RAD MINI 5.8G 1W VTX

GEPRC – 5.8 GHz video transmitter (VTX)
User manual



Always install the antenna before power on. Use only channels and power levels permitted in the country of operation.

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1. Safety instructions

Read this entire manual carefully before the first installation and keep it for future reference. The video transmitter (VTX) is intended to be installed in an FPV drone or model by an experienced user.

Always install the antenna before power on. Operating without an antenna may permanently damage the VTX.

- When using this product, please comply with local radio laws and regulations, and use only the frequency bands, channels and output power permitted in the country of operation (see Chapter 7).
- This product will produce high temperature when working. **Do not touch it directly with your hands** to avoid scalding.
- Please ensure good ventilation and heat dissipation when using. When the environment is limited, a cooling fan can be installed for the VTX. Good heat dissipation can make the VTX run continuously under high power.
- The 5V output is only used for the camera or cooling fan. **Do not connect the power input to the 5V output port**, otherwise the VTX will be seriously damaged.
- The supply voltage must be within 7–28 V (2S–6S). Check the polarity and the wiring of all leads before connecting the battery.
- Pay attention to insulation when installing – the PCB must not touch the carbon frame or any other conductive parts.
- Longer transmission distance can be obtained by using a high-quality antenna.
- Protect the product from moisture, dust and mechanical damage. Do not open or modify the product.
- This product is not a toy. Keep it out of the reach of children.

2. Product description

2.1 Summary

RAD MINI VTX is a 1W high-power VTX developed by GEPRC. It has 4 adjustable power levels and a maximum power of 1000 mW, with a stable transmission signal, suitable for short and medium range flight to ensure image transmission quality.

RAD MINI adopts a 6061 high-strength aluminium alloy shell to assist in heat dissipation, which has stronger impact resistance and better heat dissipation. IRC Tramp protocol, OSD settings adjustment; the built-in microphone can provide real-time sound transmission. 7–28 V wide voltage input, with temperature control protection function to prevent overheating and burnout.



GEPRC RAD MINI 5.8G 1W VTX in its aluminium shell

2.2 Features

① Lightweight, high power, with a maximum power of 1000 mW, suitable for short and medium range flight to ensure image transmission quality.

② Power levels: PIT MODE / 25 mW / 200 mW / 500 mW / 1000 mW.

③ 6061 high-strength aluminium alloy shell to assist in heat dissipation, with stronger impact resistance.

④ Temperature control protection function to prevent high-temperature burnout.

⑤ Wide voltage input, supports 7–28 V.

⑥ 3 adjustable regional frequency bands to meet the needs of various regions.

⑦ IRC Tramp protocol, OSD settings adjustment.

⑧ Built-in microphone for real-time sound transmission.

⑨ One adjustment button and three indicator lights, easy to operate.

2.3 Specification

Parameter	Value
Model	GEPRC RAD MINI 5.8G 1W VTX
Input voltage	DC 7–28 V (2S–6S battery)
Output voltage	5 V / 600 mA (power 5 V to camera)
Input impedance	75 Ω
Protocol	IRC Tramp
Antenna connector	MMCX (original version) or u.FL (version from 1 March 2024)
Cable connectors	SH1.0 5pin + SH1.0 3pin
Output power	25 mW / 200 mW / 500 mW / 1000 mW / PIT MODE
Frequency bands	Universal (40 CH), US FCC (37 CH), EU (26 CH)
Video format	PAL / NTSC
Microphone	built-in
Mounting holes	20 × 20 mm
Size	30.83 × 30.83 mm
Net weight	4.7 g (with metal shell 8.4 g)

※ According to the manufacturer, the antenna connector of the VTX was changed from MMCX to u.FL on 1 March 2024, together with the connector of the supplied antenna. This manual applies to both versions; check which connector your unit has and use antennas and adapters with the matching connector.

2.4 Package contents

- 1× GEPRC RAD MINI 5.8G 1W VTX
- 1× copper tube antenna, 80 mm (connector according to the VTX version)
- 1× adapter to SMA (connector according to the VTX version)
- 1× SH1.0 5pin VTX cable (100 mm)
- 1× SH1.0 to SH1.25 camera cable (65 mm)
- 1× set of screws
- 4× nylon spacer

※ The camera, flight controller (FC), battery and cooling fan are not included.

3. Installation and connection

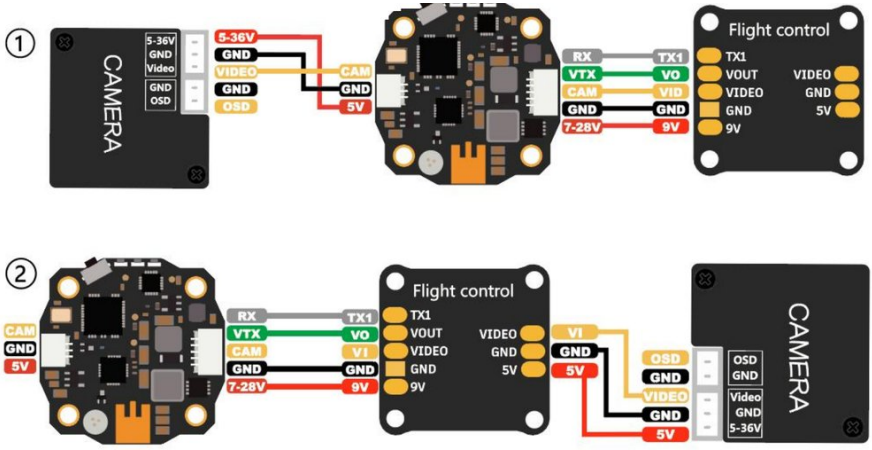
3.1 Installation

The PCB has 20 × 20 mm mounting holes with a single-hole diameter of 3.05 mm. The aluminium alloy shell can be removed and the VTX installed in a stack. The shell itself has 20 × 20 mm mounting holes with M2 thread.

- It is recommended to install the VTX at the rear of the frame where there are 20 × 20 mm holes.
- Pay attention to insulation when installing: PCB side down, padded with the four nylon spacers (included in the package).
- Install the antenna before connecting the VTX to power for the first time.

3.2 Connection diagram

The manufacturer shows two connection examples (use one of them): ① the camera is connected to the VTX, which powers it from its 5 V output; ② the camera is connected to the flight controller (FC) and the video is fed to the VTX from the VOUT output of the flight controller.



Connection examples ① and ② (Flight control = flight controller FC)

In both connections the VTX power lead (7–28V) goes to the 9V pad of the flight controller, the VTX video lead to the VO output of the flight controller and the RX lead (IRC Tramp control) to the TX of the selected UART (TX1 in the diagram).

Never connect the 5 V output to the power input – the VTX would be seriously damaged.

4. Operation

4.1 Indicator lights and button

The VTX has one function button (KEY) and three indicator lights:

LED	Meaning
blue	channel indicator
green	band indicator
red	power indicator

4.2 Regional frequency band

The blue, green and red lights flashing at the same time indicate the selected regional band:

All three lights flash	Regional band
1×	Universal
2×	US FCC
3×	EU

▶ Changing the regional band

Long press the function button for 8 seconds and then release it. The three LEDs will flash at the same time; the number of flashes represents the selected regional band (see the table above).

4.3 Setting via the flight controller (IRC Tramp)

Channel, band and power can be set from the flight controller via the IRC Tramp protocol and adjusted in the OSD. General procedure in the Betaflight Configurator:

① Connect the RX lead of the VTX to the TX of a free UART on the flight controller.

② In the *Ports* tab, set *VTX (IRC Tramp)* as the peripheral for this UART and save.

③ In the *Video Transmitter* tab, load a VTX table matching this VTX and the selected regional band.

④ Band, channel and power can then be set in the *Video Transmitter* tab or in the OSD menu.

※ The VTX table must match the frequencies in Chapter 5. Setting power and channels outside the permitted range is the user's responsibility.

5. Frequency tables

Frequencies are given in MHz according to the manufacturer's data.

5.1 Universal band

Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
1. A (BOSCAM)	5865	5845	5825	5805	5785	5765	5745	5725
2. B (BOSCAM)	5733	5752	5771	5790	5809	5828	5847	5866
3. E (BOSCAM)	5705	5685	5665	5645	5885	5905	5925	5945
4. F (FATSHARK)	5740	5760	5780	5800	5820	5840	5860	5880
5. R (RACEBAND)	5658	5695	5732	5769	5806	5843	5880	5917
6. L (LOWBAND)	5362	5399	5436	5473	5510	5547	5584	5621

5.2 US FCC band

Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
1. A (BOSCAM)	5865	5845	5825	5805	5785	5765	5745	5725
2. B (BOSCAM)	5733	5752	5771	5790	5809	5828	5847	5866
3. E (BOSCAM)	5705	5685	5665	5665	5885	5905	5905	5905
4. F (FATSHARK)	5740	5760	5780	5800	5820	5840	5860	5880
5. R (RACEBAND)	5658	5695	5732	5769	5806	5843	5880	5917

5.3 EU band

Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
1. A (BOSCAM)	5865	5845	5825	5805	5785	5765	5745	5745
2. B (BOSCAM)	5733	5752	5771	5790	5809	5828	5847	5866
3. F (FATSHARK)	5740	5760	5780	5800	5820	5840	5860	5860
4. R (RACEBAND)	5732	5732	5732	5769	5806	5843	5843	5843

※ Repeated values in the US FCC and EU bands correspond to the manufacturer's tables.

6. Temperature protection and maintenance

6.1 Temperature protection

If the VTX overheats, the temperature control protection will be activated:

- When it reaches 95 °C, it will automatically reduce the power by one level.
- If it is still higher than 95 °C, it will continue to reduce the power by one level until it reaches 25 mW.
- If it is lower than 90 °C, the VTX will automatically return to the set power.

Reduced power results in a shorter video transmission range. Therefore ensure sufficient airflow around the VTX; when operating on the ground (e.g. during setup), use a lower power or PIT MODE.

6.2 Maintenance and storage

- Regularly check the antenna mounting, the condition of the connector and the cables. Replace a damaged antenna immediately.
- After a crash, check the shell, connectors and solder joints before connecting the VTX to power again.
- Keep the product dry and clean; remove dirt with a dry brush. Do not use solvents.
- Store in a dry place at room temperature, out of the reach of children.

7. Operation of radio equipment

7.1 The law of the country of operation applies

Requirements for the operation of radio equipment are based on EU legislation, but the permitted frequency bands and maximum transmit power are set by each country individually. The information in this chapter describes the situation in the Czech Republic. If you operate the product in another country, you must comply with the regulations of the country in which you operate it.

7.2 Frequencies and power

VTX frequency range	5362–5945 MHz (depending on the selected band and channel, see Chapter 5)
Maximum output power	1000 mW (adjustable 25 / 200 / 500 / 1000 mW, PIT MODE)

In the Czech Republic, transmission without an individual authorisation is permitted in the **5725–5875 MHz** band with a maximum radiated power of **25 mW e.i.r.p.** (general authorisation of the Czech Telecommunication Office VO-R/10). Higher power and frequencies outside this band may only be used if you hold a valid individual authorisation (e.g. an amateur radio operator licence), and only within its scope.

The user is responsible for the channel and transmit power settings. Check the default power and channel after first power-up and set them in accordance with the regulations.

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:** type designation GEPRC RAD MINI 5.8G 1W VTX (manufacturer's code GP105524); the RAD MINI marking and the CE mark are shown on the aluminium shell of the transmitter.

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.