EM2807 1350KV

GEPRC – brushless motor for long-range FPV drones
User manual



Read this entire manual before installation and first start-up, in particular the safety instructions in Chapter 2.

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1. Product description

1.1 Intended use

The GEPRC EM2807 1350KV is a brushless motor from the EM series, which the manufacturer designed mainly for long-range FPV drones. It is suitable for 7–8 inch drones with 6–8 inch propellers and for a 6S LiPo power supply.

The motor has a high-strength steel M5 shaft, a magnetic circuit designed for high torque, N52H magnets, NSK/NMB bearings and a single-strand winding. It is mounted to the frame with four M3 screws; the propeller is secured to the shaft with an M5 nut. The motor is not used on its own – it is connected to an electronic speed controller (ESC), which powers and controls it.



GEPRC EM2807 1350KV motors

1.2 Package contents

- 1× GEPRC EM2807 1350KV motor
- 4× M3×9 round-head screw
- 1× M5 anti-slip flange nut

Not included in the package: electronic speed controller (ESC), propellers, battery, frame or connectors.

1.3 Technical data

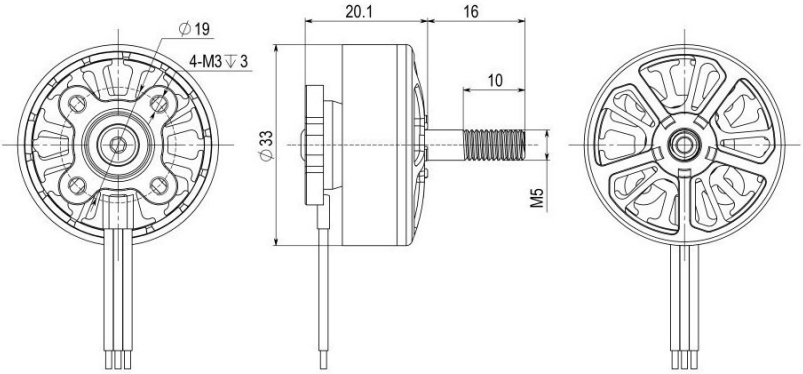
Parameter	Value
Product designation	GEPRC EM2807 1350KV (on the motor housing: EM2807/1350KV), manufacturer code GP106117
KV rating / configuration	1350 KV / 12N14P
Supply voltage	25.2 V (6S LiPo)
Recommended ESC	50–60 A
Max. power / peak current	1080 W / 47 A
Interphase resistance	45 mΩ

Parameter	Value
Recommended propellers	6–8 inch
Magnets / bearings	N52H / NSK/NMB
Winding	single-strand copper wire
Dimensions	φ33 × 20.1 mm
Shaft	φ5 mm, steel; protrudes 16 mm, M5 thread
Mounting holes	19 × 19 mm, M3 thread, 3 mm deep
Leads	260 mm, 18AWG
Weight	57 g (including leads)

Data provided by the manufacturer GEPRC.

1.4 Dimensions

Manufacturer's dimensional drawing, dimensions in millimetres. The 4× M3 mounting holes in the base have a thread depth of 3 mm (marking “4-M3 ↧ 3”).



From left: motor base, side view, top view

1.5 Performance data stated by the manufacturer

The manufacturer states the following measured values of the GEPRC EM2807 1350KV motor at a supply voltage of approx. 24 V with three types of propellers. The values are for rough comparison only; actual thrust and current draw depend on the battery, ESC, propeller and conditions.

▶ Gemfan 7037×3 propeller – motor temperature during test 85 °C

Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
20	24.04	0.34	92	8.22	11.2
30	23.99	2.69	354	65.11	5.44
40	24.1	5.76	648	140.05	4.63
50	23.99	10	956	241.89	3.95
60	23.88	16.76	1376	403.66	3.41
70	23.69	26.14	1839	624.38	2.95
80	23.6	37.81	2314	899.95	2.57
90	23.52	39.69	2338	941.65	2.48
100	23.5	41.2	2390	968.2	2.46

▶ Hoprop 7×3.7×3 propeller – motor temperature during test 93 °C

Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
20	24.02	0.34	85	8.2	10.37
30	23.99	2.76	345	66.79	5.17
40	23.99	5.69	634	138.05	4.59
50	23.96	10	956	241.61	3.96
60	23.99	16.69	1376	403.82	3.41
70	23.8	26.49	1843	635.58	2.9
80	23.58	39.06	2311	928.64	2.49
90	23.55	40.47	2331	961.21	2.43
100	23.55	41.53	2368	978.03	2.39

▶ Gemfan 7535×3 propeller – motor temperature during test 92 °C

Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
20	24.05	0.34	91	8.2	11.1
30	23.99	2.76	353	66.79	5.29

Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
40	23.99	5.97	676	145.61	4.64
50	23.99	10.69	1027	259.56	3.96
60	23.93	18.08	1472	436.42	3.37
70	23.8	28.22	1960	677.24	2.89
80	23.6	40.96	2390	975	2.45
90	23.6	42.56	2354	1013.02	2.32
100	23.6	44.1	2393	1040.77	2.3

2. Safety instructions

A motor with a propeller fitted can cause serious injury. Always remove the propellers during installation, setup and bench tests.

- This product is intended for experienced users who know how to build and set up an FPV drone. It is not a toy; keep it out of the reach of children.
- At full throttle the propeller spins at very high speed. Never approach spinning propellers or reach into their range.
- Before connecting the battery, make sure Arm (motors enabled) is switched off on the radio and the throttle is at minimum.
- Power the motor only through a suitable electronic speed controller (ESC). The manufacturer specifies a supply of 25.2 V (6S LiPo) and a 50–60 A ESC. The manufacturer does not specify higher voltages or other battery types.
- The motor heats up during operation. Do not touch it after a flight until it has cooled down.
- The motor contains strong neodymium magnets. Protect it from metal filings and small metal objects; do not insert fingers or tools into it.
- The motor leads must not be pinched, chafed or touch the propeller. Damaged insulation can cause a short circuit and damage the ESC.
- Do not disassemble or modify the motor. A crash or impact can bend the shaft – do not use a motor with a bent shaft.
- When handling LiPo batteries, follow the instructions of their manufacturer: charge under supervision on a non-flammable surface and do not use swollen or damaged cells.
- The law of the country in which you operate the product is decisive. When flying, comply with the regulations for unmanned aircraft applicable in that country.

3. Installation and wiring

3.1 What you will need

- a frame for 7–8 inch propellers with a 19 × 19 mm motor mounting pattern for M3 screws,
- a 6S-rated electronic speed controller (ESC), 50–60 A,
- 6–8 inch propellers with an M5 shaft hole,
- a 6S LiPo battery,
- a soldering iron and solder (if you solder the leads), heat-shrink tubing, a hex key for M3 screws and a wrench for the M5 nut,
- medium-strength thread-locker (recommended).

3.2 Mounting the motor on the frame



Motor base with four M3 mounting holes

① Place the motor on the frame arm so that the holes in the base line up with the holes in the arm and the leads point towards the ESC.

② Check the screw length. According to the manufacturer's drawing, the threaded holes in the base are **3 mm** deep. A screw may protrude into the motor by no more than 3 mm: the screw length minus the arm thickness (and any washer) must not exceed 3 mm.

③ The included M3×9 screws are only suitable for frames with a matching arm thickness. For a thinner arm, use shorter screws.

④ Tighten the screws in a cross pattern, evenly and with care. We recommend applying a drop of medium-strength thread-locker to the thread.

⑤ Turn the motor bell by hand. It must rotate freely without rubbing. If it rubs, a screw is too long and touches the winding – replace it with a shorter one immediately.

A screw that is too long will damage the motor winding and cause a short circuit. Such damage is not a product defect.

3.3 Connecting to the electronic speed controller (ESC)

- The motor has three 18AWG phase leads, 260 mm long. The order in which the three leads are connected to the ESC pads does not affect function, only the direction of rotation (see 3.4).
- Shorten the leads to the required length so that they are not under tension and cannot get into the propeller. Strip and tin them before soldering.
- Solder quickly with a sufficiently powerful iron so that the joint is shiny and solid and the ESC is not damaged. A cold joint may come loose in flight.
- Secure the leads to the arm (cable tie, heat-shrink tubing) and protect them from chafing on carbon edges.

3.4 Checking the direction of rotation

Always perform this check without propellers.

① Connect the drone to a computer and open the *Motors* tab in the configuration software of the flight controller (FC). Connect the battery.

② Briefly spin up each motor in turn and compare the direction of rotation with the diagram in the software.

③ If a motor spins the wrong way, change the direction in the ESC settings (ESC configurator) or swap any two of the three motor leads.

3.5 Mounting the propeller

- Fit the propeller only after checking the direction of rotation, and according to the direction of rotation of the given motor (propellers for clockwise and counter-clockwise motors differ).
- Secure the propeller with the included M5 flange nut. Tighten it firmly but do not overtighten – you could damage the propeller hub or the shaft thread.
- Use 6–8 inch propellers as specified by the manufacturer. Larger or higher-pitch propellers increase current draw and motor heating.

4. Operation and maintenance

4.1 Pre-flight check

- Motor screws and propeller nuts are tight; the propellers are not cracked or bent.
- The bell turns freely by hand, without rubbing, play or unusual noise; the shaft is not bent.
- The leads are undamaged and do not touch the propeller.
- You are using a fully charged 6S LiPo battery (4.20 V/cell, 25.2 V). End the flight at 3.5 V/cell (21.0 V) at the latest.
- After the first short flight, check the motor temperature. If the motors are very hot, check the ESC settings and consider smaller or lower-pitch propellers.

4.2 Maintenance and storage

- After every flight, especially after a crash, remove grass, sand and dirt from the motor. Compressed air can help.
- Carefully remove metal filings attracted by the magnets, e.g. with adhesive tape.
- Worn bearings show up as noise, vibration and rough running; do not continue to use such a motor.
- Check that the motor screws are tight and that the leads are in good condition where they exit the motor.
- Store the motor in a dry place, away from moisture and metal dust. Store batteries at 3.8 V/cell (22.8 V for 6S).

4.3 Troubleshooting

Problem	Possible cause and solution
Motor spins in the wrong direction	Change the direction in the ESC configurator or swap two motor leads (Chapter 3.4).
Motor stutters, beeps or does not spin up	Cold solder joint or broken lead – check the soldering. Bell rubs against a screw or dirt – see 3.2.
Bell rubs or turns stiffly	Mounting screw too long, dirt in the gap between rotor and stator, or a damaged bearing.
Strong vibration, noise	Damaged or unbalanced propeller, bent shaft, loose screws or worn bearing.
Motor very hot after flight	Propeller too large or too high-pitched, unsuitable ESC or PID settings, damaged bearing or winding.
Burning smell, smoke	Disconnect the battery immediately. Possible damage to the winding or ESC – do not use the motor any further.

5. Information for the EU and Czech Market

5.1 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

5.2 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.

6. 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 5.1.
- 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.