Power supply and wiring

- The video transmitter is powered with **DC 5 V**. Connect it only to the 5 V output of the flight controller, never directly to the battery.
- Before applying power for the first time, check the **polarity** and the voltage on the solder pads. Reversing + and − or applying a higher voltage will destroy the video transmitter.
- Solder quickly with a suitable tip temperature; make sure the solder does not bridge adjacent pads.
- Protect the board from electrostatic discharge and conductive objects (carbon frame, screws, metal filings).

1.3 Antenna and heat dissipation

The antenna must always be connected before power is applied. Operating without an antenna may damage the video transmitter.

- Leave space around the video transmitter for air to flow. With insufficient cooling, the overheating protection activates and reduces the transmit power or switches transmission off; continuous overheating may damage the video transmitter.
- When testing on the bench, where the drone is not flying and the video transmitter is not cooled by airflow, use the lowest power or PIT mode (Chapter 5.3).

1.4 Operating environment

- Protect the product from moisture, water, dust and mechanical damage.
- Do not use the product near equipment sensitive to radio interference or where the operation of radio equipment is prohibited.

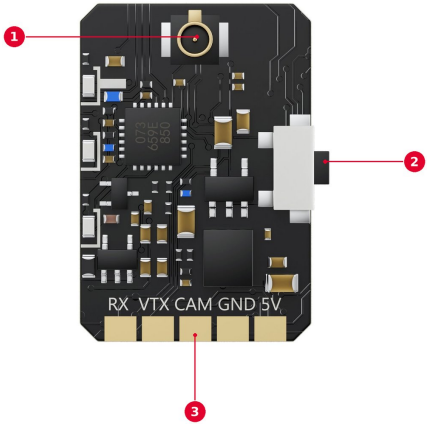
2. Product description

2.1 Package contents

- 1× GEPRC RAD Tiny 5.8G 400mW video transmitter
- 1× black 1.13 copper tube antenna (u.FL connector)
- 1× silicone cable with SH1.0 connector, 5-pin
- 1× silicone cable with SH1.0 connector, 3-pin
- 1× manufacturer's manual

The camera, flight controller, battery and FPV goggles are **not** included.

2.2 Parts overview

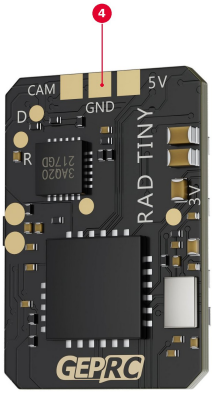


Top side of the video transmitter

① u.FL antenna connector

② Button for setting channel, band and power (on the side of the board)

③ Solder pads for connection to the flight controller: RX, VTX, CAM, GND, 5V



Bottom side of the video transmitter

④ Solder pads for connecting the camera: CAM, GND, 5V

The video transmitter has three indicator LEDs – green, blue and red – whose meaning is described in Chapter 5.1.

2.3 Specifications

Model	GEPRC RAD Tiny 5.8G 400mW VTX
Manufacturer	GEPRC, www.geprc.com, info@geprc.com
Input voltage	DC 5 V
Output voltage	5 V (camera power supply)
Video input impedance	75 Ω
Control protocol	IRC Tramp
Antenna connector	u.FL
Transmit power	25 mW / 200 mW / 400 mW / PIT mode
Number of channels	48 (bands A, B, E, F, R, L)
Frequency range	5362–5945 MHz (see table 2.4)
Video format	PAL / NTSC
Dimensions	14 × 18.5 mm
Weight	1.1 g (without antenna)

2.4 Frequency table (MHz)

Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
A	5865	5845	5825	5806	5785	5765	5745	5725
B	5733	5752	5771	5790	5809	5828	5847	5866
E	5705	5685	5665	5645	5885	5905	5925	5945
F	5740	5760	5780	5800	5820	5840	5860	5880
R	5658	5695	5732	5769	5806	5843	5880	5917
L	5362	5399	5436	5473	5510	5547	5584	5621

※ The channels that may be used in the Czech Republic without a special licence are listed in Chapter 3.2.

3. Legal requirements in the Czech Republic and the EU

3.1 The law of the country of operation applies

EU regulations apply in all member states, but national rules differ – in particular the permitted frequency bands, maximum transmit power, amateur radio conditions and drone rules. This chapter describes the situation in the Czech Republic. If you operate the product in another country, you must comply with the regulations of that country.

3.2 Frequencies and transmit power in the Czech Republic

Without a special licence, the video transmitter may be operated in the Czech Republic under general authorisation **VO-R/10** of the Czech Telecommunication Office (ČTÚ) only under these conditions:

Band	Max. power	Regulation
5725–5875 MHz	25 mW e.i.r.p.	VO-R/10, Art. 3(k)

- Set the power to **25 mW**. The 200 mW and 400 mW levels are not covered by the general authorisation.
- According to table 2.4, the following channels lie within 5725–5875 MHz: **band A** CH1–CH8, **band B** CH1–CH8, **band F** CH1–CH7 and **band R** CH3–CH6.
- Bands **E** and **L**, channel F CH8 and channels R CH1, CH2, CH7 and CH8 lie outside this band and must not be used without a special licence.
- The e.i.r.p. limit includes the antenna gain. Use the antenna supplied by the manufacturer and no additional amplifiers.

The user is responsible for the channel and power settings. Higher power and other channels require a licence (Chapter 3.3).

3.3 Higher power and other frequencies

In the Czech Republic, operation with more than 25 mW or on frequencies outside 5725–5875 MHz is only possible on the basis of a licence to use radio frequencies (Act No. 127/2005 Coll., on electronic communications). Holders of an amateur radio station licence may use the 5650–5850 MHz amateur band under the conditions of Decree No. 156/2005 Coll. Details: ČTÚ, www.ctu.cz.

3.4 Operation on a drone

A drone carrying the video transmitter is subject to Regulations (EU) 2019/945 and 2019/947 and national rules. In the Czech Republic, the operator of a drone with a camera must register with the Civil Aviation Authority (www.caa.gov.cz), the pilot needs the appropriate competency, and FPV flights require an observer.

4. Installation and wiring

4.1 Placement and cooling

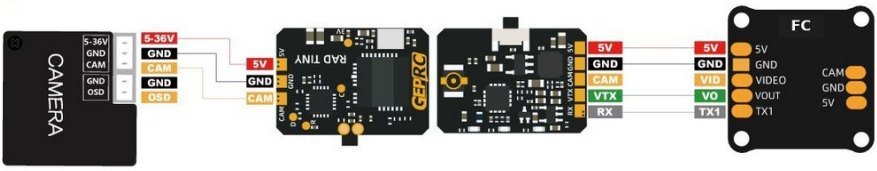
- Place the video transmitter so that air can flow around it. Do not wrap it in foam or in heat-shrink tubing without openings.
- Insulate the board from the carbon frame and other conductive parts (e.g. with double-sided tape or an insulating pad).
- If you want to set the channel and power with the button, make sure button ② remains accessible after installation.

4.2 Connecting the antenna

- Place the antenna's u.FL connector perpendicularly onto connector ① and press until it clicks. Do not disconnect it by pulling on the cable.
- Secure the antenna cable against being torn off and position the antenna as far as possible from carbon parts, motors and propellers.
- Always connect the antenna before connecting the power.

4.3 Wiring – method 1: camera connected to the video transmitter

The camera is connected to pads ④ on the bottom side of the video transmitter, which supplies it with 5 V. The video transmitter passes the camera image from its CAM pad to the flight controller (VIDEO/VID input); the image with OSD returns from the flight controller to the VTX pad.



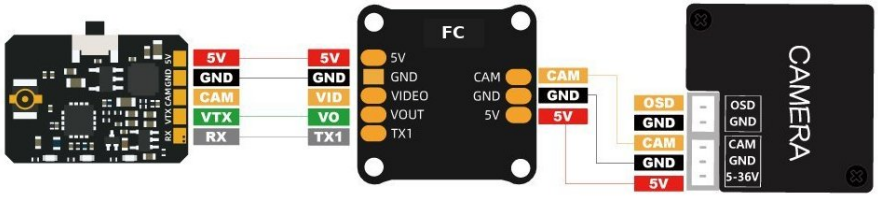
Method 1: camera → video transmitter → flight controller (FC)

VTX pad	Connection
④ 5V, GND, CAM	camera: power, ground, camera video output
③ 5V	5 V output of the flight controller
③ GND	flight controller GND
③ CAM	flight controller video input (VIDEO / VID)
③ VTX	flight controller video output (VOUT / VO)
③ RX	TX of a free flight controller UART (TX1 in the figure)

※ Only connect the camera this way if it can be powered with 5 V – check this in the camera's manual.

4.4 Wiring – method 2: camera connected to the flight controller

The camera is connected directly to the CAM, GND and 5V pads of the flight controller; pads ④ remain unconnected. The video transmitter is connected to the flight controller according to the manufacturer's diagram:



Method 2: video transmitter → flight controller (FC) ← camera

Pad labels differ between flight controllers. Always follow the pad description in the manual of your flight controller.

4.5 UART setup in Betaflight

The video transmitter is controlled with the IRC Tramp protocol via the RX pad connected to the TX pin of a flight controller UART. In the Betaflight Configurator, open the *Ports* tab and, for the UART you connected the video transmitter to, select **VTX (IRC Tramp)** in the *Peripherals* column. Save the settings with *Save and Reboot*.



Ports tab – example setting for UART1

5. Channel and power settings

5.1 Setting with the button

Button ② is used to set the channel (CH1–CH8), band (A–L) and transmit power in turn. Each mode is indicated by one of the LEDs; the number of flashes indicates the selected value.

1. **Channel** – hold the button for 2 s. The **blue** LED starts flashing. Short presses switch channels CH1–CH8; the LED flashes the number of times corresponding to the selected channel.
2. **Band** – within 5 s of selecting the channel, hold the button again for 2 s. The **green** LED starts flashing. Short presses switch bands: A (1 flash), B (2), E (3), F (4), R (5), L (6).
3. **Power** – within 5 s of selecting the band, hold the button again for 2 s. The **red** LED starts flashing. Short presses switch power: 25 mW (1 flash), 200 mW (2), 400 mW (3) and PIT mode.

※ The frequency of the selected channel can be found in table 2.4. Without a licence in the Czech Republic, only set channels and power according to Chapter 3.2.

5.2 Setting via OSD (IRC Tramp)

After wiring according to Chapter 4 and setting up the UART according to Chapter 4.5, the band, channel and power can also be changed from the flight controller – in the Betaflight OSD menu (entered with a stick combination on the radio transmitter) or in the *Video Transmitter* tab of the Betaflight Configurator.

- For this, Betaflight needs a **VTX table**. The manufacturer does not publish one for the RAD Tiny – in the *Video Transmitter* tab, enter the bands and frequencies according to table 2.4 and the power levels 25, 200 and 400 mW according to the Betaflight documentation for the IRC Tramp protocol.
- We recommend entering only the channels and power levels you are allowed to use in the country of operation into the VTX table (in the Czech Republic without a licence, according to Chapter 3.2).
- After changing the settings, check in your goggles that the image is on the expected channel.

5.3 PIT mode

PIT mode is the setting with the lowest transmit power, intended for bench work and in the pits so that the video transmitter does not interfere with other pilots and heats up less. PIT mode is selected with the button in the power setting mode (Chapter 5.1) or via the OSD. Always switch to flight power before flying.

6. Operation

6.1 Before the flight

- Check that the antenna is connected and undamaged.
- Check the set channel and power and agree on channel allocation with other pilots so that you do not interfere with each other.
- Check that the image in the goggles is clear and the OSD is displayed.

6.2 Overheating protection

The video transmitter has temperature protection. When overheated, it reduces the transmit power or switches transmission off. If the image deteriorates or drops out while the drone stands on the ground for a longer time, disconnect the battery and let the video transmitter cool down; use PIT mode for longer bench work.

7. Maintenance and troubleshooting

7.1 Maintenance and storage

- After a crash, check the antenna, the u.FL connector and the solder joints.
- Replace a damaged antenna – operating with a damaged antenna degrades the image and increases heating.
- Store in a dry place, away from direct sunlight and moisture.

7.2 Troubleshooting

Problem	Possible cause and solution
No image	Check the 5 V supply and polarity, the antenna connection, and that the channel and band match in the video transmitter and the goggles.
Image without OSD	Check the VTX ↔ VOUT / VO and CAM ↔ VIDEO / VID connections between the video transmitter and the flight controller.
Channel and power cannot be changed from the OSD	Check the RX ↔ flight controller TX connection, the VTX (IRC Tramp) setting on the correct UART and that the VTX table is filled in.
Image deteriorates or drops out when stationary	The overheating protection is activating. Ensure airflow; use PIT mode for bench work.
Short range, interference	Check the antenna and its placement, the set power and channel; choose a channel not used by another pilot.

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 (RAD Tiny) is printed on the circuit board of the video transmitter; manufacturer GEPRC (info@geprc.com).

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.