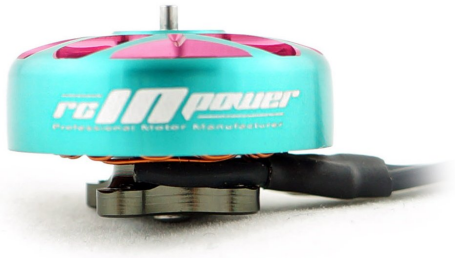
ROTORAMA

GTS V3 2104 Plus 3000Kv

RCinpower brushless motor for FPV drones
Manufacturer's designation: GTS V3 2104-T 3000KV



Read the entire manual, especially the safety instructions, before installation and first start-up. Keep this manual for future reference.

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1. Safety instructions

1.1 General principles

- The motor is intended to be built into an FPV drone or another radio-controlled model. It is not a toy and must be kept away from children.
- Installation, wiring and setup may only be carried out by a person with basic knowledge of electronics and FPV drone building. If you are unsure, contact an experienced modeller or the retailer.
- Do not modify, disassemble or drill the motor. Interventions in the design may result in the loss of rights arising from defective performance.
- When working with tools, a soldering iron and batteries, follow safe working practices and wear eye protection.

1.2 Rotating parts and propellers

- The motor rotor (bell) and the fitted propeller rotate at very high speed and can cause serious injury. Never reach into the area of the rotor or propeller while a battery is connected.
- Carry out all bench tests, setup and calibration **without propellers fitted**.
- Before connecting the battery, make sure the drone is in the Disarm state (motors off) and the radio transmitter is switched on with the throttle at minimum.
- Do not use damaged propellers or a motor with a damaged bell, shaft or bearings.

1.3 Power supply and temperature

- Power the motor only via a suitable electronic speed controller (ESC) from a battery with the approved number of cells (see Chapter 2.4). Never connect the motor directly to a battery.
- Exceeding the permitted voltage, or using a propeller that is too large or has too much pitch, can overload the motor and destroy the windings. Choose propellers according to the performance data in Chapter 2.6.
- The motor heats up during operation. Do not touch it after a flight until it has cooled down.
- Protect the motor from water, moisture, sand, dust and metal filings – small metal particles attracted by the magnets can damage the windings and bearings.

2. Product description

2.1 What the motor is for

The RCinpower GTS V3 2104 Plus 3000Kv (manufacturer's designation **GTS V3 2104-T 3000KV**, GTS V3 2104 Light series) is a lightweight outrunner brushless motor for FPV drones. The manufacturer intends it for ultralight 5" long-range drones, 3–4" toothpick drones and drones with a protective duct (cinewhoop).

The T version has a 1.5 mm shaft on the rotor and four M2 threads for propellers with a **T-mount** fitting. The motor is powered from a 3S to 4S Li-Po battery via an electronic speed controller (ESC).

2.2 Package contents

- 1× RCinpower GTS V3 2104 Plus 3000Kv motor
- 1× set of screws

Not included: propeller, electronic speed controller (ESC), frame, battery or connectors. The motor is sold individually – a quadcopter needs four motors.

2.3 Parts description



Top view of the motor

① 1.5 mm shaft for centring the T-mount propeller

② M2 thread for fastening the propeller (4×)

③ Motor rotor (bell)

④ Three motor phase wires for connection to the ESC



Bottom view of the motor (base)

① M2 mounting hole in the motor base (4×, 12 × 12 mm spacing)

② Shaft end with bearing

③ Wire outlet

2.4 Technical data

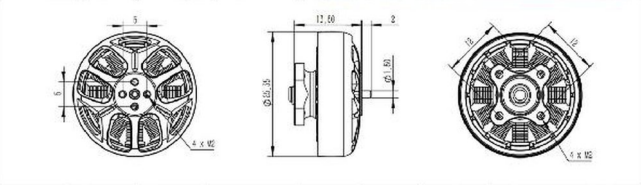
Data according to the manufacturer's technical sheet for the GTS V3 2104-T 3000KV:

Parameter	Value
KV	3000 rpm/V
Configuration	12N14P
Stator diameter	21 mm
Stator height	4 mm
Shaft diameter	3 mm (inside), 1.5 mm (outside)
Motor dimensions (diameter × length)	Φ 25.35 × 13.8 mm
Weight	15.9 g (with 3 cm wires)
Idle current at 10 V	0.9 A
Number of cells (Li-Po)	3S–4S
Max. continuous power ※	580 W
Internal resistance	110 mΩ
Max. current ※	36.2 A
Max. efficiency current	2–5 A (efficiency > 85 %)
Frame mounting	4× M2, 12 × 12 mm spacing
Propeller mounting	T-mount, 1.5 mm shaft, 4× M2

※ For max. continuous power and max. current the manufacturer states “3S”. In the manufacturer's performance table (Chapter 2.6) these values were reached at 16 V with the GF5130×3 propeller.

Li-Po battery voltage: fully charged 4.20 V/cell (3S 12.6 V, 4S 16.8 V); end the flight at 3.5 V/cell at the latest (3S 10.5 V, 4S 14.0 V); storage at 3.8 V/cell (3S 11.4 V, 4S 15.2 V).

2.5 Dimensions



Manufacturer's dimensional drawing (dimensions in mm)

2.6 Manufacturer's performance data

Manufacturer's measurements; motor temperature after 3 s at full throttle. Propeller designations as given by the manufacturer.

Propeller	Volt-age (V)	Thr. (%)	Current (A)	Thrust (g)	Power (W)	Effi-ciency (g/W)	Temp. (°C)
D76	16	50	5.2	248	83.2	2.981	54
		100	22.9	672	366.4	1.834	
D90	16	50	5.3	299	84.8	3.526	65
		100	24.1	806	385.6	2.090	
GF5126×2	12	50	4.6	292	55.2	5.290	62
		100	22.4	771	268.8	2.868	
	16	50	8	468	128.0	3.656	74
		100	32.1	1121	513.6	2.183	
GF5125×3	12	50	4.9	299	58.8	5.085	62
		100	22.4	793	268.8	2.950	
	16	50	7.5	453	120.0	3.775	76
		100	33.6	1156	537.6	2.150	
GF5130×3	12	50	5.6	316	67.2	4.702	66
		100	25.1	795	301.2	2.639	
	16	50	9	471	144.0	3.271	80 ※
		100	36.2	1117	579.2	1.929	
GF6026	12	50	6.6	392	79.2	4.949	70
		100	28.1	927	337.2	2.749	

※ Marked “HOT” (hot motor) by the manufacturer – monitor the motor temperature.

3. Installation

3.1 What else you need

- a frame with a 12 × 12 mm motor mounting pattern for M2 screws,
- an electronic speed controller (ESC) for 3S–4S, rated for at least the maximum motor current (Chapter 2.4),
- propellers with a T-mount fitting for a 1.5 mm shaft,
- a 3S or 4S Li-Po battery,
- a soldering iron, solder, flux and heat-shrink tubing, a hex key matching the screws, and optionally medium-strength threadlocker.

3.2 Mounting the motor on the frame

① Place the motor with its base on the frame arm so that the mounting holes line up with the holes in the frame and the wires run along the arm towards the centre of the drone.

② Choose M2 screws of a length that passes through the frame and engages firmly in the base but **does not protrude above the base**. A screw that is too long will touch the stator windings and cause a short circuit or destroy the motor.

③ Tighten the screws evenly in a crosswise pattern with moderate force – the thread in the base is fine and can be stripped.

④ After tightening, turn the bell by hand. It must rotate freely, without rubbing and without touching a screw.

Always check the screw length. A screw touching the windings is the most common cause of a motor being destroyed during installation.

3.3 Connecting to the electronic speed controller (ESC)

① Shorten the wires to the required length so that they are not under tension and cannot get into the propeller.

② Strip and tin the wire ends and solder them to the motor pads on the ESC. The order of the three wires only affects the direction of rotation.

③ Solder quickly and with a sufficiently powerful soldering iron so that neither the insulation nor the ESC overheats. Joints must be shiny and free of cold joints.

④ Route the wires along the arm and secure them (e.g. with a cable tie or heat-shrink tubing) so that they do not rub against the edges of the frame.

3.4 Mounting a T-mount propeller

① Fit the T-mount propeller with its centre hole onto the 1.5 mm shaft so that the holes in the propeller line up with the M2 threads in the rotor.

② Check that the propeller matches the motor's direction of rotation (CW / CCW propeller) and is facing the right way up.

③ Fasten the propeller with M2 screws of a suitable length. A screw must not pass through the rotor and touch the windings.

④ Tighten the screws in a crosswise pattern with moderate force so that the propeller does not crack and the thread is not stripped.

4. Start-up

4.1 Check without propellers and direction of rotation

① Remove all propellers.

② Connect the drone to a computer and open the *Motors* tab in the flight controller (FC) configurator, e.g. Betaflight. After confirming the safety notice, spin up each motor in turn at low speed.

③ Check that the correct motor spins and in the correct direction according to the diagram in the configurator.

④ If a motor spins the wrong way, swap any two of the three motor wires, or change the direction in the ESC configuration or in the FC settings.

⑤ The motor must run smoothly, without vibration, clicking or stuttering. After a short run, check that it is not overheating.

Always check the motors in the configurator without propellers.

4.2 First flight

- Before the flight, fit a **fully charged** battery (Li-Po 4.20 V/cell; 3S 12.6 V, 4S 16.8 V).
- Check that the motor and propeller screws are tight and the propellers are undamaged.
- Keep the first flight short and in open space. After landing and Disarm (motors off), carefully check the motor temperature – a motor should not be so hot that you cannot keep your finger on it.
- If the motor is too hot after a flight, choose a smaller propeller or one with less pitch, a battery with fewer cells, or adjust the FC filter settings.
- End the flight at a voltage of 3.5 V/cell at the latest (3S 10.5 V, 4S 14.0 V).

5. Maintenance and troubleshooting

5.1 Maintenance

- After every flight, inspect the motor visually: undamaged bell, straight shaft, no dirt between rotor and stator, intact wire insulation.
- Turn the rotor by hand. Rubbing, rough running or play indicate dirty or worn bearings or a bent shaft.
- Remove dirt with compressed air or a soft brush. Remove metal particles carefully – the magnets attract them strongly.
- Regularly check that the motor and propeller screws are tight.
- After a crash, check the windings – damaged enamel (a dark or burnt spot) leads to a short circuit. Do not continue to use such a motor.

5.2 Storage

Store the motor in a dry, dust-free place away from metal objects and small metal particles. Store the drone batteries separately at 3.8 V/cell (3S 11.4 V, 4S 15.2 V).

5.3 Troubleshooting

Problem	Possible cause and solution
Motor spins the wrong way	Swap two motor wires or change the direction in the ESC / FC configuration.
Motor does not start, only twitches	Cold joint or broken wire – check the soldering of all three wires. Screw touching the windings – check the screw length. Faulty ESC channel.
Motor rubs or is noisy	Dirt between rotor and stator, worn bearing, bent shaft. Clean the motor; do not use a damaged part.
Strong vibration	Damaged or unbalanced propeller, loose screws, bent shaft. Replace the propeller and tighten the screws.
Motor very hot after flight	Propeller too large or too much pitch, high voltage, unsuitable FC filter settings or oscillations. Reduce the load and check the settings.
Burning smell, smoke	Disconnect the battery immediately. Short circuit or overloaded windings – do not continue to use the motor.

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@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

6.2 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 manufacturer marks the type designation (GTS V3 2104-T 3000KV) on the motor housing (marking “2104 3000KV LIGHT”).

6.3 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.

7. 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 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.