

Xiangtat ZTW F405 V3 Flight Controller Stack

Xiangtat ZTW F405 V3 Flight Controller Stack User Manual

Model: ZTW F405 V3 Flight Controller Stack

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the Xiangtat ZTW F405 V3 Flight Controller Stack. This high-performance stack is designed for RC FPV racing and freestyle drones, featuring a 30x30 Bluetooth-enabled Flight Controller and a 4-in-1 60A BLHeliS ESC Board, supporting 3-6S LiPo batteries and DShot150A/300/600 protocols.

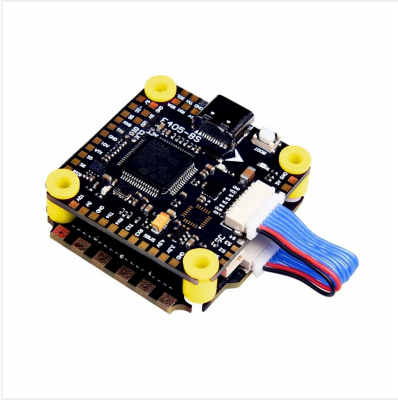
2. PRODUCT OVERVIEW AND FEATURES

The ZTW F405 V3 Flight Controller Stack combines a powerful flight controller with a robust 4-in-1 Electronic Speed Controller (ESC) to provide a compact and efficient solution for your drone. Key features include:

- **Wireless Configuration:** Configure your Flight Controller (FC) and ESC via Bluetooth using the ZTW app, allowing for convenient tuning anytime, anywhere.
- **Powerful 60A 4-in-1 ESC:** Equipped with a robust BB21 MCU, large motor pads for easy soldering, Japan-made filtering SMT capacitors, and an onboard TVS protective diode for smooth flight performance. Supports real 60A output for demanding 6S motors.
- **Onboard Battery Life Indicator:** A sophisticated 4-level LED battery indicator provides real-time insight into your battery's health, eliminating the need for a separate LiPo checker.
- **Effortless Motor Configuration:** Adjust motor direction easily using the SpeedyBee app, compatible with BLHeli32, BLHeli_S, and BlueJay ESCs, reducing the need for cables and complex procedures.
- **8 Motor Output:** Supports up to 8 motors, providing versatility for various drone configurations.
- **Cutouts for FPV Camera:** Designed with cutouts for easy integration of an FPV camera.
- **Built-in Barometer:** Enhances flight stability and altitude hold capabilities.
- **Individual BECs:** Features 5V 2A and 9V 2A individual BECs for reliable power supply to peripherals.
- **SD Card Slot:** Includes an SD card slot for up to 4GB Blackbox logging.
- **DJI Plug & Play:** Simplifies connection with DJI systems.

- **4.5V Output for GPS Module:** Dedicated output for GPS module integration.
- **Sufficient 4x UARTs:** Provides ample UARTs for various peripheral connections.

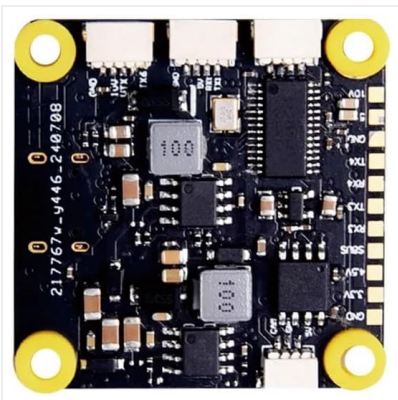
Product Components



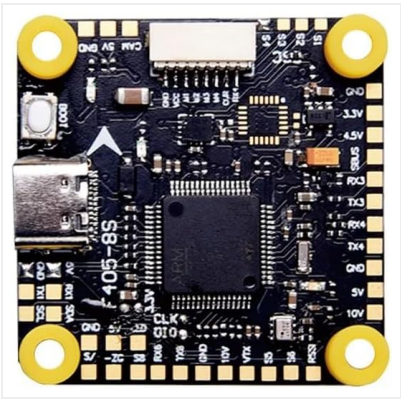
The ZTW F405 V3 Flight Controller Stack, showing the compact design of the combined FC and ESC boards.



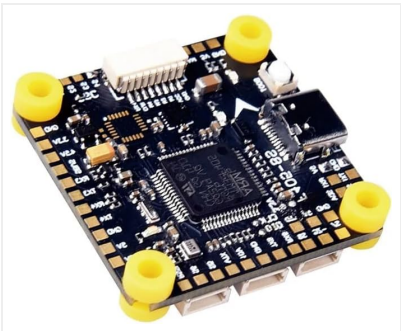
Top view of the ZTW 60A 4-in-1 ESC board, highlighting the large soldering pads and component layout.



Top view of the ZTW F405 V3 Flight Controller, showing various ports and the main control chip.



Angled view of the ZTW F405 V3 Flight Controller, providing a perspective of its compact form factor.



Bottom view of the ZTW F405 V3 Flight Controller, showing additional connection points and components.

Product Name	ZTW-60A 4in1
Firmware Model	BLHeli-S
Continuous Current	60A
Peak Current	80A
Input Voltage	3-6SLipo
Support Agreement	DSHOT150/300/600PWM Oneshot
Max Size	42*41*6.5mm
Installation Size	30.5*30.5mm/M4
Weight	16g

Product Name	ZTW-F405
Main Control Chip	F405
Power Supply	3-8S(11V-36V)
BEC Power Supply	5V/3A&10V/3A
Gyroscope	ICM-42688-P
Support Receiver	SBUS,IBUS,DSM2/X,TBS,CRSF and so on
Max Size	36.5*36.5*8.0mm
Installation Size	30.5*30.5mm/M4
Weight	10g



The ZTW 60A 4-in-1 ESC board connected to a filtering capacitor, essential for stable power delivery.

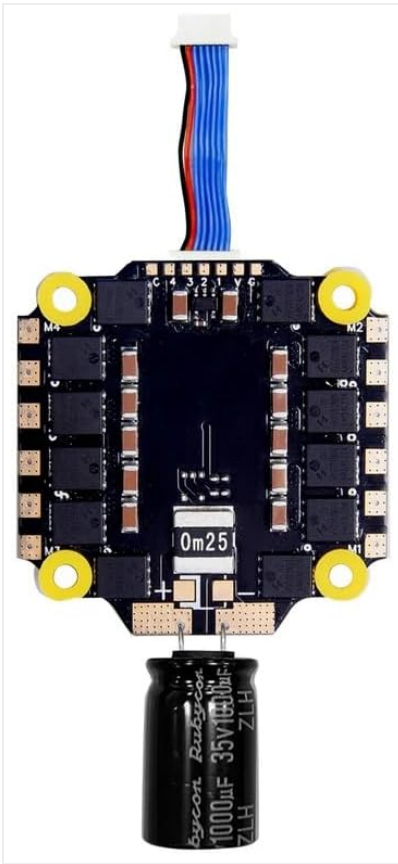


Image showing the complete kit contents, including the flight controller, ESC, wires, and connectors.

Product Video



Official product video showcasing the Xiangtat F405 V4 V5 Flight Controller Stack, highlighting its features and design.

3. SETUP

Proper setup is crucial for optimal performance and safety. Follow these steps carefully:

1. **Physical Installation:** Mount the ZTW F405 V3 Flight Controller Stack onto your drone frame. The installation size is 30.5x30.5mm with M4 mounting holes. Ensure secure fastening to minimize vibrations.
2. **Wiring Connections:** Connect the ESC to the motors and the flight controller. Utilize the large motor pads on the ESC for secure soldering. Connect your FPV camera, receiver (SBUS, IBUS, DSM2/X, TBS, CRSF), GPS module (using the 4.5V output), and other peripherals to the appropriate UARTs and pads on the flight controller. For DJI systems, use the dedicated Plug & Play port.
3. **Power Connection:** Connect your 3-6S LiPo battery to the ESC. Ensure correct polarity. The onboard TVS protective diode helps prevent voltage spikes.
4. **Initial Configuration (Betaflight/Cleanflight):** Connect the flight controller to your computer via USB. Use the appropriate configurator software (e.g., Betaflight Configurator) to flash the latest firmware and perform initial setup.
5. **Wireless Configuration (ZTW App):** Download the ZTW app on your smartphone. Connect to the flight controller via Bluetooth to fine-tune PID settings, rates, and other flight parameters wirelessly.
6. **ESC Configuration (SpeedyBee App):** For BLHeli_S/BlueJay ESCs, use the SpeedyBee app to configure ESC settings, including motor direction. This can be done wirelessly, simplifying the process.

4. OPERATING INSTRUCTIONS

Once the ZTW F405 V3 Flight Controller Stack is installed and configured, follow these guidelines for operation:

- **Pre-Flight Check:** Before each flight, ensure all connections are secure, propellers are correctly installed, and the battery is fully charged.
- **Battery Monitoring:** Observe the 4-level LED battery indicator on the ESC to monitor your battery's charge level during flight. Plan your flights to avoid deep discharge.
- **Arming and Disarming:** Follow your flight controller's configured arming procedure (e.g., stick commands, switch). Always arm in a safe, open area. Disarm immediately after landing or in an emergency.
- **Flight Modes:** Utilize the configured flight modes (e.g., Acro, Angle, Horizon) as per your preference and skill level.
- **Wireless Tuning:** If needed, land your drone safely and use the ZTW app via Bluetooth to make minor adjustments to your flight controller or ESC settings without needing a computer.

5. MAINTENANCE

Regular maintenance helps ensure the longevity and reliability of your ZTW F405 V3 Flight Controller Stack:

- **Visual Inspection:** After each flight, inspect the FC and ESC for any signs of damage, loose connections, or debris.
- **Cleaning:** Gently clean the boards with a soft brush or compressed air to remove dust, dirt, or grass. Avoid using liquids directly on the electronics.
- **Firmware Updates:** Periodically check for and install the latest firmware updates for both the flight controller (e.g., Betaflight) and the ESC (BLHeli_S/BlueJay) to benefit from performance improvements and bug fixes.
- **Soldering Joints:** Occasionally inspect soldering joints for cracks or cold joints, especially after hard crashes. Resolder if necessary.

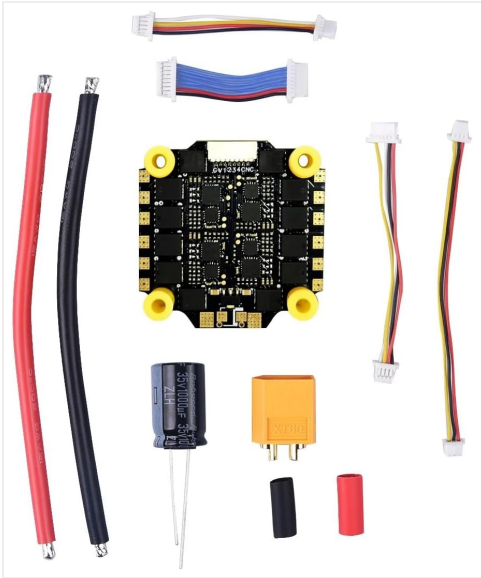
6. TROUBLESHOOTING

If you encounter issues with your ZTW F405 V3 Flight Controller Stack, consider the following troubleshooting steps:

- **No Power:** Check battery connection, ensure correct polarity, and inspect power cables for damage. Verify the main power lead to the ESC.
- **Motors Not Spinning:**
 - Ensure the drone is armed.
 - Check motor connections to the ESC.
 - Verify ESC calibration and firmware.
 - Use the SpeedyBee app to check motor direction and test individual motors.
- **Unstable Flight:**
 - Check for loose propellers or damaged motors.
 - Review PID settings in the ZTW app or Betaflight Configurator.
 - Ensure the flight controller is securely mounted and isolated from vibrations.
- **Bluetooth Connection Issues:**
 - Ensure Bluetooth is enabled on your smartphone and the ZTW app has necessary permissions.
 - Restart the app and the flight controller.
 - Ensure no other devices are interfering with the Bluetooth signal.
- **Peripherals Not Working:** Check wiring for the specific peripheral (e.g., FPV camera, GPS). Verify UART assignments and settings in the flight controller software.

- **Blackbox Logging Not Working:** Ensure an SD card is inserted correctly and formatted. Check Blackbox settings in the flight controller software.

7. SPECIFICATIONS



Detailed specifications for both the ZTW-60A 4in1 ESC and the ZTW-F405 Flight Controller.

ZTW F405 V3 Flight Controller Stack Specifications

Feature	Detail
Brand	Xiangtat
Model Name	Flight Controller
Special Features	Bluetooth Configuration, 4-level LED Battery Indicator, Easy Motor Direction Adjustment
Connectivity Technology	Bluetooth
Control Type	App Control
Included Components	Flight Controller
Material	Plastic
UPC	762210657398
GTIN	762210657398

8. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Xiangtat website or contact your retailer. Keep your proof of purchase for any warranty claims.

For further assistance, you may visit the [Xiangtat Store on Amazon](#).

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