ROTORAMA

KOKO 2004 2900KV

Brushless motor for FPV drones
Skystars · pack of 2



Read the entire manual before installation and first start-up. Mount the propellers only after checking the direction of rotation of the motors.

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Contents

1. Product description

1.1 Intended use

1.2 Specifications and package contents

2. Safety instructions

3. Installation and wiring

3.1 Mounting on the frame

3.2 Connecting to the electronic speed controller (ESC)

3.3 Direction of rotation

3.4 Power supply and propellers

4. First start-up and operation

5. Maintenance and troubleshooting

6. Information for the EU and Czech Market

6.1 Importer and responsible person in the EU

6.2 Disposal of electrical equipment

7. Warranty and rights arising from defective performance

1. Product description

1.1 Intended use

The Skystars KOKO 2004 2900KV is a brushless outrunner electric motor designed to drive the propellers of FPV drones and other multicopters. According to the manufacturer, it is intended for 3S–4S Li-Po batteries and 3–5 inch propellers; it is suitable, for example, for cinewhoops, powerful 4" quads or ultralight 5" builds.

The motor is fastened to the frame arm with M2 screws, and its three wires are connected to the electronic speed controller (ESC). The ESC controls the speed and direction of rotation according to commands from the flight controller (FC). The package contains two motors.



Skystars KOKO 2004 2900KV – view of the motor bell with shaft

1.2 Specifications and package contents

Parameter	Value
Manufacturer / model	Skystars KOKO 2004 2900KV
Motor size	2004
Motor dimensions	25.8 × 12 mm
Kv constant	2900 KV
Configuration	12N14P
Power supply	3S–4S Li-Po
Recommended propellers	3–5"
Max. current	26.2 A
Max. power	400 W
No-load current	0.8 A

Parameter	Value
Internal resistance	210 mΩ
Shaft diameter	1.5 mm
Mounting holes	12 mm spacing, M2 thread
Wires	3× 22AWG, length 150 mm
Weight	15.8 g (1 pc)

Data provided by the manufacturer.

▶ Package contents

- 2× Skystars KOKO 2004 2900KV motor
- 2× screw set

▶ Not included

Propellers, electronic speed controller (ESC), flight controller (FC), frame, battery and connectors are not included. Soldering supplies and tools must be provided by the user.

Product identification: Skystars KOKO 2004 2900KV. The size **2004** and the constant **2900kv** are marked on the motor bell.

2. Safety instructions

- The motor spins the propeller at high speed. A rotating propeller can cause serious injury. **Always remove the propellers during any work on the drone, configuration and motor tests.**
- Connect the battery only immediately before a flight or test and always disconnect it afterwards. Never work on a powered drone.
- Do not exceed the power supply and propeller size specified by the manufacturer (Chapter 1.2). An oversized propeller or a higher voltage overloads and overheats both the motor and the ESC.
- The motor heats up during operation. Do not touch it after a flight until it has cooled down.
- The motor bell contains strong permanent magnets. Keep it away from metal filings, screws and small metal objects, and out of the reach of children.
- The motor is a component intended for installation. Carry out mounting and soldering only if you are familiar with FPV drone electronics; if in doubt, consult a specialist.
- Operate the drone in accordance with the regulations of the country in which you fly.

3. Installation and wiring

3.1 Mounting on the frame

① Place the motor on the frame arm so that the motor mounting holes (12 mm spacing) line up with the holes in the arm and the wires point towards the centre of the frame.

② Fasten the motor with the M2 screws from the set. Choose the screw length according to the thickness of the arm.

③ Tighten the screws evenly and carefully so as not to damage the thread in the motor base. We recommend securing them with a medium-strength threadlocker.

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

※ The screw must not be too long. If screwed in too deep, it touches the stator windings, damages their insulation and causes a short circuit that destroys both the motor and the ESC.

3.2 Connecting to the electronic speed controller (ESC)

The motor has three 22AWG wires, 150 mm long. Solder them to the three pads of the respective motor on the ESC. The order of the wires only affects the direction of rotation (Chapter 3.3).

- Shorten the wires to the required length so that they are not under tension and cannot reach the propeller.
- Tin the wire ends and solder quickly with a sufficiently powerful soldering iron. Finished joints must be shiny, without cold joints and without bridging adjacent pads.
- Secure the wires on the arm (cable tie, heat-shrink tubing) and protect them from chafing on sharp edges of the frame.

3.3 Direction of rotation

The direction of rotation of each motor must match the motor layout of the firmware used on the flight controller (FC), e.g. Betaflight. You can change the direction in one of two ways:

- **in software** – by reversing the direction of the respective motor in the ESC configuration program,
- **in hardware** – by swapping any two of the three motor wires.

If all motors rotate in the reverse direction, you can enable the *Motor direction is reversed* option on the *Motors* tab in Betaflight; then mount the propellers in the opposite orientation.

3.4 Power supply and propellers

- The manufacturer specifies **3S–4S Li-Po** batteries for this motor. A fully charged Li-Po cell has 4.20 V (3S: 12.6 V; 4S: 16.8 V).
- The manufacturer specifies propellers with a diameter of **3–5 inches**. Use propellers designed for motors with a 1.5 mm shaft and fasten them according to the propeller manufacturer's instructions.
- The ESC must be rated for the maximum motor current (26.2 A) and for the voltage of the battery used.
- Mount the propellers only after checking the direction of rotation and always in the correct orientation (CW / CCW) according to the motor position.

4. First start-up and operation

① **Without propellers**, connect the drone to a computer and in the configurator (e.g. Betaflight, *Motors* tab) spin up each motor in turn at low speed.

② Check that the motor runs smoothly, without stuttering, excessive noise or vibration, and in the correct direction.

③ Mount the propellers in the correct orientation and tighten them firmly.

④ After the first short flights, check the motor temperature. A motor that is noticeably warmer than the others after a flight or too hot to touch may be overloaded (oversized propeller, unsuitable settings) or damaged.

▶ During operation

- Before every flight, check that the motors are firmly screwed on, the propellers are tight and undamaged, and the bells rotate freely.
- After a crash, switch the drone off immediately (Disarm – motors off). A motor blocked by a propeller stuck in grass or against an obstacle overheats within moments.
- Do not allow sand, metal filings or water to get into the motors.

5. Maintenance and troubleshooting

- After flying in a dusty or sandy environment, clean the motor with a dry brush or compressed air.
- Regularly check for a bent shaft, a damaged bell or chafed wire insulation.
- Check that the mounting screws and propellers are tight.
- Store the motor in a dry place away from small metal objects.

Problem	Possible cause and solution
Motor rotates in the wrong direction	Change the direction in the ESC configuration or swap two wires (Chapter 3.3).

Problem	Possible cause and solution
Motor does not spin, only beeps or stutters	Cold or broken solder joint, short circuit between pads, damaged wire. Check the soldering. Screw touching the windings (Chapter 3.1).
Rubbing, uneven running	Dirt between bell and stator, bent shaft or mechanical damage. Clean the motor; replace it if damaged.
Strong vibrations	Damaged or unbalanced propeller, bent shaft, loose screws. Replace the propeller, tighten the screws.
Motor overheats	Oversized propeller, voltage outside 3S–4S, unsuitable ESC or FC settings, damaged windings.

6. Information for the EU and Czech Market

6.1 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

6.2 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.

7. Warranty and rights arising from defective performance

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 6.1.
- 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.