ROTORAMA

SpeedX2 2105.5 2650KV

Brushless motor for FPV drones
GEPRC · user manual



Read this manual before installation and first start-up. Always test the motor without a propeller fitted.

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1. Product description

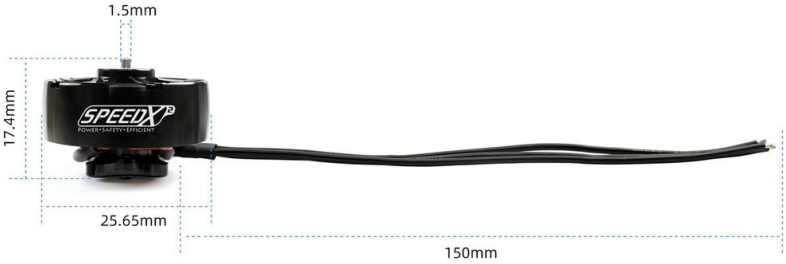
1.1 Intended use

GEPRC SpeedX2 2105.5 2650KV is a three-phase brushless motor for building FPV drones. The manufacturer designs it for 3–4-inch whoops (cinewhoops) and for 4–5-inch toothpick and long-range quads. The motor has a flat design with a 21 × 5.5 mm stator and a lightweight bell with a hollowed-out top that improves cooling of the windings.

The motor is screwed to the frame arm, its three wires are soldered to the outputs of the electronic speed controller (ESC) and a propeller is mounted on the shaft. The motor itself contains no electronics or firmware — speed and direction of rotation are controlled by the ESC according to commands from the flight controller (FC).



GEPRC SpeedX2 2105.5 (illustrative photo, black version)



Manufacturer's dimensional drawing (Black version)

※ The manufacturer's specification states motor dimensions of Φ25.65 × 15.7 mm; the dimensional drawing shows a height of 17.4 mm, measured up to the end of the shaft.

1.2 Specifications and package contents

Data as stated by the manufacturer GEPRC for the 2650KV version.

Designation	GEPRC SpeedX2 2105.5 2650KV
Velocity constant (KV)	2650 KV
Configuration	12N14P
Magnets	N52H, arc (ARC)
Stator (diameter × height)	21 mm × 5.5 mm
Shaft	Φ3.0 mm inside, Φ1.5 mm outside
Motor dimensions	Φ25.65 × 15.7 mm
Lead wires	22 AWG, length 150 mm
Power supply	3S–6S LiPo
Max. continuous power	559 W
Max. current (5S)	34.9 A
Mounting holes	12 × 12 mm, M2 screws
Weight	21.0 g
Colour versions	Titanium, Black
Suitable for	3–4" whoop FPV, 4–5" toothpick and long-range FPV

▶ Package contents

- 1× SpeedX2 2105.5 2650KV motor
- 5× M2 × 6 mm screw
- 5× M2 × 7 mm screw

▶ NOT included

Propellers, propeller screws, ESC, frame, battery or tools. The package contains one motor — a quadcopter requires four.

2. Use

2.1 Safety instructions

- A motor with a propeller fitted is **dangerous** when a battery is connected. A spinning propeller can cause serious cuts. Keep the propellers removed during all work on the drone (assembly, soldering, configuration, motor tests).
- Connect the battery only after assembly is complete and the wiring has been checked. Always disconnect the battery when working on the electronics.
- Do not overload the motor. Do not exceed the 3S–6S supply range and the maximum current given in Chapter 1.2. A propeller that is too large or has too high a pitch overloads and overheats the motor.
- The motor may be **hot** after a flight. Let it cool down before touching it.
- The motor contains strong neodymium magnets. Keep it away from metal filings and small iron objects, which are attracted by the magnets and can damage the windings.
- This product is not a toy. Keep it and the small screws out of the reach of children.

2.2 Mounting on the frame

The motor has mounting holes with a **12 × 12 mm** pattern for **M2** screws. The package contains screws in two lengths — 6 mm and 7 mm — for different frame arm thicknesses.

① Place the motor on the arm so that the wires run along the arm towards the ESC.

② Choose the screw length according to the arm thickness. The screw must engage enough thread but **must not touch the stator windings**.

③ Tighten the screws gently — the threads in the motor base strip easily. We recommend securing them with medium-strength threadlocker.

④ After tightening, turn the bell by hand. It must rotate freely and quietly. If it rubs or you hear scraping, the screw is too long — use a shorter one.

※ A screw that touches the windings damages their insulation and causes a short circuit. A motor damaged in this way can also destroy the ESC. Damage caused by unsuitable screws is not covered by rights arising from defective performance.

2.3 Connecting to the ESC

The motor requires a three-phase ESC for brushless motors rated for the battery voltage and the motor current (max. 34.9 A according to the manufacturer at 5S).

- Shorten the wires to the required length so that they are not under tension and do not touch the propeller. Strip and tin the ends.

- Solder the three motor wires to the three output pads of the ESC for that motor. With a three-phase motor the wire order does not matter — it only affects the direction of rotation (see 2.4).
- Solder quickly with a sufficiently powerful soldering iron; prolonged heating can damage the wire insulation.
- Check that no solder bridge has formed between adjacent pads and that no strand protrudes beyond the pad.
- Secure the wires to the arm (with a cable tie or heat-shrink tubing) so that they cannot get into the propeller in flight.

2.4 Checking the direction of rotation

The direction of rotation of each motor must match the flight controller (FC) settings and the propeller type. Always carry out this check **without propellers**.

① Connect the drone to a computer and open the *Motors* tab in the configurator (e.g. Betaflight). Confirm that the propellers are removed.

② Connect the battery and spin each motor in turn at low speed using the individual sliders.

③ Compare the position and direction of rotation with the diagram in the configurator.

④ If a motor spins the wrong way, change the direction in the ESC configuration (e.g. BLHeli Configurator, ESC Configurator) or swap any two of its three wires.

2.5 Fitting the propeller

The outer part of the shaft has a diameter of **Φ1.5 mm**. Use a propeller designed for a 1.5 mm shaft and fasten it with screws into the holes in the top of the bell according to the propeller manufacturer's instructions. Propeller screws are not included with the motor.



Top of the bell with the shaft and propeller mounting holes

- Observe the propeller direction of rotation (CW / CCW) according to the motor position.
- Propeller screws must not be longer than the bell allows — they must not touch the stator or the windings. After fitting, turn the propeller by hand and check

that the motor rotates freely.

- Fit the propellers only after checking the direction of rotation, just before flying.

3. Maintenance and troubleshooting

3.1 Post-flight check and maintenance

- After each flight, disconnect the battery and check whether the motors are excessively hot. A motor that is noticeably hotter than the others indicates a problem (damaged bearing, bent shaft, dirt, faulty propeller or settings).
- Turn each motor by hand. It must rotate easily and smoothly, without scraping or play.
- Remove grass, sand and metal debris from the motor — preferably with compressed air. Do not wash the motor with water.
- After a crash, check whether the shaft is bent or the bell deformed, and whether the mounting screws and propeller screws are still tight.
- Check the wire insulation and the solder joints at the ESC.
- Store the motor in a dry place, away from metal dust and out of the reach of children.

3.2 Troubleshooting

Problem	Possible cause and solution
Motor does not spin, only beeps or twitches	Cold or broken solder joint, damaged wire, short circuit in the windings. Check the soldering and wires; turn the motor by hand.
Motor spins the wrong way	Change the direction in the ESC configuration or swap two wires (Chapter 2.4).
Motor rubs or scrapes	Mounting screw too long, dirt between bell and stator, damaged bearing. Replace the screw with a shorter one, clean the motor.
Motor overheats	Overload due to a propeller that is too large or too high a voltage, unsuitable ESC settings, damaged bearing. Check the propeller and settings.
Vibrations, blurred video	Bent shaft, damaged or unbalanced propeller, loose screws. Replace the propeller, check the screws and shaft.

4. Information for the EU and Czech Market

4.1 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

4.2 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 (SpeedX2 2105.5 2650KV) is given on the product packaging; the size designation 2105.5 is also marked on the motor housing (bell).

4.3 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.

5. 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 4.1.
- 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.