AlfaRC Apex 2" V4

Carbon freestyle FPV drone frame for 2" propellers
User manual



Read the entire manual before assembly and the first flight. The frame is a kit part – motors, propellers, electronics and the battery are not included.

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Contents

1. Product description

1.1 Intended use

1.2 Specifications and package contents

2. Use

2.1 What else you need

2.2 Assembly

2.3 Setup and first flight

2.4 Safety and maintenance

3. Information for the EU and Czech Market

3.1 Importer and responsible person in the EU

3.2 Disposal

4. Warranty and rights arising from defective performance

1. Product description

1.1 Intended use

AlfaRC Apex 2" V4 is a small carbon freestyle frame for building an FPV drone (quadcopter) with 2" propellers. A finished 2" drone is suitable for flying in a garden, a park, on a playground or in a gym.

The frame forms the load-bearing structure of the drone. Four motors are mounted at the ends of the arms, a stack (flight controller (FC) and electronic speed controller (ESC)) or an AIO board combining both on a single board goes into the centre section, and a Nano-size camera goes into the front. The bottom plate with the arms is made of 2.5 mm thick carbon, the top plate is 1.5 mm thick.



AlfaRC Apex 2" V4 (illustrative photo)

1.2 Specifications and package contents

Manufacturer	AlfaRC
Product designation	Apex 2" V4
Type	freestyle FPV drone frame
Material	carbon
Diagonal motor distance	95 mm
Max. propeller size	2"
Bottom plate thickness	2.5 mm
Top plate thickness	1.5 mm
Stack height	20 mm
Stack mounting holes	20×20 mm M2 (stack) / 25.5×25.5 mm M2 (AIO board)
Motor mounting holes	9 mm M2

Camera size	Nano (14 mm)
Weight	18 g
Package contents	1× frame

※ Motors, propellers, flight controller, speed controllers, camera, video transmitter, receiver, battery, charger and radio transmitter are not included.

2. Use

2.1 What else you need

To build a flyable drone you will need parts that match the frame dimensions:

- **4 motors** with 9 mm mounting holes for M2 screws, designed for 2" propellers,
- **2" propellers** (two counter-clockwise and two clockwise),
- a **stack** with 20×20 mm M2 mounting holes or an **AIO board** with 25.5×25.5 mm M2 holes; all electronics including the damping grommets must fit within a height of 20 mm,
- a **Nano-size camera** (14 mm wide),
- a **video transmitter (VTX)** and a **receiver** compatible with your FPV goggles and radio transmitter,
- a **battery** suitable for the chosen motors and a **charger**,
- M2 screws of suitable length, hex keys, a soldering iron and cable ties.

2.2 Assembly

① **Frame check.** Before assembly, check that the carbon parts are not cracked or delaminated and that all frame screws are tight.

② **Motors.** Screw the motors to the ends of the arms with M2 screws. The screw must not be longer than the thread in the motor base allows – a screw that is too long touches the windings and destroys the motor. Route the motor wires along the arms and secure them.

③ **Stack or AIO board.** Mount the electronics on the matching mounting holes (20×20 mm or 25.5×25.5 mm) using rubber damping grommets. The arrow on the flight controller (FC) should point forward; otherwise set the orientation in the configuration.

④ **Camera.** Fix the Nano-size camera in the front of the frame and set the desired tilt angle.

⑤ **Wiring.** Solder the motors, power lead, receiver and video transmitter according to the manual of the electronics. Route the wires so that they do not touch the carbon edges and cannot get into the propellers.

⑥ **Top plate.** Fit the top plate and tighten the screws gently – the threads strip easily when overtightened. Medium-strength threadlocker can be used to prevent loosening by vibration.

⑦ Fit the **propellers** only after the drone has been set up and the motor rotation direction has been checked.

❊ Carbon is electrically conductive. Wire insulation chafed through on the frame edge can cause a short circuit and damage the electronics or the battery.

2.3 Setup and first flight

Configure the flight controller in the configuration software (typically Betaflight) according to the manual of the electronics used. Without propellers, check in particular:

- the flight controller orientation and the correct response of the model in the configurator preview,
- motor order and direction of rotation,
- binding of the receiver to the radio transmitter and the function of the **Arm** (motors on) / **Disarm** (motors off) switch,
- **failsafe** settings – the motors must stop after signal loss.

Before every flight insert a **fully charged** battery (Li-Po 4.20 V/cell, LiHV 4.35 V/cell). End the flight at the latest when the voltage drops to 3.5 V/cell, and store a battery that you will not use for a longer time at 3.8 V/cell. Make the first flight in an open area with no people nearby.

2.4 Safety and maintenance

- Rotating propellers can cause injury. With the battery connected, handle the drone only in the Disarm state and disconnect the battery immediately after landing.
- Do not sand, drill or cut carbon without respiratory and eye protection – carbon dust irritates the skin and airways. Beware of sharp edges.
- After every crash, check the arms and plates. A cracked or delaminated part no longer has its original strength and must be replaced.
- Regularly check that the screws of the motors, standoffs and electronics are tight.
- A finished drone is an unmanned aircraft. Operation in the EU is governed by Regulations (EU) 2019/947 and 2019/945, but national rules differ from country to country – **the law of the country in which you fly always applies**. In the Czech Republic, information on operator registration and the pilot examination is provided by the Civil Aviation Authority (www.caa.gov.cz).

3. Information for the EU and Czech Market

3.1 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

3.2 Disposal

- The frame itself is made of carbon composite and contains no electronics or batteries. At the end of its service life, dispose of it in accordance with your local waste management rules. Do not burn carbon parts.
- A finished drone with electronics and a battery is electrical equipment. Before disposing of the frame, remove the electronics and the battery and take them to a collection point for electrical equipment and batteries – they must not be put into mixed municipal waste.

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.

4. 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 3.1.
- 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.