GTS V3 0802 25000Kv

RCINPOWER

Brushless motor for 1S micro drones



Read the safety instructions in chapter 1 before installation and use.

Importer: Rotorama, s.r.o. · www.rotorama.com

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1. Safety instructions

1.1 Before you start

This manual describes the RCINPOWER GTS V3 0802 25000Kv brushless motor. Read it completely before installation and first use and keep it for future reference. The motor is intended for installation in small FPV drones; installation and setup require basic experience with building FPV equipment.

- The motor is not a toy. Keep it away from children; small parts and screws may be swallowed.
- Drone operation is governed by the regulations of the country in which you fly (in the EU, Regulation (EU) 2019/947 and national regulations). The drone operator is responsible for compliance with the regulations.
- Use the motor only within the technical specifications given in chapter 3.

1.2 Rotating parts and propellers

- The motor reaches very high speeds. The rotating bell and the propeller can cause injury – do not touch them while running.
- When connecting the battery, configuring on a computer and testing motors on the bench, **always remove the propellers**.
- Before each flight, check that the propeller sits firmly on the shaft and is not damaged.

1.3 Temperature and overload

- The motor heats up during operation. Do not touch it after a flight until it has cooled down.
- Do not exceed the maximum current and power given in the technical specifications. A propeller that is too large or too heavy overloads and overheats the motor.
- Do not leave a blocked motor powered (e.g. after crashing into grass) – Disarm (switch off the motors) immediately.

1.4 Power supply

- The motor is designed to be powered from a **1S battery** (one LiPo or LiHV cell) via an electronic speed controller (ESC). Never connect it directly to a battery.
- A fully charged cell has 4.20 V (LiPo) or 4.35 V (LiHV). End the flight at 3.5 V at the latest; for storage, charge the battery to 3.8 V.
- Charge LiPo and LiHV batteries only with a suitable charger and under supervision.

2. Product description

2.1 Intended use

The GTS V3 0802 25000Kv is a miniature brushless outrunner motor for small 1S quadcopters and Tiny Whoop drones with 30–40 mm propellers. The bell is made from a single piece (unibell) and the rotor runs in two bearings.

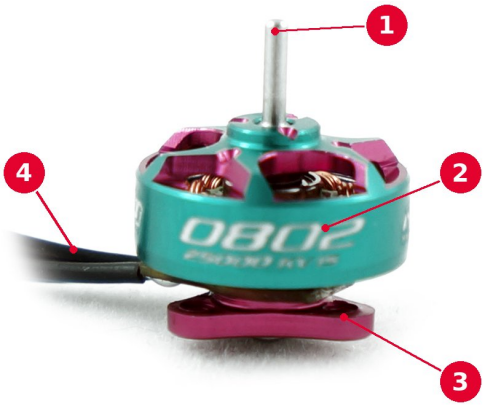
The motor cable ends in a connector with 1.25 mm pitch, which is compatible with most AIO flight controllers (flight controller and ESC on one board). The cable is soldered to the PCB on the bottom of the motor – if the cable is torn off, the winding remains undamaged and you only need to solder on a new cable.

2.2 Package contents

- 1× GTS V3 0802 25000Kv motor with cable and connector
- 1× set of screws

Not included: propellers, frame, flight controller (FC) with electronic speed controller (ESC), battery or charger.

2.3 Parts description



GTS V3 0802 25000Kv motor

① Shaft with 1 mm diameter – the propeller is pressed onto it.

② Bell (rotor) with the size designation 0802 and the KV value.

③ Base with M1.4 threaded mounting holes.

④ Motor cable with 1.25 mm pitch connector.

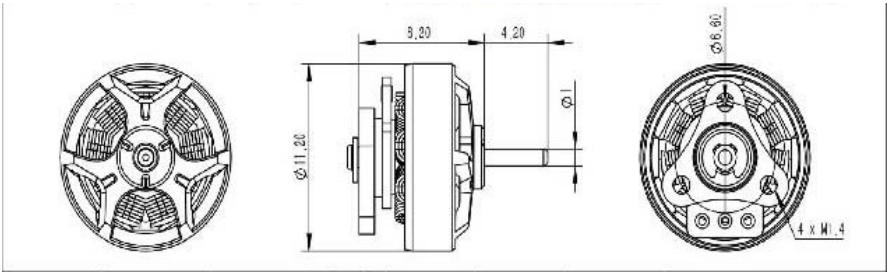
3. Technical specifications

3.1 Motor parameters

Designation	GTS V3 0802 25000Kv
Manufacturer	RCINPOWER (RC-IN-POWER Co., Ltd.)
Type	brushless outrunner motor
KV	25000 KV
Configuration	9N12P
Stator (diameter × height)	8 mm × 2 mm
Shaft diameter	1 mm (1.5 mm inside the motor)
Motor dimensions (diameter × length)	Ø 11.2 × 8.2 mm
Protruding shaft length	4.2 mm
Mounting	hole spacing 6.6 mm, M1.4 thread
Weight	1.97 g (including cable and connector)
Power supply	1S LiPo / LiHV
Idle current (at 5 V)	0.25 A
Internal resistance	105 mΩ
Max. current	6.5 A
Max. continuous power	24.1 W
Peak efficiency range	1–2 A (efficiency > 82 %)
Bearings	2 bearings
Connection	cable soldered to the PCB on the motor base, connector with 1.25 mm pitch

Data according to the manufacturer RCINPOWER.

3.2 Dimensions



Motor dimension drawing (dimensions in mm)

3.3 Manufacturer's performance data

The manufacturer gives the following measurement results with Gemfan (GF) propellers at 3.7 V:

Propeller	Volt. (V)	Thr.	Curr. (A)	Pull (g)	Power (W)	Eff. (g/W)	Temp.*
GF1220×3	3.7	50 %	1.2	16	4.4	3.604	58 °C
		100 %	4.7	42	17.4	2.415	
GF1220×4	3.7	50 %	1.5	19	5.6	3.423	60 °C
		100 %	5.3	44	19.6	2.244	
GF1635×3	3.7	50 %	2	26	7.4	3.514	68 °C
		100 %	6.2	48	22.9	2.092	
GF1636×4	3.7	50 %	2.1	28	7.8	3.604	70 °C
		100 %	6.5	51	24.1	2.121	

** Motor temperature after 3 s at full throttle. Data according to the manufacturer RCINPOWER.*

The values are indicative – the actual thrust, current and temperature depend on the specific propeller, battery condition, speed controller, frame and ambient temperature.

4. Installation

4.1 Before installation

- Check that the mounting holes of the frame match the motor (6.6 mm spacing, M1.4 screws).
- Check that the flight controller (FC) with ESC is designed for 1S and has connectors with 1.25 mm pitch. If it has different connectors or solder pads, the motor cable must be soldered directly.
- Prepare propellers designed for a 1 mm shaft.

4.2 Mounting the motor

① Place the motor on the frame so that the cable points towards the flight controller and is not pinched.

② Fasten the motor with the supplied screws. Tighten the screws gently – the M1.4 thread strips easily.

③ The screw must not be longer than the frame thickness plus the thread in the base allow; a screw that is too long can damage the stator winding.

④ After installation, turn the bell by hand – it must rotate easily and without binding.

4.3 Connecting to the flight controller

- Always disconnect the battery before connecting.
- Push the motor connector all the way into the corresponding motor connector on the flight controller. Do not pull on the wires, hold the connector.
- Route the cable so that it cannot get into the propeller and is not under tension. Secure any excess length.
- The motor order (motor 1–4) and the direction of rotation are set in the flight controller software – see chapter 5.

4.4 Fitting the propeller

- Push the propeller straight onto the shaft all the way. Support the motor from below and do not press excessively on the bell.
- Make sure the propeller direction matches the direction of rotation of the motor.
- Remove the propeller by pulling it straight off the motor, not by levering – the 1 mm shaft bends easily.

5. Commissioning

5.1 Checking the direction of rotation

① Remove the propellers and connect the drone to a computer (e.g. Betaflight Configurator).

② On the *Motors* tab, after confirming the safety warning, spin up the individual motors one by one at low throttle.

③ Check that the correct motor spins up and that it turns in the correct direction according to the frame diagram.

④ If the direction is reversed, change it in the ESC configurator (for ESCs with BLHeli_S / Bluejay firmware) or in Betaflight (*Motor direction is reversed* changes the direction of all motors and requires reversed propellers).

5.2 Flight controller setup

- Set the motor protocol and other ESC parameters according to the flight controller manual.
- During the first take-off, do not touch the drone and stand at a safe distance.
- Arm (switch on the motors) only after checking the surroundings and the propellers; Disarm immediately after landing or a crash.

5.3 First flight

- Before the flight, insert a fully charged battery (4.20 V LiPo / 4.35 V LiHV).
- After the first short flight, check the temperature of the motors. If one motor is noticeably warmer than the others, find the cause (see chapter 7).
- End the flight when the voltage drops to 3.5 V at the latest.

6. Maintenance and storage

6.1 After each flight

- Remove hair, grass and dirt from the shaft and the bell – wound-up fibres brake the motor and overheat it.
- Turn the bell by hand: it must rotate freely, without binding and without play.
- Check that the shaft is not bent and the propeller is not damaged.
- Check the cable and the solder joints on the motor PCB.

6.2 Replacing the cable

The motor cable is soldered to three solder pads on the PCB at the bottom of the motor. If it is damaged, it can be replaced:



Bottom of the motor with solder pads (illustrative photo, colour version may differ)

① Disconnect the motor from the flight controller.

② Desolder the damaged cable from the pads with a fine soldering iron. Do not overheat the pads so that they do not lift off.

③ Solder on a new three-wire cable with a 1.25 mm pitch connector.

④ After the replacement, check the direction of rotation (chapter 5.1) – a different wire order changes the direction of rotation.

※ Damage caused by improper soldering or by mechanical damage in a crash is not a product defect.

6.3 Storage

- Store in a dry place, away from direct sunlight and metal filings (the rotor magnets attract them).
- Protect the shaft from bending – remove the propellers for transport or store the drone in a rigid case.

7. Troubleshooting

Problem	Possible cause and solution
Motor does not spin after Arm, only beeps or twitches	The connector is not fully inserted or the cable is damaged – check the connector and the solder joints on the PCB. Make sure the motor is assigned to the correct ESC output (*Motors* tab).
Motor spins in the wrong direction	Change the direction of rotation in the ESC settings or in Betaflight (see chapter 5.1).
Motor is very hot after a flight	Propeller too large or too heavy, damaged propeller, hair or grass wound around the shaft, or the motor is binding. Use a propeller of the recommended size, clean the motor and check the bearings.
Vibration, noise, “gritty” bearings	Bent shaft, damaged propeller or worn bearings. Replace the propeller; a bent shaft cannot be reliably repaired – replace the motor.
Propeller slips on the shaft or falls off	The propeller hole is worn or does not match the 1 mm shaft. Use a new propeller designed for a 1 mm shaft.
Cable torn off	The cable is soldered to the PCB, so the winding remains undamaged. Solder on a new cable (see chapter 6.2).

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 (GTS V3 0802 25000Kv) is given on the product packaging; the size designation (0802) and the KV value (25000 KV) are marked on the motor bell.

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.