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› HAPPYMODEL Crazybee F4 Pro V2.0 Flight Controller User Manual (Flysky Receiver Version)

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Model: Crazybee F4 Pro V2.0

1. INTRODUCTION

This manual provides detailed instructions for the HAPPYMODEL Crazybee F4 Pro V2.0 Flight Controller, specifically the version equipped with a Flysky receiver. It is designed to assist users in understanding the product's features, specifications, proper setup, operation, and maintenance. Please read this manual thoroughly before using the flight controller to ensure safe and optimal performance.

2. PRODUCT OVERVIEW

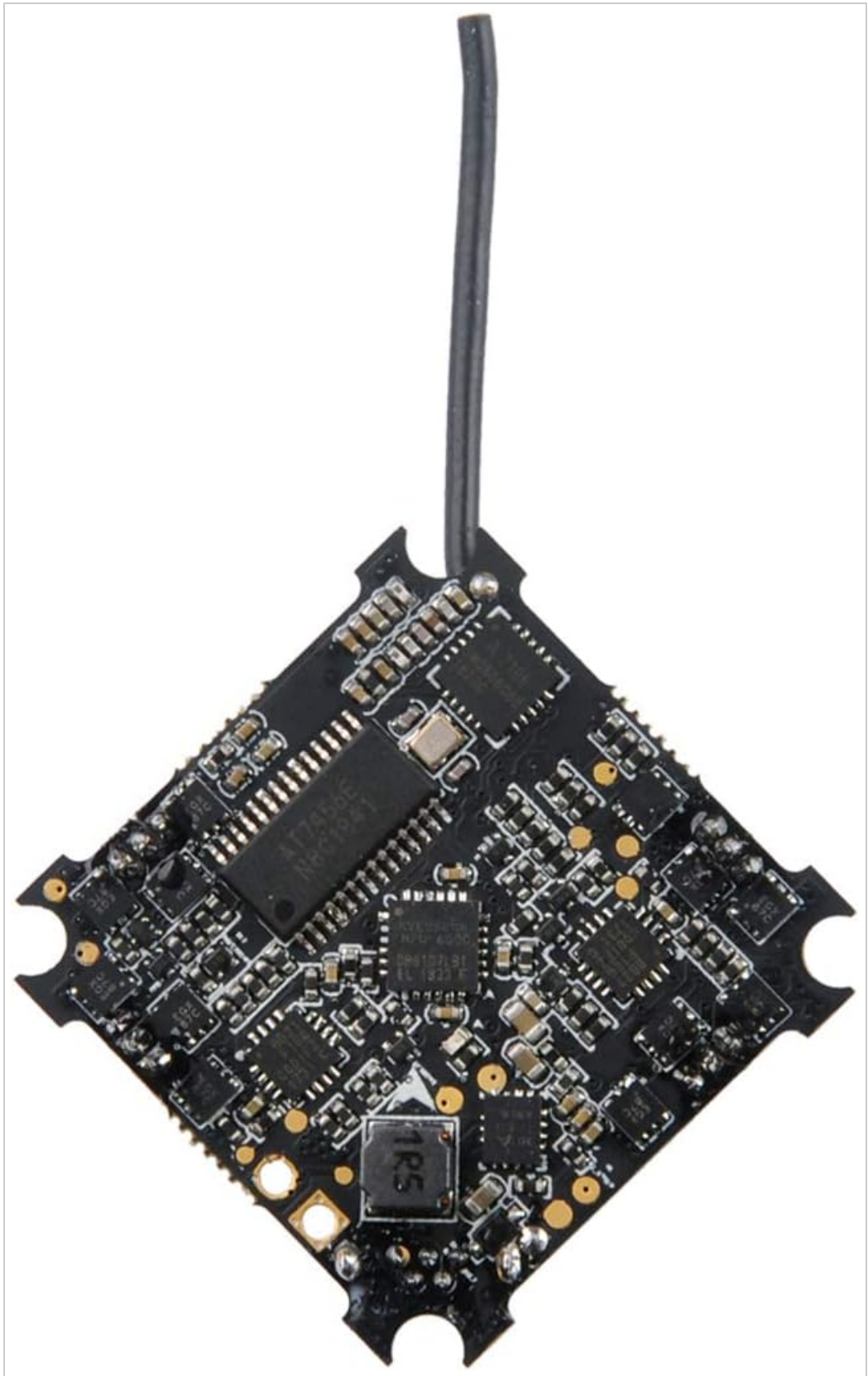


Figure 1: HAPPYMODEL Crazybee F4 Pro V2.0 Flight Controller. This image displays the compact flight controller board, highlighting its various components and the integrated antenna for the Flysky receiver.

3. SPECIFICATIONS

Component	Detail
MCU	STM32F411CEU6 (100MHz, 512K FLASH)

Component	Detail
Sensor	MPU-6000 (SPI connection)
Board Size	28.5 x 28.5 mm
Power Supply	1-3S LiPo battery input (DC 3.5-13V)
ESC MCU	Upgraded to EFM8BB21
Receiver (Flysky Version)	Built-in SPI Flysky receiver with telemetry (AFHDS/AFHDS-2A Compatible)
OSD	Built-in Betaflight OSD (SPI Control)
ESC Pass-through	BLHELI_S pass-through Ready
Serial Port Support	Multi Serial port support
Weight	4.3g
Current Sensor	Built-in Current meter sensor Max up to 28A (Scale set to 1175)
Voltage Regulator	Built-in 5V 1A Buck / Boost with LC filter

4. KEY FEATURES

- **Enhanced Design:** Version 2.0 features larger bind and boot buttons, and through-hole BAT/GND pads for improved durability and ease of soldering.
- **Wide Voltage Input:** Supports 1-3S LiPo/LiHV batteries, providing flexibility for various drone setups.
- **Integrated ESC:** Built-in 5A (each) BLHeli_S 4-in-1 ESC, D600 ready, simplifying wiring and reducing weight.
- **Power Filtering:** Includes a built-in 5V 1A Buck/Boost converter with an LC filter for clean power delivery to sensitive components.
- **Telemetry & Monitoring:** Features built-in voltage detection and a current meter sensor with a maximum capacity of 28A (current meter scale set to 1175).
- **Upgraded MCU:** ESC MCU upgraded to EFM8BB21 for improved performance and reliability.

5. PACKAGE CONTENTS

Upon opening the package, please verify that all the following items are included:

- 1x Crazybee F4 PRO Flight Controller (Flysky Receiver Version)
- 3x Power cables
- 1 set of Shock absorbing rubber and screws

Note: Batteries and remote control are not included in this package.

6. SETUP AND INSTALLATION

6.1. Physical Installation

1. Carefully mount the Crazybee F4 Pro V2.0 Flight Controller onto your drone frame using the provided shock-absorbing rubber and screws. Ensure the board is oriented correctly according to your frame's design and Betaflight's default orientation.

2. Connect the power cables to the designated BAT/GND pads. The V2.0 features through-hole pads for more secure soldering. Ensure correct polarity.
3. Connect motors to the ESC pads. Refer to your motor and frame documentation for correct motor order and rotation.
4. If using external components (e.g., VTX, camera), connect them to the appropriate pads as per the wiring diagram (not provided in this manual, refer to manufacturer's official resources).

6.2. Firmware Flashing and Configuration

The flight controller comes pre-flashed with Betaflight firmware. However, it is recommended to update to the latest stable version or re-flash if issues arise.

- Download the Betaflight Configurator software from the official Betaflight website.
- Connect the flight controller to your computer via a USB cable.
- In Betaflight Configurator, navigate to the "Firmware Flasher" tab.
- Select the correct firmware target for your Flysky version: **betaflight_4.0.0_CRAZYBEEF4FS.hex** (or a newer version if available).
- Click "Load Firmware [Online]" and then "Flash Firmware".
- After flashing, connect to the flight controller and perform initial configuration:
 - Calibrate accelerometer.
 - Configure ports (UARTs) for peripherals.
 - Set up receiver (SPI RX support for Flysky).
 - Configure modes (Arm, Angle, Acro, etc.).
 - Perform motor direction and ESC calibration if necessary (BLHeli_S pass-through is supported).

6.3. Receiver Binding (Flysky)

To bind the integrated Flysky receiver to your Flysky compatible transmitter:

1. Power on the flight controller (e.g., by connecting a 1-3S battery).
2. Press and hold the bind button on the flight controller. The receiver LED should start flashing rapidly.
3. Put your Flysky transmitter into bind mode (refer to your transmitter's manual for specific instructions). Ensure the transmitter is set to AFHDS or AFHDS-2A protocol.
4. Once binding is successful, the receiver LED on the flight controller should become solid.
5. Verify receiver functionality in Betaflight Configurator's "Receiver" tab.

7. OPERATING INSTRUCTIONS

Once the flight controller is installed, configured, and bound to your transmitter, you can proceed with operation.

- **Pre-Flight Check:** Always perform a visual inspection of your drone before each flight. Check for loose wires, damaged propellers, and secure battery connection.
- **Arming:** Arm the drone using the configured switch on your transmitter. Ensure you are in a safe, open area away from people and obstacles.
- **Flight Modes:** Utilize the flight modes configured in Betaflight (e.g., Angle, Acro) according to your skill level and flight environment.
- **Disarming:** Disarm the drone immediately after landing or in case of an emergency.
- **Telemetry:** The built-in Flysky receiver supports telemetry, allowing you to monitor battery voltage and other

parameters on your compatible transmitter.

Always operate your drone responsibly and in compliance with local regulations.

8. MAINTENANCE

Proper maintenance ensures the longevity and reliability of your flight controller.

- **Regular Inspection:** Periodically inspect the board for any signs of physical damage, loose solder joints, or corrosion.
- **Cleaning:** If necessary, gently clean the board with isopropyl alcohol and a soft brush. Ensure the board is completely dry before reapplying power.
- **Firmware Updates:** Keep the Betaflight firmware updated to the latest stable version to benefit from bug fixes and new features.
- **Environmental Protection:** Protect the flight controller from moisture, dust, and extreme temperatures. Consider conformal coating for enhanced protection in humid environments.

9. TROUBLESHOOTING

This section addresses common issues you might encounter.

- **No Power:**
 - Check battery connection and polarity.
 - Ensure the battery is charged.
 - Inspect power cables and solder joints for continuity.
- **Cannot Connect to Betaflight Configurator:**
 - Install correct USB drivers (e.g., STM32 Virtual COM Port Driver, Zadig for DFU mode).
 - Try a different USB cable or port.
 - Ensure the flight controller is powered (either via USB or battery).
- **Receiver Not Binding/No Signal:**
 - Confirm the transmitter is in bind mode and set to the correct Flysky protocol (AFHDS/AFHDS-2A).
 - Ensure the flight controller's bind button was pressed correctly.
 - Check receiver settings in Betaflight Configurator (Configuration tab, Receiver section).
 - Verify antenna connection.
- **Motors Not Spinning:**
 - Ensure the drone is armed.
 - Check motor connections to the ESC.
 - Verify ESC calibration and motor protocol settings in Betaflight.
 - Inspect for any error messages in Betaflight OSD or Blackbox logs.

For further assistance, refer to online forums, community groups, or the official HAPPYMODEL support channels.

10. WARRANTY AND SUPPORT

HAPPYMODEL products are designed for hobby use and are subject to specific warranty conditions. Typically, warranty covers manufacturing defects but not damage caused by improper installation, misuse, crashes, or modifications.

- **Warranty Period:** Please refer to your retailer's specific warranty policy at the time of purchase.
- **Technical Support:** For technical inquiries or support, please visit the official HAPPYMODEL website or contact your authorized dealer. Online communities and forums dedicated to FPV drones can also be valuable resources.
- **Returns:** If you believe your product has a manufacturing defect, contact your point of purchase for return or exchange procedures.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question