DarwinFPV TinyApe

2.5" carbon frame for a freestyle FPV drone
Analog version · user manual



Read this entire manual before assembly and the first flight, and keep it for future reference.

Rotorama, s.r.o. · www.rotorama.com

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1. Product description

1.1 Intended use

DarwinFPV TinyApe is a 2.5" carbon frame with a diagonal motor-to-motor distance of 108 mm. It serves as the supporting structure for building a light and agile freestyle FPV drone that can be flown even in smaller and confined spaces.

This is the **analog version** of the frame. It is designed for a build with an AIO board (flight controller and electronic speed controllers on one board), a nano-size analog FPV camera and an analog video transmitter (VTX). This version of the frame is not suitable for digital FPV systems. The frame is supplied as a kit without electronics.



DarwinFPV TinyApe – assembled frame, top view

1.2 Technical data and package contents

Parameter	Value
Propeller size	max. 2.5"
Diagonal motor-to-motor distance	108 mm
Configuration	Wide X
Dimensions	98 × 98 × 23 mm
Material	carbon fibre composite
Bottom plate and arm thickness	2 mm
Top plate thickness	2 mm
Camera side plate thickness	2 mm
Motor mounting	8.5 mm spacing, M1.6 screws
AIO board mounting (stack)	25.5 × 25.5 mm
Stack height	15 mm
Camera	nano (14 mm wide)
Recommended motors	size 1002–1305
Recommended propellers	Gemfan 2512-3

▶ Package contents

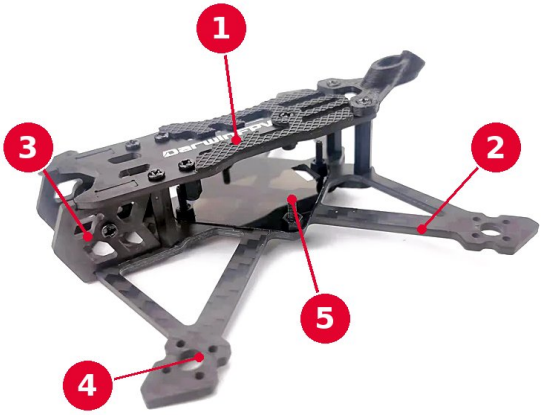
- 1× frame (bottom plate with arms, top plate, camera side plate)
- 1× screw set
- 1× accessory pack

▶ Not included

Motors, propellers, AIO board (flight controller and electronic speed controllers), FPV camera, video transmitter, antenna, receiver, battery, charger, radio transmitter and FPV goggles. These parts must be purchased separately.

Product identification: DarwinFPV TinyApe Analog Frame, manufacturer code 05.01.0003.

1.3 Parts overview



Main parts of the frame (the front with the camera is on the left)

① **Top plate** – covers the electronics stack.

② **Arm** – the arms form one piece with the bottom plate; braces between the arms are fitted at the front and at the rear.

③ **Camera side plate** – holds the nano-size FPV camera at the front of the frame.

④ **Motor mounting holes** – 8.5 mm spacing for M1.6 screws.

⑤ **Stack area** – 25.5 × 25.5 mm mounting holes for the AIO board, 15 mm height.

2. Use

2.1 Safety instructions

- The frame is intended to be built into a drone by persons experienced in assembling and soldering FPV equipment. This product is not a toy and must be kept away from children.
- **Carbon fibre is electrically conductive.** No solder pad, wire or component may come into direct contact with the carbon plates – this could cause a short circuit, damage to the electronics or a battery fire.
- The edges of carbon parts may be sharp. Handle them with care; the edges can be lightly sanded if necessary.
- **Do not drill, sand or cut carbon dry** without respiratory and eye protection – carbon fibre dust is irritating and conductive. Work wet and clean up the dust thoroughly.
- Follow the usual rules when soldering: work on a non-flammable surface in a ventilated room and never put the soldering iron down outside its stand.
- Fit the propellers only just before the first flight – never while working on the bench, while connected to a computer or during setup.
- An assembled drone is a fast-spinning machine with sharp propellers. Fly only at a safe distance from people, animals and property.

2.2 What else you need

To build a working drone, you need to purchase the following in addition to the frame:

- 4 motors of size 1002–1305 with 8.5 mm mounting spacing and M1.6 screws,
- 2.5" propellers (the manufacturer recommends Gemfan 2512-3),
- an AIO board with 25.5 × 25.5 mm mounting holes, optionally with an integrated video transmitter,
- a nano-size (14 mm) analog FPV camera,
- a separate analog video transmitter if the AIO board has none (the frame has no dedicated VTX mounting holes; the VTX board is placed above the AIO board),
- a receiver for your radio transmitter (if not integrated in the AIO board) and a video transmitter antenna,
- a Li-Po battery suitable for the selected motors and AIO board, a charger, a radio transmitter and FPV goggles,
- tools: screwdrivers matching the screws in the set, a soldering iron, double-sided tape, cable ties and heat-shrink tubing.

2.3 Building the drone

The manufacturer does not publish detailed build instructions for the frame. The following procedure is based on general FPV drone building practice – the exact order may differ depending on the components used.

① Unpack the frame and check that all parts are intact, without cracks or delamination.

② Screw the motors to the arms with M1.6 screws. The screws must not be too long – the tip of the screw must not touch the motor windings. Route the motor wires along the arms and secure them.

③ Mount the AIO board in the stack area on the 25.5 × 25.5 mm holes. The arrow on the board should point forward; any other orientation must be set in the flight controller configuration.

④ Solder the motor wires, battery lead, receiver and camera according to the wiring diagram provided by the AIO board manufacturer. Insulate the joints so that they do not touch the carbon.

⑤ Fix the camera in the camera side plate at the front of the frame and set the desired tilt.

⑥ If the build uses a separate video transmitter, place it above the AIO board so that the whole stack does not exceed a height of 15 mm. Never power the video transmitter without an antenna connected.

⑦ Fit the top plate, screw the frame together and secure the antenna. Tighten the screws with care; do not overtighten the carbon plates or threads.

2.4 Before the first flight

- With the propellers removed, configure the flight controller (FC) in the configuration software (e.g. Betaflight): board orientation, motor direction, receiver, flight modes and failsafe.
- With the propellers removed, check that the motors spin in the correct direction after Arm (motors on) and stop after Disarm (motors off).
- Fit the propellers according to the motor direction and firmly tighten the propeller nuts or screws.
- Secure the battery to the frame with a strap so that it cannot shift or get into the propellers during flight. Always fit a **fully charged** battery before flying.
- Charge Li-Po batteries to no more than 4.20 V/cell (LiHV to 4.35 V/cell). End the flight at 3.5 V/cell at the latest; for storage, set 3.8 V/cell.

An assembled drone is an unmanned aircraft. Its operation is governed by the regulations of the country in which you fly – in the EU in particular Regulation (EU) 2019/947, but national rules (operator registration, pilot exam, zones, insurance) differ from country to country.

2.5 Maintenance and spare parts

- After every flight, and especially after a crash, inspect the arms and plates. Replace cracked or delaminated parts immediately – a weakened frame may break in flight.
- Check that the motor and frame screws are tight and that the wire insulation is intact where wires run along carbon edges.
- Clean the frame with a dry or slightly damp cloth, without solvents.
- The bottom plate with arms, the top plate and the camera side plate are available separately as spare parts.

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

Manufacturer: DarwinFPV, darwinfpv.com.

3.2 Disposal

- The frame itself contains no electronics or batteries and is not electrical equipment. Dispose of carbon parts at a municipal collection site or as mixed waste according to your local rules; metal screws belong in metal waste. Do not burn carbon parts.
- Before disposing of an assembled drone, remove the electronics and the battery from the frame. These **must not be disposed of with mixed municipal waste** – take them to a collection point for electrical equipment and batteries (collection site, take-back point, retailer).
- Sort the packaging according to the type of material.

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.