SPEEDX2 2105.5

Brushless motor for FPV drones
2650 KV · Black M5 version



Read this manual carefully before installation and first use and keep it for future reference.

Rotorama, s.r.o. · www.rotorama.com

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1. Product description

1.1 Intended use

The **GEPRC SPEEDX2 2105.5 2650KV** in the **Black M5** version is a brushless motor for building FPV drones. The manufacturer intends it for 3–4" whoops (cinewhoops) and for 4–5" ultralight toothpick and long range quads. The motor has a flat design with a lightweight, ventilated bell, N52H arc magnets and an **M5** threaded shaft on which the propeller is secured with a nut.

The motor is mounted to the frame arm with four M2 screws and its three wires are soldered to the output of an electronic speed controller (ESC). It is not a functional unit on its own – to operate it needs a speed controller, a flight controller (FC), a propeller and a battery. A quadcopter needs four motors; one package contains one motor.



GEPRC SPEEDX2 2105.5 – Black M5 version with threaded shaft

1.2 Specifications and package contents

Parameter	Value
Product designation	GEPRC SPEEDX2 2105.5-2650KV, colour Black M5 (code GP106421)
KV rating	2650 KV
Configuration	12N14P
Magnets	N52H, arc (ARC)
Stator (diameter × height)	21 mm × 5.5 mm
Motor dimensions	Φ25.65 × 15.7 mm
Shaft	M5 threaded
Mounting holes	12 × 12 mm, 4× M2 thread
Lead wires	22 AWG, length 150 mm
Input voltage (LiPo)	3S–6S
Idle current	1.3 A
Internal resistance	65 mΩ
Max. current	34.9 A
Max. power	559 W
Package contents	1× motor M2 screws for frame mounting (the manufacturer lists 5× M2 × 6 mm and 5× M2 × 7 mm)
Not included	propellers, speed controller (ESC), flight controller (FC), frame, battery

※ The manufacturer states the weight only for the version with a 1.5 mm shaft; we therefore do not state it for the M5 version.

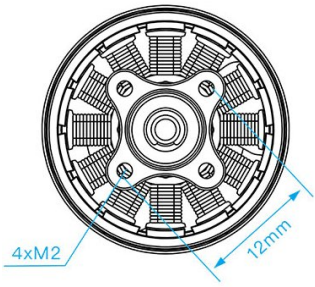
2. Installation and use

2.1 Safety instructions

- A spinning propeller can cause serious injury. Whenever you work on the drone (installation, soldering, setup), **disconnect the battery and remove the propellers**.
- Always test and set up the motor **without propellers**. Fit the propellers only just before flight.
- The motor can be very hot after flight. Do not touch the bell or windings until the motor has cooled down.
- The rotor contains strong permanent magnets. Metal filings and small screws are easily attracted into the motor – store the motor in a clean environment.
- This product is not a toy. Keep it out of the reach of children; small screws present a risk of inhalation or swallowing.
- Drone operation is governed by the aviation regulations of the country in which you fly. In the EU this is Regulation (EU) 2019/947; national implementing rules differ from country to country.

2.2 Mounting to the frame

The motor is fastened to the frame arm with four M2 screws in the holes with 12 × 12 mm spacing on the underside of the stator.



Underside of the motor – mounting holes 4× M2, 12 mm spacing (manufacturer's drawing)

① Choose the screw length according to the thickness of the arm. The package contains screws of two lengths (6 and 7 mm).

② Place the motor on the arm so that the wires point towards the frame and tighten the screws gently – M2 threads strip easily. We recommend securing the screws with medium-strength threadlocker.

③ After tightening, turn the motor bell by hand. The motor must spin freely, without rubbing. If it rubs, the screw is too long and touches the windings – **replace it with a shorter one**, otherwise there is a risk of a short circuit and destruction of the speed controller.

2.3 Connecting to the speed controller (ESC)

- Shorten the wires so that they run along the arm without tension and cannot reach the propeller.
- Strip and tin the wire ends and solder them to the three output pads of the speed controller for that motor. The order of the wires only determines the direction of rotation (see 2.4).
- Joints must be shiny and solid, with no short between adjacent pads. Secure the wires at the arm (heat-shrink, tape) so the frame edges cannot chafe them.

2.4 Checking the direction of rotation

The direction of rotation must match the motor layout of your flight controller (FC) – e.g. in Betaflight on the *Motors* tab. Perform the check **without propellers**, with the motors spinning at low speed only.

- If a motor spins the wrong way, change the direction in the speed controller configuration (e.g. in the ESC firmware configurator) or swap any two of the three motor wires.
- If you use the *Motor direction is reversed* option in Betaflight, fit the propellers accordingly.

2.5 Fitting the propeller

- The M5 version has an M5 threaded shaft. A propeller with a 5 mm shaft hole is slid onto the shaft and secured with a **self-locking M5 nut** (with a nylon insert).
- Tighten the nut firmly so the propeller cannot slip, but do not overtighten it – you may damage the propeller hub or the bearings.
- Use the correct propeller type (normal / reversed, “props out” or “props in”) for the motor's direction of rotation.
- A self-locking nut loses its locking function after repeated use. Replace a worn nut.

2.6 Choosing the propeller and battery

The manufacturer specifies an input voltage range of 3S–6S LiPo for the motor and use on 3–4" whoops and 4–5" toothpick and long range quads. Rotorama recommendation:

Propeller size	Recommended battery
3–4"	6S
5"	4S

❄ A large propeller combined with a high voltage overloads and overheats the motor. Check the motor temperature after the first flights; if a motor is too hot to touch, use a smaller propeller or a lower voltage.

3. Maintenance and troubleshooting

3.1 Maintenance

- After every flight, check that the propeller nut and the motor screws are tight.
- Turn the motor by hand: it must spin freely, without rubbing and without play in the bearings. Remove grass, dust and sand from the motor; clean metal debris attracted by the magnets carefully, e.g. with adhesive tape.
- After a crash, check whether the shaft is bent, the bell damaged or the windings or wires chafed. A bent shaft causes vibrations – do not continue to use a motor with a bent shaft.
- Do not lubricate the motor with oil or spray and do not immerse it in water.

3.2 Troubleshooting

Problem	Possible cause and solution
Motor does not spin, only twitches or beeps	Broken or cold solder joint on the speed controller, damaged wire or winding. Check the soldering and the wires.
Motor spins the wrong way	Change the direction in the ESC configuration or swap two motor wires (Chapter 2.4).
Rubbing or scraping when turned by hand	Mounting screw too long, debris in the motor or damaged bearing. Replace the screw with a shorter one, clean the motor.
Strong vibrations, jittery video	Bent shaft, damaged or unbalanced propeller, loose nut. Replace the propeller, check the shaft.
Motor is very hot after flight	Propeller too large for the voltage used, damaged motor or unsuitable filter and PID settings. Try a smaller propeller (Chapter 2.6) and check the settings.

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 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.