ROTORAMA

XING2 2207 1750KV

Brushless motor for FPV drones
User manual



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

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1. Safety instructions

1.1 Before you start

The XING2 2207 1750KV motor is a powerful component of an FPV drone. If installed or operated incorrectly, a spinning propeller can cause serious injury or damage to property. Therefore, follow the instructions below.

- This product is not a toy. It is not intended for children; keep it out of their reach. Small parts (screws, nut) can be swallowed.
- Install and commission the motor only if you have basic knowledge of FPV drone building, soldering and configuring the flight controller (FC) and the electronic speed controller (ESC). If you are unsure, ask an experienced modeller for help.
- The motor may only be operated via a suitable electronic speed controller (ESC). Never connect it directly to a battery or any other voltage source.
- Do not modify or disassemble the motor and do not use a damaged motor.

1.2 Rotating parts and propellers

- Whenever you work on the drone (installation, soldering, configuration on a computer), **remove the propellers** and disconnect the battery.
- The motor can start spinning unexpectedly, for example after connecting the battery, due to an incorrect setting or after *Arm* (enabling the motors). Never keep your hands, face or loose objects within reach of the propellers.
- The rotating motor bell is dangerous even without a propeller – do not touch it and do not stop it by hand.
- Before every flight, check that the propeller is properly tightened and undamaged. Always replace a damaged propeller.
- The strong magnets in the motor attract metal objects (screws, filings, tools). Keep the motor clean and make sure nothing gets inside it.

1.3 Power supply and temperature

- Do not exceed the input voltage specified by the manufacturer (25.2 V, see Chapter 2.4).
- The motor heats up during operation. Touch it carefully after a flight – risk of burns.
- Do not cover the motor or obstruct the airflow around it. Do not run it on the ground with a propeller at high throttle for extended periods.
- Protect the motor from water, moisture, sand and dust. Do not start a wet or dirty motor.
- The motor leads must not be pinched, chafed or in contact with sharp edges of the frame – risk of short circuit and damage to the ESC.

2. Product description

2.1 Intended use

The iFlight XING2 2207 1750KV is a second-generation brushless electric motor of the XING series, designed to power FPV drones (multicopters). The motor has a Unibell-type bell made of 7075 aluminium alloy, a 5 mm titanium alloy shaft, center-slotted N52H curved arc magnets and NSK bearings. The input voltage of 25.2 V corresponds to a fully charged 6S Li-Po battery; the 1750 Kv version is suitable for freestyle drones with a 6S battery and 5" propellers.

- 5 mm titanium alloy shaft.
- Crash-resistant 7075 aluminium alloy bell.
- NSK φ9 × φ4 × 4 mm bearings.
- Center-slotted N52H curved arc magnets.
- Bearing gap protected by an O-ring (XING O-ring).
- Motor lead protector.
- Dynamically balanced rotor.

2.2 Package contents

Qty	Item
1×	XING2 2207 1750KV brushless motor (black)
4×	M3 × 10 mm screw for mounting the motor
1×	M5 flanged nut for fastening the propeller

※ According to the manufacturer, M3 × 7 mm screws were supplied until 26 Oct 2024; older production batches may therefore contain shorter screws. Always check the screw length according to Chapter 3.2.

Not included: propellers, electronic speed controller (ESC), flight controller (FC), frame, battery and tools.

2.3 Parts description



XING2 2207 1750KV motor

① **Shaft** made of titanium alloy, 5 mm diameter, threaded for the M5 nut – carries the propeller.

② **Bell (rotor)** of Unibell design made of 7075 aluminium alloy with N52H magnets – rotates together with the shaft.

③ **Stator with winding** – the fixed part of the motor, visible through the openings in the bell.

④ **Base** with four M3 mounting holes in a 16 × 16 mm pattern – fastened to the frame arm.

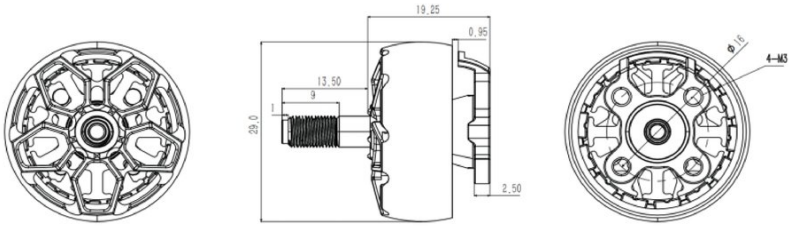
⑤ **Type designation** – size 2207 and the 1750KV rating.

2.4 Technical data

Parameter	Value
Model	XING2 2207 1750KV
Kv	1750 Kv
Configuration	12N14P
Weight (incl. leads)	30.5 g
Dimensions	φ29 × 32.75 mm
Input voltage	25.2 V (6S Li-Po)
Interphase resistance	74.23 mΩ
Peak current	36.03 A
Max. power	898 W
Mounting holes	16 × 16 mm, M3
Rotor design	Unibell
Shaft diameter	5 mm
Shaft protruding length	13.5 mm
Leads	160 mm, 20AWG
Magnets	N52H, curved
Bearings	NSK, φ9 × φ4 × 4 mm
Winding	single-strand copper wire
Propeller mounting	M5 flanged nut

※ The peak current and maximum power correspond to the manufacturer's measurement with a Gemfan 51466 propeller at full throttle (see Chapter 2.6).

2.5 Dimensional drawing



Dimensions in mm. From left: top view, side view, bottom view (mounting holes 4 × M3 on a φ16 mm pitch circle).

2.6 Performance data

The following values are stated by the manufacturer for the XING2 2207 1750KV motor with two types of 5" propellers. Actual values depend on the propeller, ESC and battery used and on the measurement conditions.

Propeller	Throttle (%)	Voltage (V)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
Nazgul F5	50	25.18	7.02	564	177	3.191
	60	25.12	9.97	785	250	3.134
	70	25.08	15.62	1047	392	2.673
	80	25.04	21.8	1248	546	2.286
	90	24.97	28.67	1452	716	2.028
	100	24.95	35.46	1678	885	1.897
Gemfan 51466	50	25.18	7.46	588	188	3.130
	60	25.12	10.5	803	264	3.044
	70	25.08	16.55	1085	415	2.613
	80	25.01	21.91	1268	548	2.314
	90	24.95	29.52	1507	737	2.046
	100	24.91	36.03	1703	898	1.897

Motor temperature stated by the manufacturer after the measurement: 60 °C with the Nazgul F5 propeller, 63 °C with the Gemfan 51466 propeller.

2.7 Manufacturer

iFlight Intelligent Technology Ltd.
F6, Building B2, Galaxy IMC, Beixin Road, No. 6, Zhongkai Avenue, Huizhou 516006, Guangdong, China
E-mail: support@iflight.com

3. Mounting on the frame

3.1 What you will need

- an FPV drone frame with motor mounting holes in a 16 × 16 mm pattern (M3),
- an electronic speed controller (ESC) rated for 6S supply and for the motor current (see Chapter 4.1),
- a flight controller (FC) with a configuration program (e.g. Betaflight),
- 5" propellers with a 5 mm shaft hole,
- a 6S Li-Po battery with a matching connector,
- a screwdriver or hex key for M3 screws, a wrench for the M5 nut, a fine soldering iron, solder and flux,
- medium-strength threadlocker (recommended).

3.2 Fastening the motor

① Place the motor on the frame arm so that the mounting holes in the base ④ line up with the holes in the arm. Route the leads towards the centre of the frame.

② Choose a suitable screw length. The supplied M3 × 10 mm screws are intended for the usual arm thickness; the screw length must match the arm thickness of your frame.

③ Screw the screws into the base and tighten them gradually in a crosswise pattern. You can apply medium-strength threadlocker to the threads.

④ After tightening, turn the bell by hand. It must rotate freely, without rubbing and without unusual noises.

A screw that is too long can touch the stator winding, damage the insulation and cause a short circuit that destroys both the motor and the ESC. A screw that is too short will not hold the motor securely. Before the first start-up, always check that the screws do not reach into the winding.

3.3 Routing the leads

- The motor leads are 160 mm long with a 20AWG cross-section. Shorten them as needed so that they reach the ESC pad without tension but do not protrude unnecessarily.
- Route the leads along the arm and secure them (e.g. with tape or heat-shrink tubing) so that they cannot get into the propeller or chafe against the edges of the frame.
- Do not pull on the leads and do not bend them sharply where they exit the motor.

4. Connecting to the ESC

4.1 Power supply and ESC sizing

The manufacturer specifies an input voltage of **25.2 V** for this motor, which corresponds to a fully charged **6S Li-Po** battery (4.20 V/cell). A 6S LiHV battery reaches 26.1 V when fully charged (4.35 V/cell) and therefore exceeds this value.

6S Li-Po battery state	Per cell	Whole pack
fully charged	4.20 V	25.2 V
end the flight	3.5 V	21.0 V
storage	3.8 V	22.8 V

The electronic speed controller (ESC) must be rated for a 6S supply and for the current drawn by the motor. With a 5" propeller at full throttle, the manufacturer measured a current of up to **36.03 A** (Chapter 2.6). Keep in mind that heavier or more aggressive propellers increase the current draw.

4.2 Soldering the leads

① Disconnect the battery and remove the propellers.

② Strip and tin the ends of the motor leads. Tin the pads on the ESC as well.

③ Solder the three motor leads to the three pads of the respective motor on the ESC. The order of the leads does not matter – it only determines the direction of rotation, which can be adjusted later (Chapter 4.3).

④ The joints must be shiny and solid, without solder bridges between adjacent pads. Check that no strand reaches an adjacent pad.

⑤ Before connecting the battery for the first time, we recommend using short-circuit protection (a so-called smoke stopper).

4.3 Direction of rotation

The required direction of rotation of each motor depends on the motor layout set in the flight controller (FC) – check it in the configuration program (in Betaflight on the *Motors* tab). If the motor spins the wrong way, you have two options:

- change the direction of rotation in software in the ESC configuration program, or
- swap any two of the three motor leads.

Always check the direction of rotation without propellers.

5. First start-up and propeller installation

5.1 Test without propellers

① Make sure the propellers are not installed.

② Connect the battery (via short-circuit protection the first time) and connect the flight controller to the computer.

③ In the configuration program (in Betaflight, the *Motors* tab), spin up each motor in turn at low speed.

④ Check that the motor starts smoothly, without stuttering, unusual noise or vibration, and in the correct direction.

⑤ After a short test, touch the motor. If it is noticeably warm without load, disconnect the battery immediately and look for the cause (short circuit, screw in the winding, damaged joint).

5.2 Installing the propeller

① Install the propellers only after a successful test and with the battery disconnected.

② Use 5" propellers with a 5 mm shaft hole. The manufacturer tested the motor with Nazgul F5 and Gemfan 51466 propellers.

③ Place the propeller on the shaft ① with the correct side up and with the correct direction of rotation for the given motor (CW / CCW propellers according to the motor layout).

④ Secure the propeller with the supplied M5 flanged nut. Tighten the nut firmly, but do not overtighten it – you could damage the propeller hub or the shaft thread.

⑤ Check that the propeller sits on the shaft without play and does not touch the frame, the leads or other parts.

6. Operation

6.1 Pre-flight check

- The motors are firmly screwed on and the screws are not loose.
- The bell rotates freely, has no axial or radial play and there is no dirt in the motor.
- The shaft is not bent – a spinning propeller does not wobble.
- The propellers are undamaged, in the correct direction and the nuts are tight.
- The leads are undamaged and out of reach of the propellers.
- Insert a **fully charged** 6S Li-Po battery (25.2 V, i.e. 4.20 V/cell) into the drone.

6.2 Motor temperature

- Check the motor temperature after the first flights. For the measurement with 5" propellers, the manufacturer states a motor temperature of 60–63 °C.
- If the motors are significantly hotter after a flight, reduce the load (lighter or less aggressive propellers), check the settings of the flight controller (FC) and the ESC, and look for possible oscillations.
- End the flight at the latest when the voltage drops to 3.5 V/cell (21.0 V for 6S). Deep discharge stresses both the battery and the power system.

7. Maintenance and troubleshooting

7.1 After the flight and after a crash

- Disconnect the battery, let the motors cool down and remove grass, sand and other dirt from them. Remove metal particles attracted by the magnets carefully, for example with adhesive tape or compressed air.
- After a crash, check that the bell rotates freely, the shaft is not bent, the bell is not deformed and the motor is firmly attached to the frame. Also check the leads and the solder joints on the ESC.
- Do not lubricate the motor, do not clean it with solvents and do not rinse it with water.

7.2 Bearings and shaft

The motor uses NSK φ9 × φ4 × 4 mm bearings. Worn bearings show up as noisy running, rubbing or play of the bell. A bent shaft shows up as vibration. Do not continue to use a motor with damaged bearings or a bent shaft; contact the retailer for repair or replacement.

7.3 Storage

- Store in a dry place, out of the reach of children and away from direct sunlight.
- Protect the motor from dust and metal objects that could be attracted by the magnets.

7.4 Troubleshooting

Problem	Possible cause and solution
Motor does not spin	Cold or broken joint on the ESC, incorrect FC or ESC settings – check the soldering and the configuration.
Motor spins the wrong way	Change the direction in the ESC configuration program or swap two motor leads (Chapter 4.3).
Motor stutters or is noisy	Poor joint, screw reaching into the winding, dirt in the motor or a damaged bearing. Disconnect the battery and inspect the motor.
Motor overheats	Propeller too heavy, oscillations in the FC settings, screw in the winding or a damaged bearing. Reduce the load and check the settings.
Strong vibration	Bent shaft, damaged propeller or loose motor. Replace the propeller, tighten the screws; do not use a motor with a bent shaft.
Burning smell, smoke	Disconnect the battery immediately. Do not use the motor or the ESC again without inspection.

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 (XING2 2207 1750KV) is 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.