ROTORAMA

MATEN 5.8G 1.6W VTX

GEPRC – analogue video transmitter (VTX), 5.8 GHz
25–1600 mW · 72 channels · IRC Tramp · 7–36 V



Never power the transmitter without an antenna connected. Read Chapter 3 before use – in the Czech Republic, transmission without a special authorisation is permitted only up to 25 mW e.i.r.p.

User manual · www.rotorama.com

Contents

1. Safety instructions

1.1 General rules

1.2 Antenna and high transmit power

1.3 Power supply and heat

2. Product description

2.1 Package contents

2.2 Parts description

2.3 Technical data

3. Radio frequencies and legal conditions of use

3.1 The law of the country of operation applies

3.2 Frequencies and transmit power in the Czech Republic

3.3 Frequency range and maximum power of the product

3.4 Use on a drone

4. Installation

4.1 Mounting in the frame

4.2 Wiring

4.3 Antenna

5. Settings

5.1 Button control

5.2 Control from the flight controller (IRC Tramp)

5.3 Channel table

6. Operation

6.1 Before every flight

6.2 Cooling and thermal protection

6.3 Built-in microphone

7. Maintenance and troubleshooting

7.1 Maintenance and storage

7.2 Troubleshooting

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

8.2 Product conformity

8.3 Disposal of electrical equipment

9. Warranty and rights arising from defective performance

1. Safety instructions

1.1 General rules

- Read the entire manual before installation and first power-up, and keep it for future reference.
- The video transmitter (VTX) is a component designed to be built into an FPV drone or other model. Installation should be carried out by a user with basic knowledge of electronics and soldering.
- This product is not a toy. Keep it out of the reach of children – small parts (screws, nuts, standoffs) could be swallowed.
- Do not modify the transmitter in any way. Do not open the aluminium housing.
- Disconnect the drone battery before any work on the wiring.

1.2 Antenna and high transmit power

Never power the transmitter without an antenna connected. Operating without an antenna can permanently damage the transmitter.

- Always connect the antenna before connecting power to the transmitter. The warning “Install Antenna Before Use” is also printed directly on the transmitter.
- At high power, do not stay permanently in close proximity to the antenna and do not point it at people from a short distance.
- The transmitter can interfere with other devices in the 5 GHz band, including other pilots' video transmitters. When flying together, agree on channels and power with the others.
- The operator is responsible for the choice of channel, power and antenna – see Chapter 3.

1.3 Power supply and heat

- The supply voltage must be in the range of **7–36 V** (2S–8S battery). A higher voltage will destroy the transmitter.
- The **5 V** output is intended only for powering a camera or a cooling fan. **Never connect a battery or any other power source to it** – the transmitter would be seriously damaged.
- The transmitter heats up during operation; the “HOT” symbol on the housing warns of a hot surface. After prolonged operation, do not touch the housing until it has cooled down.
- Ensure a constant airflow around the transmitter. When operating on the ground or in a confined space, use a cooling fan (see Chapter 6.2).
- Pay attention to correct polarity and good insulation of all connections. A short circuit can damage the transmitter, the flight controller (FC) and the battery.

2. Product description

The GEPRC MATEN 5.8G 1.6W VTX is an analogue video transmitter for FPV drones with selectable output power of 25, 200, 600 and 1600 mW and a Pit mode. It operates on 72 channels in the 5.8 GHz band and is set either with a single button or from the flight controller via the IRC Tramp protocol. The aluminium CNC housing serves as both a heat sink and mechanical protection; the transmitter has thermal protection against overheating and a built-in microphone that transmits the sound of the drone.

2.1 Package contents

Qty	Item
1	MATEN 5.8G 1.6W VTX video transmitter
1	Antenna with MMCX connector (copper tube)
1	MMCX – SMA adapter (pigtail)
1	SH1.0 connecting cable, 6-pin
5	Screw M3 × 7
5	Screw M3 × 8
5	Hexagonal standoff M3 × 10
5	Isolation column M3 × 5
5	Nylon nut M3
1	Manufacturer's leaflet

The package does **not** include a camera, flight controller, battery or cooling fan.

2.2 Parts description



Bottom side of the transmitter



Top side (heat sink) and cable connector

① **MMCX** antenna connector (marked ANT)

② **KEY** button – manual setting of channel, band and power

③ Indicators **CHAN** (blue – channel), **BAND** (green – band), **PWR** (red – power)

④ Print with pin designations: GND, 5VOUT, IRC, VTX, GND, 7–36V

⑤ **SH1.0, 6-pin** connector for the connecting cable

2.3 Technical data

Model	MATEN 5.8G 1.6W VTX
Frequency band	5.8 GHz (5325–5945 MHz, see Chapter 5.3)
Number of channels	72 (bands A, B, E, F, R, L, U, O, H)
Output power	25 / 200 / 600 / 1600 mW, Pit mode
Input voltage	DC 7–36 V (2S–8S battery)
Power output	5 V, max. 600 mA (camera / fan)
Control protocol	IRC Tramp
Video format	PAL / NTSC
Microphone	built-in
Antenna connector	MMCX
Cable connector	SH1.0, 6-pin
Mounting holes	30.5 × 30.5 mm (M3)
Fan mounting holes	20 × 20 mm (M1.6)
Dimensions	36.4 × 36.4 × 7.9 mm
Weight	17.5 g



Transmitter dimensions (in mm)

3. Radio frequencies and legal conditions of use

3.1 The law of the country of operation applies

Directive 2014/53/EU (RED) and Regulation (EU) 2019/947 apply in all Member States of the European Union, but national regulations differ from country to country – in particular the permitted frequency bands, maximum transmit power, conditions for amateur radio operation and rules for operating drones. The information in this chapter describes the situation in the Czech Republic. **If you operate the transmitter in another country, you must comply with the regulations of the country in which you transmit.**

3.2 Frequencies and transmit power in the Czech Republic

Without an individual authorisation, a video transmitter may be operated in the Czech Republic under the general authorisation of the Czech Telecommunication Office **VO-R/10** (short-range devices) only under the following conditions:

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

- The **25 mW e.i.r.p.** limit includes the antenna gain. Without a special authorisation, use only the **25 mW** power level and the supplied antenna or an antenna without additional gain.
- The **200, 600 and 1600 mW** levels exceed this limit. You may use them only if you hold an appropriate authorisation (e.g. an amateur radio licence), within the scope and under the conditions it specifies.
- Channels **A1–A8, B1–B8, F1–F7, R3–R6 and H3–H6** fall within the 5725–5875 MHz band. Channels of bands **E, L, U and O** and the remaining channels of bands F, R and H lie outside this band and must not be used without a special authorisation.
- Choose channels at the very edge of the band (e.g. A8 – 5725 MHz) with care – the transmitted signal occupies a certain bandwidth around the set frequency.
- **The operator is responsible for the channel, power and antenna settings.** The transmitter offers higher power levels and channels that may not be used in the Czech Republic without an authorisation.

3.3 Frequency range and maximum power of the product

Frequency range	5325–5945 MHz (72 channels, see Chapter 5.3)
Maximum output power	1600 mW (manufacturer's specification)

Information on product conformity and the availability of the EU Declaration of Conformity is given in Chapter 8.2.

3.4 Use on a drone

- Operation of a drone in which the transmitter is installed is governed by Regulation (EU) 2019/947 and the national regulations of the country of operation – in particular operator registration, operational category, the 120 m height limit and the rules for flying near people.
- When flying with FPV goggles, an observer must stand next to the pilot and keep the drone in direct visual line of sight.
- Current conditions for the Czech Republic are published by the Civil Aviation Authority (www.caa.gov.cz).

4. Installation

4.1 Mounting in the frame

- The transmitter has mounting holes with **30.5 × 30.5 mm** spacing for **M3** screws and can be placed in a standard 30.5 × 30.5 mm stack.
- Use the screws, standoffs, isolation columns and nylon nuts from the package for mounting.
- Position the transmitter so that air flows around the housing. Do not cover the cooling fins with foam or tape. Keep the KEY button and the indicators accessible.

4.2 Wiring

The transmitter is connected with the SH1.0 (6-pin) connecting cable from the package. The pins are marked by the print ④ on the bottom side of the transmitter:

Pin	Function and connection
7–36V	Power supply 7–36 V (2S–8S) – to the VBAT pad of the flight controller or power distribution board
GND	Ground (the transmitter has two GND pins)
VTX	Video signal input – to the video output of the flight controller (OSD) or the camera
IRC	IRC Tramp control line – to the TX pin of a free UART of the flight controller
5VOUT	5 V output, max. 600 mA – for a camera or cooling fan only

Never connect a battery or any other power source to the 5VOUT pin. Before first power-up, check the wiring against the print on the transmitter and make sure there is no short circuit on the power supply.

- If you connect the camera directly to the transmitter (without the flight controller OSD), there will be no OSD in the image and the transmitter cannot be controlled from the flight controller – use the button for settings.

4.3 Antenna

- Connect the supplied antenna directly to the MMCX connector ①. For an SMA antenna, use the MMCX – SMA adapter and fix the SMA connector firmly to the frame.
- Fit the MMCX connector straight and without levering; the antenna can pop off in a crash – check after every crash that the antenna is still connected.
- Place the antenna as far as possible from carbon frame parts and from the antenna of the RC receiver. An antenna with gain increases the radiated power (e.i.r.p.) – see Chapter 3.2.

5. Settings

5.1 Button control

Channel, band and power can be set with the KEY button ②. The current setting mode is shown by the indicators ③: blue (CHAN) – channel, green (BAND) – band, red (PWR) – power. The number of flashes indicates the selected value.

① **Channel:** press and hold the button for **2 seconds** – the blue indicator starts flashing and the transmitter is in channel setting mode. Short presses switch between channels CH1–CH8.

② **Band:** after setting the channel, press and hold the button for 2 seconds again within **5 seconds** – the green indicator starts flashing. Short presses switch between bands.

③ **Power:** after setting the band, press and hold the button for 2 seconds again within **5 seconds** – the red indicator starts flashing. Short presses switch the power level.

Channel	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Blue flashes	1×	2×	3×	4×	5×	6×	7×	8×

Band	A	B	E	F	R	L	U	O	H
Green flashes	1×	2×	3×	4×	5×	6×	7×	8×	9×

Power	25 mW	200 mW	600 mW	1600 mW	Pit mode
Red	1×	2×	3×	4×	steady

※ In **Pit mode** the transmitter transmits only at minimum power so that it does not interfere with other pilots when powered up in the pits. Switch to a normal power level for flying.

※ If the transmitter is connected to a flight controller, the flight controller may overwrite the button settings with its stored values after power-up. In that case, set the transmitter from the flight controller (Chapter 5.2).

5.2 Control from the flight controller (IRC Tramp)

If the IRC wire is connected to the TX pin of a free UART of a flight controller running Betaflight firmware, the channel, band and power can be changed from the configurator, from the OSD menu using the radio sticks, or via a Lua script.

① In Betaflight Configurator, on the *Ports* tab, set **VTX (IRC Tramp)** in the *Peripherals* column for the respective UART and save.

② On the *CLI* tab, paste the transmitter table (vtxtable) shown below and confirm with the **save** command.

③ On the *Video Transmitter* tab, select band, channel and power and save. The same can be set in the OSD menu (*Features*).

▶ vtxtable for Betaflight (source: GEPRC)

```
vtxtable bands 8
vtxtable channels 8
vtxtable band 1 BOSCAM_A A CUSTOM 5865 5845 5825 5805 5785 5765 5745 5725
vtxtable band 2 BOSCAM_B B CUSTOM 5733 5752 5771 5790 5809 5828 5847 5866
vtxtable band 3 BOSCAM_E E CUSTOM 5705 5685 5665 5645 5885 5905 5925 5945
vtxtable band 4 FATSHARK F CUSTOM 5740 5760 5780 5800 5820 5840 5860 5880
vtxtable band 5 RACEBAND R CUSTOM 5658 5695 5732 5769 5806 5843 5880 5917
vtxtable band 6 BAND_L L CUSTOM 5362 5399 5436 5473 5510 5547 5584 5621
vtxtable band 7 BAND_U U CUSTOM 5325 5348 5366 5384 5402 5420 5436 5456
vtxtable band 8 BAND_O O CUSTOM 5474 5492 5510 5528 5546 5564 5582 5600
vtxtable powerlevels 4
vtxtable powervalues 25 200 600 1600
vtxtable powerlabels 25 200 600 1W6
save
```

Betaflight supports a maximum of 8 bands. If you want to use band H instead of band O, additionally enter in the CLI:

```
vtxtable band 8 BAND_H H CUSTOM 5653 5693 5733 5773 5813 5853 5893 5933
save
```

The current vtxtable is published by the manufacturer at:
geprc.com/electronics/vtx-table

5.3 Channel table

Frequencies of all 72 channels in MHz. Channels in the 5725–5875 MHz band, which may be used in the Czech Republic without a special authorisation (up to 25 mW e.i.r.p., see Chapter 3.2), are shown in **bold**.

Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
A	**5865**	**5845**	**5825**	**5805**	**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
U	5325	5348	5366	5384	5402	5420	5436	5456
O	5474	5492	5510	5528	5546	5564	5582	5600
H	5653	5693	**5733**	**5773**	**5813**	**5853**	5893	5933

※ Bands L, U and O operate outside the usual 5.8 GHz band. Your FPV goggles or video receiver must support them – otherwise you will not receive the image.

6. Operation

6.1 Before every flight

- Check that the antenna is connected and undamaged.
- Check the set channel and power and that they comply with the regulations of the country of operation (Chapter 3).
- When flying together, agree on channels with the other pilots; in the pits, power up the transmitter in Pit mode or at the lowest power.
- Check that the transmitter cable is not damaged or loose and does not touch the propellers.
- Make sure you have a clear image in your goggles before lifting the drone off the ground.

6.2 Cooling and thermal protection

- The aluminium housing dissipates heat; it is cooled best by the airflow during flight.
- If the transmitter runs on the ground or in a confined space for a longer time (e.g. during setup), provide good ventilation or install a cooling fan. Holes with 20 × 20 mm (M1.6) spacing are provided on the housing for a fan, which can be powered from the 5VOUT output (max. 600 mA).
- The transmitter has thermal protection that protects it from damage by overheating. If the image deteriorates or drops out during prolonged operation on the ground, let the transmitter cool down and improve cooling.
- On the ground and during setup, use the lowest possible power or Pit mode.

6.3 Built-in microphone

The transmitter has a built-in microphone and transmits the sound of the drone along with the image. You can listen to the sound in goggles or a video receiver that support audio reception and record it together with the image in the DVR recording.

7. Maintenance and troubleshooting

7.1 Maintenance and storage

- After every flight, check the antenna, the MMCX connector and the cable. Replace a damaged antenna – operating with a faulty antenna reduces range and can damage the transmitter.
- Keep the cooling fins clean; remove dust and dirt with a dry brush.
- Protect the transmitter from moisture, water and dust. After flying in damp conditions, let it dry thoroughly before powering it up again.
- Store in a dry place, away from direct sunlight and heat sources.

7.2 Troubleshooting

Problem	Possible cause and solution
No image	Check the power supply (7–36 V) and the wiring of the VTX pin. Make sure the goggles are set to the same band and channel. Bands L, U and O must be supported by the goggles.
Image without OSD	The camera is connected directly to the transmitter, not via the flight controller – route the video through the flight controller OSD.
Cannot control from FC	Check that the IRC wire is on the TX pin, that VTX (IRC Tramp) is set for the UART and that the vtxtable has been entered.
Button settings revert after power-up	The flight controller overwrites the settings with its own values – set the transmitter from the FC.
Short range, noise	Check the antenna and connector. Check the set power (is Pit mode active?). Move the antenna away from carbon.
Image drops out on the ground	Overheating – provide airflow or a fan, reduce power.
Camera does not work	Check the camera power supply. The 5VOUT output can supply max. 600 mA.

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 (MATEN 5.8G 1.6W VTX) is printed on the transmitter housing.

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.