



GTS V2 1204 8000Kv

RCinpower – brushless motor for small FPV quadcopters
User manual



Read the entire manual before installation and first start-up. Always remove the propellers when testing motors on the bench.

Contents

1. Product description

1.1 Intended use

1.2 Technical data and package contents

2. Safety instructions

3. Installation and wiring

3.1 Mounting to the frame

3.2 Connecting to the ESC

3.3 Direction of rotation

3.4 Fitting the propeller

4. Testing and operation

4.1 First start-up without propeller

4.2 Operation and batteries

5. Maintenance and troubleshooting

5.1 Maintenance

5.2 Troubleshooting

6. Information for the EU and Czech Market

6.1 Importer and responsible person in the EU

6.2 Disposal of electrical equipment

7. Warranty and rights arising from defective performance

1. Product description

1.1 Intended use

The **RCinpower GTS V2 1204 8000Kv** is a brushless outer-rotor motor (outrunner) of size 1204 – stator diameter 12 mm, stator height 4 mm. It is designed for small FPV quadcopters and lightweight toothpick-style builds. The motor drives the propeller and requires an electronic speed controller (ESC), which powers it from the flight battery.

With its speed constant of 8000 Kv, the motor is primarily intended for use with a **3S** battery and a **2"** propeller, or with a **2S** battery and a **2.5"-3"** propeller. The motor is sold individually; a quadcopter needs four motors, two spinning clockwise and two counter-clockwise. The direction of rotation is set in the ESC (Chapter 3.3).



GTS V2 1204 series motors are made in different colour versions; the colour of the supplied unit may differ from the picture.

1.2 Technical data and package contents

Parameter	Value
Manufacturer	RC-IN-POWER Co., Ltd (RCinpower)
Product designation	GTS V2 1204 8000Kv
Type	brushless outer-rotor motor
Stator size	1204 (Ø 12 mm × 4 mm)
Speed constant	8000 Kv
Configuration	9N12P
Weight	6 g
Output shaft	Ø 1.5 mm, hardened alloy steel
Frame mounting	4 × M2, bolt circle Ø 9 mm
Bearings	520ZZ (2 × 5 × 2.5 mm), Japan ISC

Parameter	Value
Magnets	N52H
Winding	single-strand oxygen-free copper wire, 200 °C insulation class
Material	aluminium alloy 7075-T6
Leads	3 × 28AWG, length 9 cm
Recommended setup	3S + 2" propeller; 2S + 2.5"-3" propeller

► Package contents

- 1× RCinpower GTS V2 1204 8000Kv motor
- 1× set of screws

► Not included

Propellers, ESC, flight controller (FC), frame, battery and charger. The price and package apply to **one** motor.

✱ The manufacturer has not published electrical data (maximum current, power, winding resistance) for the 8000 Kv version. Choose the ESC and battery according to the recommended setup above and check the motor temperature after flying (Chapter 4.2).

2. Safety instructions

- This product is **not a toy**. It is intended to be installed in a model by an experienced user. Keep it out of the reach of children.
- **A spinning propeller can cause serious injury.** Always remove the propellers during installation, soldering, configuration and bench testing. As soon as a battery is connected to the model, assume the motor can start spinning at any time.
- Never solder or change the wiring while a battery is connected.
- The motor gets hot during operation. Do not touch it after flying until it has cooled down.
- The rotor contains strong magnets that attract small metal objects (screws, filings, chips). Debris inside the motor damages the winding and bearings.
- If the propeller gets blocked (crash, grass, entanglement), **Disarm** (switch off the motors) immediately. A blocked motor under power overheats quickly and can destroy the winding and the ESC.
- Do not exceed the recommended battery and propeller setup (Chapter 1.2). A larger propeller or higher voltage overloads the motor.
- Use, charge and store LiPo batteries according to their manufacturer's instructions. Do not use a damaged, swollen or overheated battery.
- When operating the model, comply with the regulations of the country in which you fly.

3. Installation and wiring

3.1 Mounting to the frame

The motor is attached to the frame arm with four M2 screws from the set; the mounting holes lie on a Ø 9 mm bolt circle.

✱ Always check the screw length before tightening. A screw touching the winding causes a short circuit and destroys both the motor and the ESC.

- Tighten the screws gently – the threads in the motor base are small and strip easily.
- Route the leads along the arm so that they cannot reach the propeller, and do not pinch them on the frame edges.
- After mounting, turn the motor by hand: it must spin freely, without rubbing and without the leads touching the rotor.

3.2 Connecting to the ESC

The motor has three phase leads. Solder them to the pads of the corresponding ESC output – on all-in-one (AIO) boards the pads are marked according to the motor position in the flight controller (FC).

- The order of the three leads is arbitrary; it only affects the direction of rotation.
- Cut the leads to the required length and strip only a short end.
- Solder with a clean tip and sufficient flux; the joint must be shiny and firm. Adjacent pads must not be bridged with solder.
- Before connecting a battery for the first time, check that no lead touches another lead or the frame.

3.3 Direction of rotation

The direction of rotation of each motor must match the flight controller configuration (*Props in* or *Props out*). To change the direction:

- ① in Betaflight on the *Motors* tab (*Motor direction* function), if supported by the ESC,
- ② in the ESC configuration software (depending on the ESC firmware type),
- ③ by swapping any two of the motor's phase leads.

3.4 Fitting the propeller

- Use a propeller designed for a **Ø 1.5 mm** shaft in the recommended size (Chapter 1.2).
- Push the propeller fully home and straight; do not use propellers with a cracked or enlarged hole.
- Make sure each propeller matches the direction of rotation of its motor – the leading edge must point in the direction of rotation.

4. Testing and operation

4.1 First start-up without propeller

- ① Remove all propellers.
- ② Connect the model to a computer and open the *Motors* tab in Betaflight.
- ③ Connect the battery and confirm that you understand the risk of the motors starting.
- ④ Spin up each motor in turn at low throttle and check that the correct motor spins, in the correct direction, smoothly and without unusual noise.
- ⑤ Disconnect the battery and only then fit the propellers.

Before the first flight, also check the **Arm** (switching the motors on), **Disarm** (switching the motors off) and **failsafe** settings in the flight controller according to the manual of your model.

4.2 Operation and batteries

- Before each flight, insert a **fully charged** battery matching the recommended setup.
- After the first flights with a new setup, carefully check the motors by touch after landing. If a motor is too hot to keep a finger on, the setup is overloaded – use a smaller propeller or a battery with fewer cells and check the filter settings in the flight controller.
- End the flight at the latest at the voltage given in the table; deep discharge damages the battery.

State	per cell	2S	3S
Fully charged LiPo	4.20 V	8.40 V	12.60 V
Fully charged LiHV	4.35 V	8.70 V	13.05 V
End of flight	3.5 V	7.0 V	10.5 V
Storage	3.8 V	7.6 V	11.4 V

5. Maintenance and troubleshooting

5.1 Maintenance

- After every flight, and especially after a crash, check that the shaft is not bent and that the motor spins freely and quietly.
- Keep the gap between rotor and stator clean – remove grass, sand and metal particles. Do not use water or solvents.
- Check that the motor screws are tight and inspect the leads at the solder joints and where they exit the motor.
- Do not continue to use a motor with a bent shaft, damaged winding or noisy bearing; do not straighten a bent shaft.

5.2 Troubleshooting

Problem	Possible cause and solution
Motor does not spin or only twitches	Cold or cracked solder joint, broken lead, short circuit between pads or faulty ESC output. Check the wiring according to Chapter 3.2.
Motor spins the wrong way	Change the direction according to Chapter 3.3.
Vibration, rubbing, noise	Debris in the motor, bent shaft, damaged bearing or damaged or unbalanced propeller. Clean the motor, replace the propeller; do not use the motor if the shaft is bent.
Motor very hot after flight	Overload – propeller too large or voltage higher than the recommended setup, or unsuitable filter settings. Adjust the setup according to Chapter 1.2.
Burnt smell, dark winding	The winding has overheated or short-circuited. Stop using the motor and also check the ESC.

6. Information for the EU and Czech Market

6.1 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@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.com

6.2 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>.

7. 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 6.1.
- 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.