## HAPPYMODEL Mobula6 1S

# Happymodel Mobula6 1S 65mm Brushless Whoop Drone User Manual

Model: Mobula6 1S | Brand: HAPPYMODEL

## Introduction

Welcome to the user manual for your Happymodel Mobula6 1S 65mm Brushless Whoop Drone. This manual provides essential information for the safe and effective operation, setup, and maintenance of your drone. Please read this manual thoroughly before operating the device to ensure optimal performance and longevity.

Figure 1: Happymodel Mobula6 1S 65mm Brushless Whoop Drone, front view.

## Safety Information

Operating a drone requires caution and adherence to safety guidelines. Failure to follow these instructions may result in injury, damage to property, or damage to the drone.

- Always operate the drone in open areas, away from people, animals, and obstacles.
- Do not fly near airports, restricted airspace, or in adverse weather conditions (strong winds, rain).
- Ensure batteries are fully charged and properly installed before each flight.
- Never attempt to catch the drone while propellers are spinning.
- Keep fingers, hair, and loose clothing away from rotating propellers.
- Supervise children when they are operating or near the drone.
- Familiarize yourself with local regulations regarding drone operation.
- If the drone crashes, immediately disconnect the battery. Inspect for damage before the next flight.

## Package Contents

Verify that all items listed below are included in your package:

- 1S 65mm Whoop Drone Frame
- SPI Crazybee F4 Lite FC (Flight Controller) with built-in Frsky SPI D8 RX or Flysky SPI RX
- SE0802 KV19000 or KV25000 Brushless Motors (4x)
- Gemfan 1219-3 Propellers (4x CW + 4x CCW)
- Nano3 1/3 CMOS 800TVL Camera
- 5.8G 25mw 40ch VTX (Flight controller built-in)
- 1S 300mah 30C LiHV Batteries (4x)
- 1S Lipo/LIHV USB Charger
- Propeller Disassemble Tool

## Product Overview

The Mobula6 is a compact and lightweight brushless whoop drone designed for indoor and outdoor flight. Key components are highlighted below.


Figure 2: Diagram illustrating key components of the Mobula6 drone, including the 1/3 CMOS 800TVL camera, 0802 KV25000 motors, Crazybee F4 Lite flight controller with built-in 5.8G VTX, and PH2.0 battery connector.

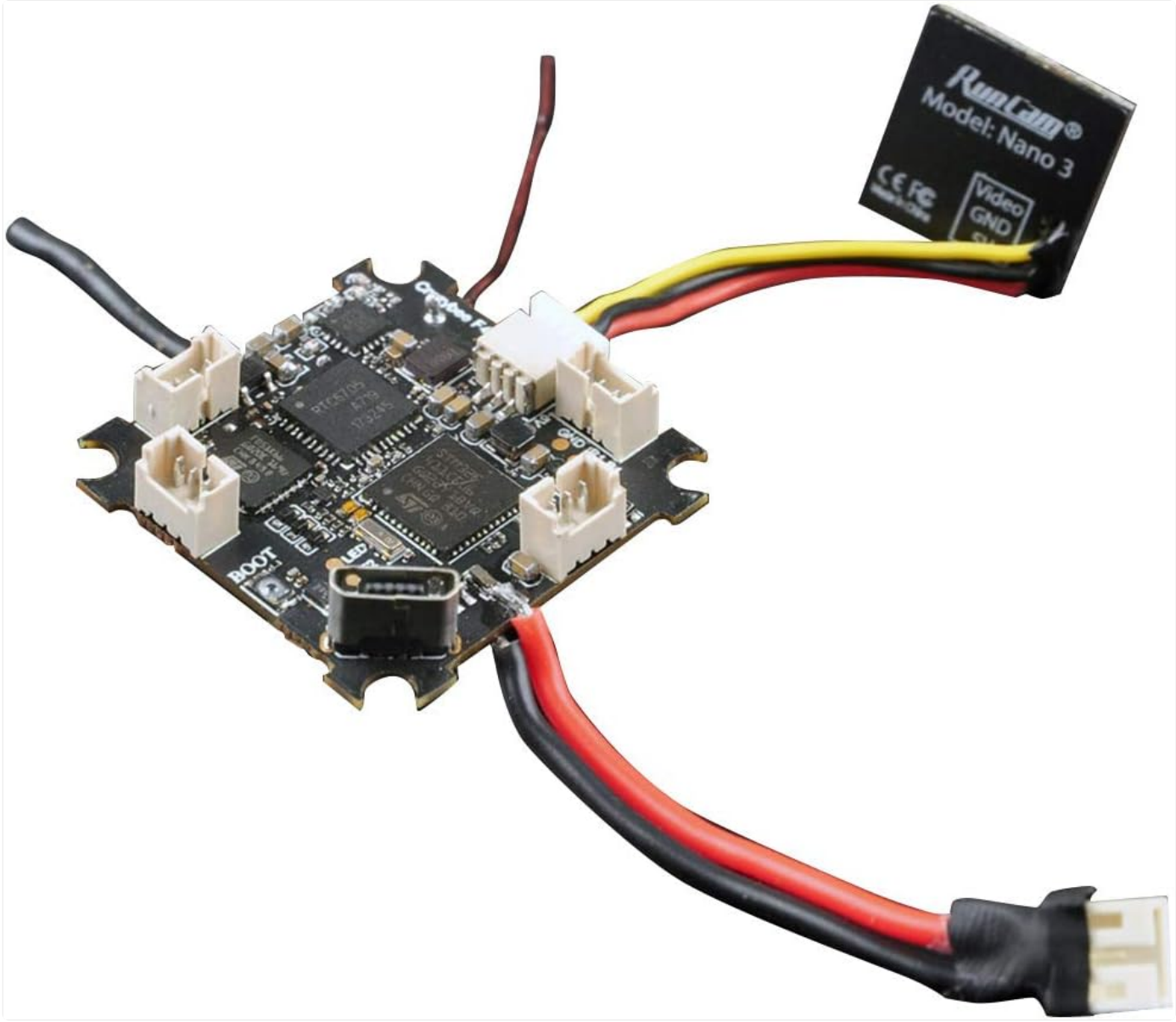


Figure 3: The Crazybee F4 Lite Flight Controller board, showing various connection points and the integrated RunCam Nano 3 camera.

The drone features a Crazybee F4 Lite Flight Controller with integrated 5A 4-in-1 ESC, Betaflight OSD, 5.8G VTX, and a built-in SPI Frsky/Flysky receiver. It is powered by SE0802 brushless motors and uses a Nano3 800TVL camera for FPV (First Person View) flying. The total weight of the drone is approximately 20 grams.


Figure 4: The Mobula6 drone on a digital scale, indicating a weight of 20.0 grams.

## Setup

### 1. Battery Charging

Use the provided 1S Lipo/LIHV USB Charger to charge the 1S 300mah 30C LiHV batteries. Connect the battery to the charger and the charger to a USB power source. The indicator light on the charger will show the charging status (e.g., red for charging, green for fully charged). Always charge batteries in a safe, fire-resistant area and never leave charging batteries unattended.

### 2. Propeller Installation/Check

The Mobula6 comes with Gemfan 1219-3 propellers. Ensure they are securely attached to the motor shafts. There are two types of propellers: Clockwise (CW) and Counter-Clockwise (CCW). Install them according to the motor rotation direction, typically alternating CW and CCW on the drone. Use the provided propeller disassemble tool if needed for removal or installation.

### 3. Binding with Transmitter

The drone is available with either a Frsky SPI D8 compatible receiver or a Flysky SPI receiver (AFHDS and AFHDS-2A switchable).

1. Power on the Mobula6 by connecting the battery.
2. Press the bind button on the flight controller (refer to the flight controller diagram for location, usually a small button near the USB port). The LED on the FC should start flashing rapidly, indicating bind mode.
3. Put your Frsky (D8 mode recommended) or Flysky transmitter into bind mode.
4. Once binding is successful, the LED on the flight controller will become solid.
5. Power cycle both the drone and the transmitter to confirm the binding.

For detailed binding procedures specific to your transmitter model, refer to your transmitter's user manual.

### 4. Betaflight Configuration (Optional, for Advanced Users)

The Crazybee F4 Lite FC runs Betaflight firmware. For advanced configuration, such as adjusting PID tunes, OSD settings, or VTX channels, connect the drone to a computer via the USB port and use the Betaflight Configurator software.

- **Flight Controller:** CRAZYBEE F4 Lite. Firmware target: Frsky SPI RX version is CrazybeeF4FR; Flysky version is Crazybee F4FS.
- **ESC:** Built-in 5A (each) Blheli_S 4in1 ESC, Dshot600 ready. Factory firmware: O_H_5_REV16_7.HEX.
- **OSD:** Built-in Betaflight OSD (SPI Control).
- **VTX:** Built-in 5.8G 25mw 40ch (Built-in FC). Supports Smartaudio for VTX control via OSD.

## OPERATING

### 1. Pre-Flight Check

- Ensure batteries are fully charged (drone and transmitter).
- Check that all propellers are securely attached and free from damage.
- Verify that the drone is bound to the transmitter and responds correctly to stick inputs.
- Inspect the flight area for any obstacles, people, or animals.

### 2. First Flight

For your first flight, choose a calm, open indoor space or a windless outdoor area.

1. Place the drone on a flat, level surface.
2. Arm the motors using your transmitter's arming switch (configured in Betaflight). The propellers will start spinning slowly.
3. Gently increase the throttle to lift off. Maintain a stable hover at eye level.
4. Practice basic maneuvers:
    - **Throttle:** Controls altitude (left stick, vertical).
    - **Yaw:** Rotates the drone left or right (left stick, horizontal).
    - **Pitch:** Tilts the drone forward or backward (right stick, vertical).
    - **Roll:** Tilts the drone left or right (right stick, horizontal).
5. When battery voltage is low (indicated by OSD or LED), land the drone gently and disconnect the battery.

### 3. FPV Flying

To experience FPV flying, you will need compatible FPV goggles or a monitor. Ensure your FPV receiver is tuned to the same frequency as the drone's 5.8G VTX. The Nano3 camera provides an 800TVL resolution with a 160° FOV.

## Maintenance

### 1. Cleaning

After each flight, especially if flown outdoors, inspect the drone for dirt, dust, or debris. Use a soft brush or compressed air to clean the motors, propellers, and flight controller. Avoid using liquids directly on electronic components.

### 2. Propeller Replacement

Damaged or bent propellers can significantly affect flight performance and stability. Replace any damaged propellers immediately using the provided tool. Ensure new propellers are installed with the correct rotation direction (CW/CCW).

### 3. Battery Care

- Do not overcharge or over-discharge LiHV batteries.
- Store batteries at room temperature and at a storage voltage (around 3.8V per cell) if not used for extended periods.
- Never puncture or damage batteries. Dispose of damaged or swollen batteries safely according to local regulations.

### 4. Firmware Updates

Periodically check the Happymodel official website or Betaflight resources for firmware updates for your Crazybee F4 Lite flight controller. Updating firmware can improve performance, add features, or fix bugs. Follow official guides carefully when performing updates.

## Troubleshooting

| Problem | Possible Cause | Solution |
|---|---|---|
| Drone does not arm. | Low battery voltage, throttle not at lowest position, arming switch not configured, receiver not bound, accelerometer not calibrated. | Charge battery. Ensure throttle is at zero. Check Betaflight configuration for arming switch. Re-bind receiver. Calibrate accelerometer in Betaflight. |
| Drone drifts or is unstable. | Damaged propellers, bent motor shaft, incorrect propeller installation, uncalibrated accelerometer, PID tuning issues. | Replace damaged propellers. Check motors for damage. Ensure CW/CCW propellers are in correct positions. Calibrate accelerometer. Consult Betaflight tuning guides. |
| No FPV video feed. | VTX not powered, camera disconnected, incorrect VTX channel/band, damaged camera/VTX. | Ensure battery is connected. Check camera and VTX connections. Verify VTX channel/band matches FPV receiver. Inspect camera and VTX for physical damage. |
| Short flight time. | Degraded battery, aggressive flying, heavy payload. | Replace old batteries. Fly more gently. Ensure no unnecessary weight is added. |
| Receiver not binding. | Incorrect bind procedure, incompatible transmitter protocol, faulty receiver. | Review binding steps. Ensure transmitter is in D8 mode (Frsky) or correct AFHDS/AFHDS-2A (Flysky). Contact support if receiver is suspected faulty. |

For further assistance, refer to online communities, forums, or contact Happymodel customer support.

## Specifications

| Feature | Detail |
|---|---|
| Brand | HAPPYMODEL |
| Model Name | Mobula6 1S |
| Dimensions (L x W x H) | 80mm x 80mm x 37mm (3.15"L x 3.15"W x 1.46"H) |
| Weight | 20 Grams (0.705 ounces) |
| Flight Controller | CRAZYBEE F4 Lite (Built-in 5A 4in1 ESC, Betaflight OSD, 5.8G VTX, SPI Receiver) |
| Motors | SE0802 KV19000 or KV25000 Brushless Motors |
| Propellers | Gemfan 1219-3 (3-blade) |
| Camera | Nano3 1/3 CMOS 800TVL, 2.1mm(M8) FOV 160°, PAL/NTSC Non Switchable |
| Video Transmitter (VTX) | 5.8G 25mw 40ch (Built-in FC), Smartaudio ready |
| Receiver Options | Frsky SPI D8 compatible or Flysky SPI (AFHDS/AFHDS-2A switchable) |
| Battery | 1S 300mah 30C LiHV |
| Max Range | 100-200m (No ground interference) |
| Skill Level | Intermediate |

## Warranty and Support

Happymodel products are designed for quality and performance. For information regarding warranty coverage, technical support, or service, please visit the official Happymodel website or contact your retailer. Keep your proof of purchase for warranty claims.
For common questions and community support, consider joining online FPV forums and groups where experienced users can provide assistance.



### Related Documents - Mobula6 1S

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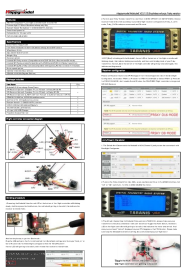
|  | Happymodel Mobula6 V2.0 1S 65mm Brushless Whoop Drone - Frsky Version Manual & Guide<br>Comprehensive guide for the Happymodel Mobula6 V2.0 1S 65mm brushless FPV drone (Frsky version). Learn about features, specifications, setup, binding, firmware updates, and flight procedures. |

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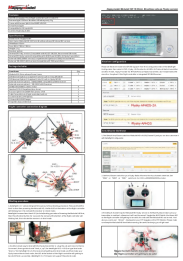
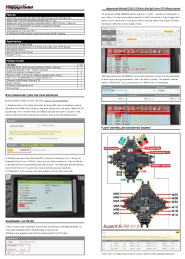
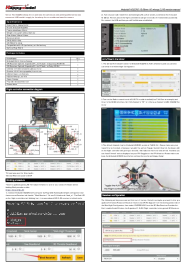
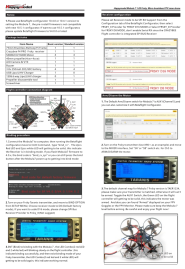
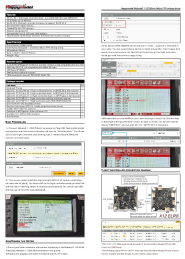
|  | [Happymodel Mobula6 HD 1S 65mm Brushless Whoop Drone - Flysky Version User Manual]<br>User manual for the Happymodel Mobula6 HD 1S 65mm Brushless Whoop FPV drone (Flysky version). Covers features, specifications, package contents, flight controller connections, receiver configuration, binding, VTX setup, ESC/firmware updates, and the 'flip over after crash' function. |
|  | [Happymodel Mobula6 2024 1S 65mm FPV Whoop Drone Manual]<br>Comprehensive guide to the Happymodel Mobula6 2024 1S 65mm ultra-light FPV Whoop drone, covering features, specifications, setup, binding, and operation with ELRS. |
|  | [Happymodel Mobula6 HDZERO 1S 65mm HD Drone Manual]<br>Comprehensive user manual for the Happymodel Mobula6 HDZERO 1S 65mm HD drone, covering setup, binding, configuration, firmware updates, and flight procedures. |
|  | [Happymodel Mobula 7 1-2S FPV Racer Drone Frsky Version Setup and Configuration Guide]<br>A comprehensive guide to setting up and configuring the Happymodel Mobula 7 1-2S FPV racer drone with Frsky radio system, covering receiver configuration, motor arming, binding procedures, VTX settings, and firmware updates. |
|  | [Happymodel Mobula8 1-2S 85mm Micro FPV Drone Manual & Setup Guide]<br>Comprehensive guide for the Happymodel Mobula8 1-2S 85mm Micro FPV whoop drone, covering features, specifications, setup, binding, configuration, ESC settings, VTX channels, and firmware updates. Includes detailed instructions for optimal performance. |