XING2 2809 1250KV

iFlight – brushless motor for FPV multirotors
User manual



Read the entire manual before installation and first start-up, in particular the safety instructions in Chapter 4.1. Keep this manual for future reference.

www.rotorama.com

Contents

1. Product description

1.1 Intended use

1.2 Specifications and package contents

2. Use

2.1 What else you need

2.2 Mounting to the frame

2.3 Connecting to the electronic speed controller (ESC)

2.4 Checking the direction of rotation

2.5 Mounting the propeller

3. Dimensions and manufacturer's test data

3.1 Dimensional drawing

3.2 Manufacturer's thrust tests

4. Safety, maintenance and troubleshooting

4.1 Safety instructions

4.2 Maintenance

4.3 Troubleshooting

5. Information for the EU and Czech Market

5.1 Importer and responsible person in the EU

5.2 Disposal of electrical equipment

6. Warranty and rights arising from defective performance

1. Product description

1.1 Intended use

The iFlight XING2 2809 1250KV is a brushless motor for powerful FPV multirotors – typically 7–8" long range aircraft and cinelifters powered by a 6S battery. The motor is mounted on the frame arm, driven by an electronic speed controller (ESC), and the propeller is fixed to its shaft. A multirotor requires a set of four motors; the package contains one motor.

The motor has a 7075 aluminium alloy Unibell bell, a 5 mm titanium alloy shaft, NSK 11 × 5 × 5 mm bearings, centre-slotted N52H curved arc magnets, an O-ring bearing gap protection and a motor wire protector. The manufacturer dynamically balances each motor.



iFlight XING2 2809 1250KV

1.2 Specifications and package contents

Parameter	Value
Manufacturer / model	iFlight / XING2 2809
Marking on the product	XING2 2809, 1250KV (on the motor bell)
KV	1250 KV
Weight (including wires)	60.7 g
Dimensions	Ø 35.33 × 36.7 mm (height including shaft); motor body height 21.7 mm
Interphase resistance	65.46 mΩ
Input voltage	24 V
Peak current	50 A
Maximum power	1145 W
Mounting holes	19 × 19 mm, Ø 3 mm (M3 thread)
Rotor design	Unibell
Shaft	Ø 5 mm, protruding 15 mm, M5 thread
Leads	260 mm, 18 AWG
Magnets	N52H, curved
Configuration	12N14P
Bearings	NSK, Ø 11 × Ø 5 × 5 mm
Winding	single-strand copper wire

Data according to the manufacturer iFlight.

▶ Package contents

- 1× XING2 2809 1250KV motor
- 4× M3×10 mm screw
- 1× M5 flange nut (for fixing the propeller)

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



Package contents

2. Use

2.1 What else you need

- a frame with motor mounts for a 19 × 19 mm hole pattern for M3 screws,
- an electronic speed controller (ESC) rated for the voltage of the battery used and sized with a margin for the motor's peak current of 50 A,
- propellers with a 5 mm shaft hole suitable for this motor (the manufacturer tested 8" and 7" propellers, see Chapter 3.2),
- a soldering iron, solder and insulation (heat-shrink tubing),
- a screwdriver / hex key for M3 screws and a wrench for the M5 nut,
- a computer with a flight controller (FC) configurator, e.g. Betaflight, to check the direction of rotation.

2.2 Mounting to the frame

① Place the motor on the frame arm so that the holes in the bottom of the motor line up with the holes in the arm. Route the wires towards the centre of the frame.

② Fasten the motor with four M3 screws. Tighten the screws gradually in a cross pattern and with moderate force – the threads are in the aluminium base and can strip if overtightened.

③ Check the screw length before final tightening: the screw may only engage the thread in the motor base and **must not touch the winding**. The supplied M3×10 mm screws only suit a certain arm thickness; for a different frame, use screws of appropriate length.

④ We recommend securing the screws with a medium-strength threadlocker.

⑤ Turn the motor bell by hand – it must rotate freely, without rubbing and without foreign objects in the gap between the bell and the stator.

A screw that touches the winding damages the wire insulation and causes a short circuit of the motor and destruction of the ESC. Such damage is not a product defect.

2.3 Connecting to the electronic speed controller (ESC)

The motor has three phase wires. The order in which they are connected to the ESC is arbitrary – it only determines the direction of rotation, which can be changed later (Chapter 2.4).

① Disconnect the battery before soldering.

② Shorten the wires to the required length so that they are not under tension and cannot get into the propeller. Strip and tin the ends.

③ Solder each wire to one phase pad of the ESC. The joint must be shiny and solid, without a cold joint.

④ Check that adjacent pads and wires do not touch each other. Bare parts of the wires must not come into contact with a carbon frame – carbon is electrically conductive.

⑤ Secure the wires on the arm (cable tie, heat-shrink tubing) so that they do not chafe against the edges of the frame.

2.4 Checking the direction of rotation

① **Remove the propellers.** Connect the multirotor to the computer and open the *Motors* tab in the Betaflight configurator.

② After confirming the safety notice, use the slider to spin each motor in turn at low speed and compare the direction of rotation with the motor layout diagram in the configurator.

③ If a motor spins in the wrong direction, swap any two of its three wires, or change the direction in software in the ESC configurator.

④ Repeat the check after the change.

2.5 Mounting the propeller

① Mount the propeller only after checking the direction of rotation and always with the battery disconnected.

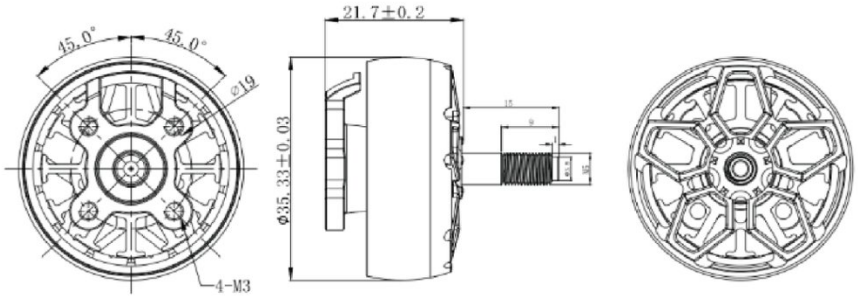
② Fit the propeller on the shaft with the correct side up and with the correct direction of rotation for the motor position.

③ Secure the propeller with the supplied M5 flange nut. Tighten it firmly, but do not crush the propeller.

④ Before every flight, check that the nut is tight and the propeller is not damaged.

3. Dimensions and manufacturer's test data

3.1 Dimensional drawing



Manufacturer's dimensional drawing (dimensions in mm): bottom, side and top view

3.2 Manufacturer's thrust tests

The manufacturer iFlight states the following measured values for this motor. The values are indicative; actual thrust and current draw depend on the propeller, battery, ESC, temperature and condition of the motor.

Propeller	Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
HQ 8×4×3	50	23.88	9.26	994	221.1	4.50
	60	23.78	15.62	1409	371.4	3.79
	70	23.71	21.45	1726	508.6	3.39
	80	23.58	29.85	2158	703.9	3.07
	90	23.44	39.27	2564	920.5	2.79
	100	23.30	49.23	2933	1147.1	2.56
GF 7040	50	23.94	5.00	579	119.7	4.83
	60	23.89	7.77	794	185.63	4.28
	70	23.84	11.78	1094	280.84	3.90
	80	23.76	17.10	1432	406.3	3.52
	90	23.67	23.22	1722	549.62	3.13
	100	23.56	30.36	2092	715.28	2.92

Motor temperature after the test according to the manufacturer: 77 °C with the HQ 8×4×3 propeller, 69 °C with the GF 7040 propeller.

4. Safety, maintenance and troubleshooting

4.1 Safety instructions

- A motor with a propeller spins at high speed and can cause serious injury. Always disconnect the battery when working on the multirotor; carry out tests in the configurator without propellers.
- Before approaching the multirotor, switch it to Disarm (motors off) and disconnect the battery.
- The motor heats up during operation – the manufacturer measured temperatures of up to 77 °C after the test. Do not touch the motor after a flight until it has cooled down.
- Do not operate the motor with a higher load than specified by the manufacturer (peak current 50 A, maximum power 1145 W). An oversized or high-pitch propeller overloads and overheats the motor.
- The motor contains strong neodymium magnets. Do not disassemble it, protect it from metal filings and dirt and keep it away from magnetic data carriers and medical implants (e.g. pacemakers).
- Neither the motor nor the ESC may get wet or come into contact with water, sand or dust during operation.
- This product is not a toy. Keep small parts (screws, nuts) out of the reach of children.
- When operating the multirotor, observe the regulations on the operation of unmanned aircraft applicable in the country in which you fly.

4.2 Maintenance

- After every flight, turn the motors by hand: they must rotate freely and smoothly, without rubbing, grinding or play.
- Remove dirt, grass and metal filings from the gap between the bell and the stator (the magnets attract them).
- Check that the mounting screws and the propeller nut are tight.
- Check the wire insulation and the solder joints on the ESC.
- After a crash, check whether the shaft is bent – a bent shaft causes vibration and overheating.
- Store the motor in a clean, dry place.

4.3 Troubleshooting

Problem	Possible cause and solution
The motor spins in the wrong direction	Swap two phase wires or change the direction in the ESC configurator (Chapter 2.4).
The motor stutters, beeps or does not start	Cold or broken solder joint, short circuit between wires, damaged winding (e.g. by an overly long screw), ESC fault. Check the joints and turn the motor by hand.
The multirotor vibrates, the motor is noisy	Damaged or unbalanced propeller, bent shaft, dirt in the motor, worn bearings, loose screws.
The motor overheats	Oversized or high-pitch propeller, bent shaft, vibration, unsuitable flight controller (FC) or ESC settings.
The motor rubs when turned by hand	Dirt or a metal filing in the gap, damaged bearing, bell deformed after a crash.

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

6.1 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 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.