



XING2 2207 1855KV

iFlight · brushless motor for FPV drones
User Manual



Read the entire manual before installation. Always remove the propellers when working on the drone and when testing the motors.

Rotorama, s.r.o. · www.rotorama.com

Contents

1. Safety Instructions

- 1.1 General principles
- 1.2 Rotating parts and propellers
- 1.3 Electrical and thermal hazards

2. Product Description

- 2.1 What the motor is for
- 2.2 Package contents
- 2.3 Parts description
- 2.4 Specifications
- 2.5 Dimensional drawing

3. Performance Data

- 3.1 Manufacturer's measurements
- 3.2 Choosing the propeller, battery and ESC

4. Installation

- 4.1 What else you need
- 4.2 Mounting the motor to the frame
- 4.3 Connecting to the electronic speed controller (ESC)

5. Setup

- 5.1 Check without propellers
- 5.2 Direction of rotation
- 5.3 Flight controller (FC) settings
- 5.4 Mounting the propeller

6. Operation

- 6.1 Pre-flight check
- 6.2 After the flight

7. Maintenance and Troubleshooting

7.1 Regular maintenance

7.2 Bearings and bell

7.3 Storage

7.4 Troubleshooting

8. Information for the EU and Czech Market

8.1 Importer and responsible person in the EU

8.2 Product conformity

8.3 Disposal of electrical equipment

9. Warranty and rights arising from defective performance

1. Safety Instructions

1.1 General principles

The **XING2 2207 1855KV** motor is a high-performance component of an FPV drone. Incorrect installation or operation may cause serious injury or damage to property. Read this entire manual before installation and keep it for future reference.

- The product is intended for experienced hobbyists and is not a toy. Keep it out of the reach of children.
- Use the motor only in accordance with the specifications in chapter 2.4 and with the manuals of the flight controller (FC), electronic speed controller (ESC) and frame you combine it with.
- Do not modify the motor. Do not continue to use a damaged motor (bent shaft, cracked bell, damaged wire insulation).
- Operation of the drone in which you install the motor is governed by the regulations of the country in which you fly. In the EU, Regulations (EU) 2019/947 and 2019/945 apply, but national implementing rules differ from country to country – the law of the country of operation always prevails.

1.2 Rotating parts and propellers

- Whenever you work on the drone – soldering, configuring, testing the motors – **always remove the propellers first.**
- A propeller on a motor running at high speed can cause deep cuts. Never reach into the propeller area while a battery is connected.
- Before connecting the battery, make sure the drone is disarmed (motors off) and the Arm switch on the radio transmitter is in the off position.
- Always tighten the propeller nut. A loose propeller can fly off during flight.

1.3 Electrical and thermal hazards

- Connect the motor only via an electronic speed controller (ESC). Never connect it directly to a battery or power supply.
- Solder only with the battery disconnected. Insulate the joints to prevent short circuits between wires or to the carbon frame.
- The motor bell may be hot after a flight. Let the motor cool down before touching it.
- Strong neodymium magnets attract metal objects (screws, filings, tools). Store the motor in a clean environment and away from magnetically sensitive objects.

2. Product Description

2.1 What the motor is for

The iFlight XING2 2207 1855KV is a 2207-size brushless motor for FPV drones. The 1855 KV version is designed for high-performance freestyle and racing drones with a 6S battery and 5" propellers.

The motor uses curved N52H magnets with a centre slot, a 5 mm titanium alloy shaft, a one-piece 7075 aluminium alloy bell (unibell) and NSK bearings. The bearing is protected by a sealing O-ring, the wires by a protector, and the motor is dynamically balanced.

2.2 Package contents

Qty	Item
1	XING2 2207 1855KV brushless motor
4	M3 × 8 mm screw
1	M5 flange nut (for mounting the propeller)

※ Until 14 Jan 2025 the manufacturer supplied M3 × 7 mm screws; older packages may contain them.

Not included: propellers, electronic speed controller (ESC), flight controller (FC), battery or frame. The package contains one motor – a quadcopter needs four.

2.3 Parts description



XING2 2207 1855KV motor – side view

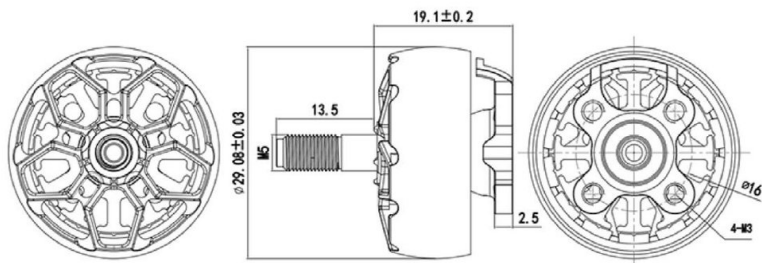
- ① M5 thread on the shaft – used to secure the propeller with an M5 nut.
- ② Titanium alloy shaft, 5 mm diameter.
- ③ 7075 aluminium alloy bell (unibell) with the model marking.
- ④ Motor base with four M3 mounting holes at 16 × 16 mm spacing on the underside; the three motor wires exit from the base.

2.4 Specifications

Parameter	Value
Stator size	2207
KV	1855 KV
Configuration	12N14P
Input voltage	24 V
Peak current	35.08 A
Maximum power	841.90 W
Interphase resistance	50 mΩ
Weight (incl. wires)	31.6 g
Dimensions (Ø × height)	29.08 × 32.6 mm
Mounting holes	4× M3, 16 × 16 mm spacing
Shaft diameter	5 mm, titanium alloy
Shaft protruding length	13.5 mm
Propeller thread	M5
Wires	160 mm, 20 AWG
Bell	unibell, 7075 aluminium alloy
Magnets	N52H, curved
Bearings	NSK, 9 × 4 × 4 mm
Winding	single-strand copper wire

Data provided by the manufacturer iFlight.

2.5 Dimensional drawing



Dimensions in mm (manufacturer's drawing). From left: top, side and bottom view with 4 M3 holes on a Ø16 circle.

3. Performance Data

3.1 Manufacturer's measurements

The manufacturer iFlight measured the motor at 24.0 V with two types of propellers. The values are indicative and intended for comparison; actual thrust and current depend on the battery, ESC, propeller and temperature.

Propeller	Throttle (%)	Current (A)	Thrust (g)	Power (W)	Efficiency (g/W)
GF51466	50	8.23	864	197.5	4.37
	60	11.86	1021	284.6	3.59
	70	17.63	1208	423.1	2.85
	80	22.48	1339	539.5	2.48
	90	27.38	1509	657.1	2.30
	100	35.08	1685	841.9	2.00
5140	50	7.53	713	180.7	3.95
	60	10.56	909	253.4	3.59
	70	15.36	1081	368.6	2.93
	80	20.30	1231	487.2	2.53
	90	26.13	1334	627.1	2.13
	100	33.53	1436	804.7	1.78

Test voltage 24.0 V. Motor temperature during the test: 55 °C (GF51466), 56 °C (5140).

3.2 Choosing the propeller, battery and ESC

- **Propeller:** the motor is designed for 5" propellers mounted on a 5 mm shaft with an M5 nut. A larger or more aggressive propeller increases the current and temperature of the motor.
- **Battery:** 6S LiPo. Fully charged: 4.20 V/cell (25.2 V); end the flight at 3.5 V/cell (21.0 V) at the latest; for storage leave 3.8 V/cell (22.8 V). Always insert a fully charged battery before flight.
- **Electronic speed controller (ESC):** choose a 6S-rated ESC whose current rating covers the motor's peak current of 35.08 A with a margin.

4. Installation

4.1 What else you need

- a frame for motors with 16 × 16 mm hole spacing and M3 screws,
- an electronic speed controller (ESC) and flight controller (FC) running Betaflight or similar firmware,
- 5" propellers for a 5 mm shaft,
- a screwdriver or hex key matching the supplied screws, a wrench for the M5 nut,
- a soldering iron with sufficient power, solder and insulation (heat-shrink tubing),
- medium-strength threadlocker (recommended).

4.2 Mounting the motor to the frame

- ① Place the motor on the frame arm so that the four M3 holes in the base line up with the holes in the arm and the wires point towards the ESC.
- ② Choose screws of a length that engages the thread sufficiently after passing through the arm but **does not touch the stator winding**. Compare the length of the supplied screws with the thickness of the arm and use screws of a different length if necessary.
- ③ Tighten the screws gradually in a cross pattern. Do not overtighten them – the thread in the base could strip.
- ④ After tightening, turn the bell by hand. It must rotate freely, without rubbing or clicking.

A screw touching the winding damages the insulation and causes a short circuit. A short circuit can destroy both the ESC and the motor. Such damage is not a product defect.

4.3 Connecting to the electronic speed controller (ESC)

- The motor has three 20 AWG wires, 160 mm long. Shorten them to the required length so that they are not under tension and cannot get into the propeller.
- The order of the three wires does not matter – it only determines the direction of rotation, which can be changed later (chapter 5.2).
- Strip and tin the wire ends and solder them to the ESC pads. The joint must be shiny and solid; a cold joint causes the motor to stutter and overheat.
- Check that adjacent joints do not touch and that the wires are not pinched between the frame arms.
- Secure the wires to the arm (with a cable tie or heat-shrink tubing) so that they do not vibrate and cannot get into the propeller.

5. Setup

5.1 Check without propellers

Carry out all steps in chapters 5.1 to 5.3 without propellers.

- Connect the drone to a computer and open the *Motors* tab in the configurator (e.g. Betaflight Configurator). After confirming the safety notice, spin each motor individually at low throttle.
- The motor must start smoothly, without stuttering, rubbing or unusual noise.
- If the motor does not start or stutters, disconnect the battery and check the solder joints.

5.2 Direction of rotation

Each motor must rotate in the direction corresponding to its position on the frame according to the diagram in the configurator (*Motors* or *Setup* tab).

- Change the direction of rotation in the ESC configuration (e.g. in the configurator for BLHeli, Bluejay or AM32) or by swapping any two of the three motor wires.
- If you use the reversed motor direction option in Betaflight (*Motor direction is reversed*), follow the diagram for this option.

5.3 Flight controller (FC) settings

- The motor has a **12N14P** configuration, i.e. 14 magnetic poles. When using RPM-based filtering (RPM filter with bidirectional DShot), set the *Motor poles* parameter in the configurator to **14**.
- Set the protocol and other ESC parameters according to the manuals of the ESC and flight controller.

5.4 Mounting the propeller

- ① Disconnect the battery.
- ② Fit the propeller on the shaft so that its direction of rotation matches the direction of rotation of the motor (according to the marking on the propeller).
- ③ Secure the propeller with the supplied M5 flange nut and tighten the nut firmly while holding the bell, not the winding or the wires.
- ④ Check that the propeller sits straight and does not touch the frame or the wires.

6. Operation

6.1 Pre-flight check

- Insert a fully charged 6S battery into the drone (4.20 V/cell, 25.2 V).
- The motors are firmly screwed on, the bells rotate freely and have no play.
- The propellers are undamaged, correctly oriented and the M5 nuts are tightened.
- The motor wires are secured, have no damaged insulation and are out of reach of the propellers.
- When you Arm (switch on the motors), all motors spin up evenly and without unusual noise.

6.2 After the flight

- End the flight at a voltage of 3.5 V/cell (21.0 V) at the latest.
- After landing and Disarm (switching off the motors), disconnect the battery.
- Carefully check the temperature of the motors. If one motor is noticeably warmer than the others, find the cause (chapter 7.4) before flying again.
- After a crash, check whether the shaft is bent or the bell is damaged.

7. Maintenance and Troubleshooting

7.1 Regular maintenance

- Remove dust, sand, grass and metal particles from the motor. The magnets attract them and they can damage the winding or the bearings.
- Check that the mounting screws and propeller nuts are tight.
- Check the wire insulation and the solder joints at the ESC.
- Do not clean the motor with a jet of water or with solvents.

7.2 Bearings and bell

- The motor uses NSK bearings measuring $9 \times 4 \times 4$ mm. Rough running, clicking or play in the bell indicate a worn or damaged bearing.
- Do not straighten a bent shaft – the motor would vibrate. The manufacturer offers a replacement bell for this motor, *XING2 2207 Replacement Bell*.
- Leave disassembly of the motor and replacement of the bearings or bell to an experienced user or a service centre. When disassembling, mind the strong magnets and do not damage the winding.

7.3 Storage

- Store the motor in a dry and clean place, protected from dust and moisture.
- Store the drone battery at 3.8 V/cell (22.8 V) and disconnected from the drone.

7.4 Troubleshooting

Problem	Possible cause and solution
Motor stutters or does not start	Cold or broken solder joint, damaged wire. Disconnect the battery and resolder the joints.
Motor spins the wrong way	Change the direction in the ESC settings or swap two wires (chapter 5.2).
Strong vibrations	Damaged propeller, bent shaft, loose screws or nut. Replace the propeller, check the shaft and tightness.
Rubbing, clicking, rough running	Dirt in the motor or a worn bearing. Clean the motor or replace the bearings.
Motor overheats	Propeller too large, vibrations, unsuitable filter and PID settings or damaged winding. Check the propeller and settings; do not use the motor if the winding is damaged.
Burning smell, short circuit	Screw reaching into the winding or damaged insulation. Disconnect the battery immediately and stop using the motor.

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@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.com

8.2 Product conformity



- 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@rotorاما.cz.
- **Product identification:** the type designation (XING2 2207 1855KV) 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.