Nanofly20

Sub250 – 2" FPV drone frame
User manual



Read this manual carefully before building and flying for the first time and keep it for future reference.

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1. Product description

1.1 Intended use

Sub250 Nanofly20 is a lightweight toothpick frame for building a small FPV drone with **2-inch** propellers. The diagonal motor-to-motor distance is 88 mm, the main plate is CNC-cut from 1.5 mm carbon fibre and the complete frame weighs 8.4 g. It is designed for 0803, 1002 and 1102 size motors with M1.4 mounting holes and for AIO flight controllers with 25.5 × 25.5 mm mounting holes.

The frame lets you build a lightweight drone powered by a single-cell (1S) battery with analog or digital video – the manufacturer lists the Walksnail Avatar and HDZero video transmitters. The 3D-printed canopy holds a nano size camera (14 × 14 mm). The frame is sold on its own, without electronics; you assemble the drone yourself.



Sub250 Nanofly20 – frame with 3D-printed canopy

1.2 Specifications and package contents

Parameter	Value
Product designation	Sub250 Nanofly20 Frame
Manufacturer	Sub250
Propeller size	2"
Motor-to-motor distance (diagonal)	88 mm
Carbon plate thickness	1.5 mm
Motor mounting	3× M1.4, Ø 6.6 mm pattern
Compatible motors	0803, 1002, 1102
Flight controller mounting	25.5 × 25.5 mm (AIO)
Camera space	14 × 14 mm (nano)
Frame weight	8.4 g

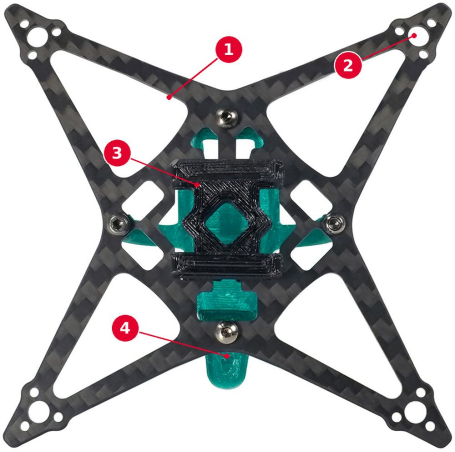
▶ Package contents

- 1× Nanofly20 frame (carbon plate)
- 1× 3D-printed camera canopy
- 1× battery holder
- 4× M2 × 18 round head screw
- 4× M2 × 12 round head screw
- 2× M2 × 3 round head screw
- 2× M1.4 × 3 round head Phillips screw

※ Motors, flight controller (FC), ESCs, camera, video transmitter (VTX), receiver, propellers, battery and charger are NOT included.

2. Assembly and use

2.1 Parts overview



Frame viewed from below

① carbon frame plate (1.5 mm thick)

② motor mounting holes (3× M1.4, Ø 6.6 mm pattern)

③ battery holder

④ 3D-printed camera canopy

2.2 What you need for the build

- **4 motors** of size 0803, 1002 or 1102 with 3× M1.4 mounting on a Ø 6.6 mm pattern,
- an **AIO flight controller** (FC with integrated ESCs) with 25.5 × 25.5 mm mounting holes, e.g. a single-cell 1S board with 5 A ESCs,
- a nano size **camera** (14 × 14 mm) and a video transmitter – analog or digital (e.g. Walksnail Avatar, HDZero),
- a **receiver** (if not integrated in the flight controller), **2" propellers** and a single-cell **1S** battery,
- tools: Phillips and hex screwdrivers matching the screws, a soldering iron and solder, double-sided tape or cable ties.

2.3 Assembly procedure

The manufacturer does not publish assembly instructions for this frame. The following procedure is general and based on common practice for building small FPV drones:

① Unpack the frame and check that the carbon plate is not cracked or delaminated and that no part of the package contents is missing.

② Screw the motors to the ends of the arms. Use M1.4 screws of suitable length – the screw **must not reach into the motor windings**. Route the motor wires along the arms to the centre of the frame.

③ Place the AIO flight controller (on rubber dampers, if used) on the 25.5 × 25.5 mm mounting holes and fasten it with the M2 screws from the package. Choose the screw length according to the height of the stack; the screws must not short-circuit or mechanically stress the board.

④ Solder the motor wires to the ESC pads on the flight controller and connect the camera, video transmitter and receiver according to their manufacturers' documentation.

⑤ Insert the camera into the canopy and screw the canopy to the frame. Route the video transmitter and receiver antennas so that they cannot reach the propellers.

⑥ Attach the battery holder to the underside of the frame.

⑦ Install the propellers only after the flight controller is fully configured and the motor direction has been checked.

2.4 Check after assembly

- No screw is loose and no wire or antenna reaches into the propeller path.
- Soldered joints are not shorted and the wire insulation is not damaged by the carbon edges.
- The motor direction and order match the settings in the flight controller configurator (e.g. Betaflight).
- The battery sits firmly in the holder and cannot come loose in flight.

3. Safety and operation

3.1 Safety during the build

- The edges of carbon parts can be sharp. Sanding or drilling carbon produces dust that irritates the skin and respiratory tract – wear respiratory protection and work in a well-ventilated area.
- Carbon fibre is **electrically conductive**. Wires and electronic pads must not touch a bare frame edge – this may cause a short circuit and damage the electronics or the battery.
- When soldering, follow the safety rules for working with a soldering iron and work on a non-flammable surface.
- Keep small parts (screws) out of the reach of children.

3.2 Operating the finished drone

- Before every flight, insert a **fully charged** battery (1S Li-Po 4.20 V, 1S LiHV 4.35 V per cell). End the flight at 3.5 V per cell at the latest; for storage, charge or discharge the battery to 3.8 V per cell.
- Arm (motors on) only at a safe distance from people and Disarm (motors off) immediately after landing. Spinning propellers can cause injury.
- Drone operation in the EU is governed by Regulations (EU) 2019/947 and 2019/945. National implementing rules, however, differ from country to country – operator registration, geographical zones, insurance, permitted frequencies and transmit power. **The law of the country in which you fly the drone always applies.**
- In the Czech Republic, the operator of a drone with a camera must be registered with the Civil Aviation Authority, regardless of the drone's weight.

3.3 Maintenance

- After every crash, check the frame for cracks or delamination. Replace a damaged carbon plate – a cracked arm may fail in flight.
- Regularly check that the motor and flight controller screws are tight.
- Replace a worn or cracked 3D-printed canopy or battery holder.

4. Information for the EU and Czech Market

4.1 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

4.2 Disposal

- The frame itself contains no electronics or battery and **is not electrical equipment**. It consists of a carbon fibre composite plate, 3D-printed plastic parts and steel screws.
- Dispose of an unwanted frame in accordance with the waste rules applicable where you live – usually as mixed municipal or bulky waste, with the metal screws going to metal collection. Carbon parts do not belong in separated plastic waste.
- **Never burn** carbon fibre – burning releases harmful fumes and fibres.
- If you dispose of a complete drone built on this frame, hand in the electronics (motors, flight controller, camera, video transmitter, receiver) and batteries separately at a collection point for electrical equipment and batteries.

5. 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 4.1.
- 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.