

Goolsky F405 V2

Goolsky Tracker F405 V2 Flight Controller

USER MANUAL

Introduction

Welcome to the user manual for the Goolsky Tracker F405 V2 Flight Controller. This document provides essential information for the proper setup, operation, and maintenance of your flight controller. Designed for FPV drones and quadcopters, the F405 V2 offers robust performance and reliability for your aerial endeavors.

Please read this manual thoroughly before attempting to install or operate the device to ensure safe and optimal performance.

Product Overview

The Goolsky Tracker F405 V2 Flight Controller is a high-performance component designed to be the central processing unit for your FPV drone. It integrates various sensors and processing capabilities to provide stable and responsive flight control.

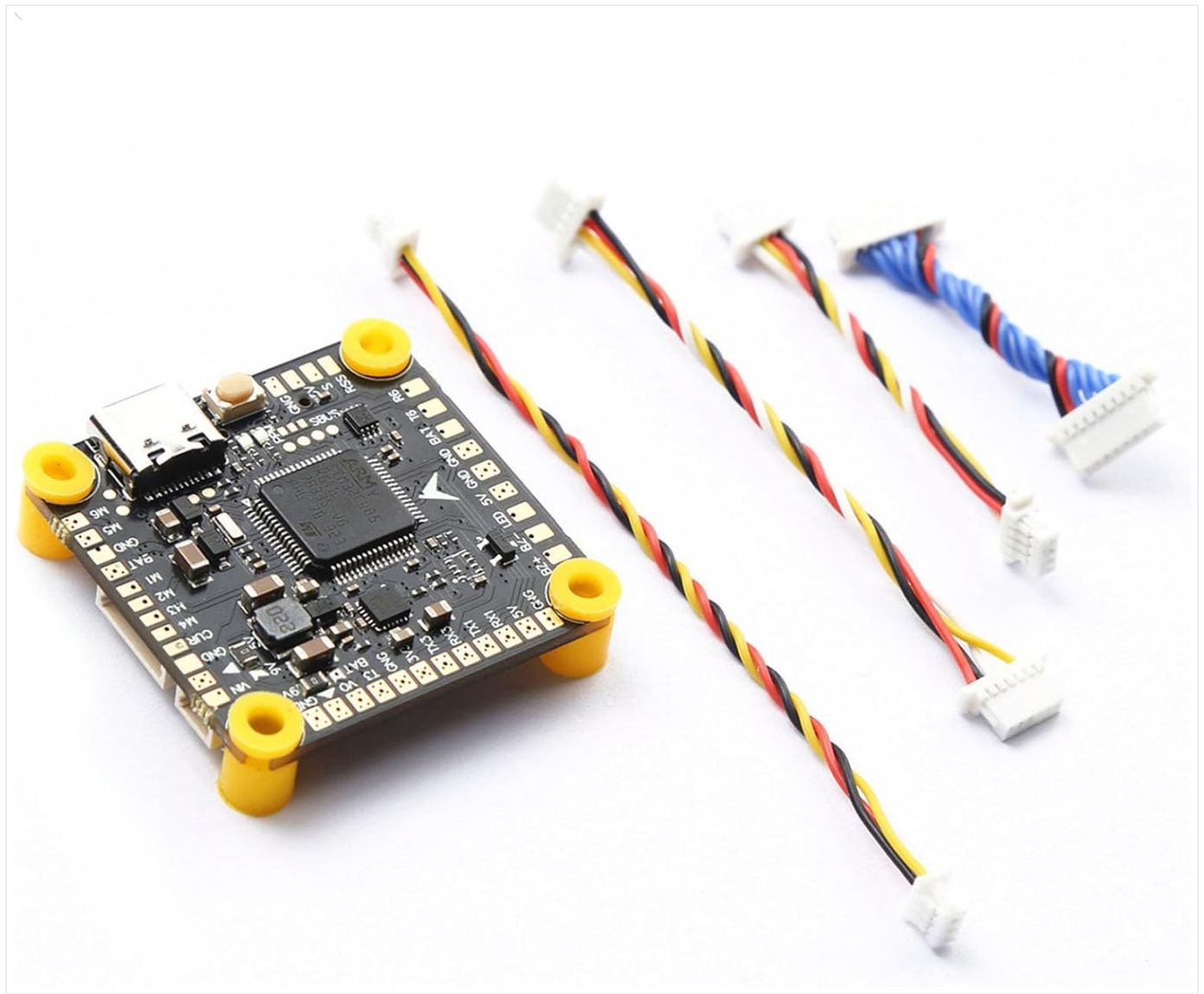


Image: The Goolsky Tracker F405 V2 Flight Controller board, featuring various connection pads, a USB port, and mounting holes. Several connecting cables with white connectors are also visible, indicating its readiness for integration into a drone system.

Key features include:

- **Durable Construction:** Manufactured from high-quality materials, ensuring resilience in demanding flight conditions and long-term reliability.
- **High Performance:** The F405 V2 Flight Controller delivers superior performance, contributing to smooth and stable flights.
- **Easy Installation:** Designed for straightforward installation, making it a convenient addition to your drone or aircraft.
- **Betaflight Compatibility:** Supports Betaflight software for configuration and firmware updates. Please note that INAV firmware replacement is not supported.
- **Wide Receiver Support:** Compatible with various receiver types including ELRS, CRSF, SBUS, IBUS PPM, and Spektrum DSMX.

Specifications

Feature	Detail
Series	Tracker
Project Name	F405 V2 Flight Controller

Dimensions (FC Board)	36 x 36 mm
Weight (FC Board)	13 g
Installation Hole Spacing	30.5 x 30.5 mm
Microcontroller	STM32 F405
Gyroscope	MPU6500
Barometer	BMP280
BEC Output	5V3A / 9V3A
Video Filter	Yes (5V only on VTX and camera)
Blackbox	MicroSD card slot
Dshot Support	Yes
OSD Configuration	Via Betaflight (drag-and-drop)
Package Dimensions	120 x 90 x 1 mm
Package Weight	13 g
Recommended Age	14 years and up
ASIN	B0CZRW8BH3

Setup

Proper setup is crucial for the safe and effective operation of your FPV drone. This section outlines general steps for installing and configuring the Goolsky Tracker F405 V2 Flight Controller.

- Physical Installation:** Mount the flight controller securely onto your drone frame using the provided mounting hardware. Ensure proper orientation as per your drone's design and Betaflight settings. The installation hole spacing is 30.5 x 30.5 mm.
- Wiring Connections:** Connect motors, ESCs, receiver (ELRS/CRSF/SBUS/IBUS PPM/Spektrum DSMX), VTX, camera, and GPS (if applicable) to the appropriate pads on the flight controller. Refer to the pinout diagram (if available with your product) for precise connections. Ensure correct polarity for power connections (5V, 9V, GND, BAT).
- Firmware Flashing:** Connect the flight controller to your computer via a USB cable. Use the Betaflight Configurator software to flash the latest compatible firmware for the STM32 F405.
- Betaflight Configuration:**
 - Initial Setup:** Follow the setup wizard in Betaflight Configurator.
 - Port Configuration:** Configure UARTs for your receiver, VTX, GPS, etc.
 - Receiver Setup:** Select the correct receiver protocol (e.g., Serial-based receiver, SBUS, CRSF) and ensure proper channel mapping.
 - ESC/Motor Protocol:** Configure the ESC/Motor protocol (e.g., Dshot600).
 - OSD Configuration:** Customize your On-Screen Display (OSD) elements using the drag-and-drop interface in Betaflight.
 - Sensor Calibration:** Calibrate the accelerometer and gyroscope (MPU6500) to ensure accurate flight data.

- **Modes Setup:** Configure flight modes (Arm, Angle, Acro, etc.) to your auxiliary switches on your radio.

5. **Pre-Flight Checks:** Before your first flight, double-check all connections, propeller direction, motor spin direction, and radio stick responses in Betaflight.

Operating

Once the Goolsky Tracker F405 V2 Flight Controller is properly set up and configured, you can proceed with operating your FPV drone. Always prioritize safety during operation.

- **Arming the Drone:** Ensure your drone is on a stable, level surface and clear of obstacles. Arm the motors using the configured switch on your remote control. The motors will typically spin slowly once armed.
- **Takeoff:** Gently increase throttle to lift off. Maintain smooth stick inputs for controlled ascent.
- **Flight Control:** Use your remote control sticks to maneuver the drone. The flight controller processes your inputs and stabilizes the drone based on its internal sensors (gyroscope, accelerometer, barometer).
- **Landing:** Reduce throttle slowly to descend. Aim for a soft landing on a clear, flat surface. Disarm the motors immediately after landing.
- **Battery Management:** Monitor your battery voltage via OSD or telemetry. Land your drone before the battery voltage drops too low to prevent damage to the battery and potential crashes.
- **Environmental Considerations:** Avoid flying in strong winds, rain, or extreme temperatures. Always maintain line of sight with your drone unless operating under specific FPV regulations.

Maintenance

Regular maintenance helps ensure the longevity and reliable performance of your Goolsky Tracker F405 V2 Flight Controller and your drone system.

- **Visual Inspection:** Periodically inspect the flight controller for any signs of physical damage, loose connections, or corrosion. Check solder joints for integrity.
- **Cleaning:** Gently clean the flight controller board with a soft brush or compressed air to remove dust, dirt, or debris. Avoid using liquids directly on the board.
- **Firmware Updates:** Check the Betaflight website regularly for new firmware releases. Updating your firmware can provide performance improvements, bug fixes, and new features. Follow official Betaflight flashing procedures carefully.
- **Component Checks:** Ensure all connected components (ESCs, motors, camera, VTX, receiver) are functioning correctly and are securely attached.
- **Storage:** When not in use, store the flight controller and drone in a dry, cool environment, away from direct sunlight and extreme temperatures.

Troubleshooting

This section provides guidance on common issues you might encounter with your Goolsky Tracker F405 V2 Flight Controller.

- **No Power/No Lights:**
 - Check all power connections from the battery to the PDB/ESC and then to the flight controller.
 - Ensure the USB cable is properly connected to both the FC and the computer.
- **Cannot Connect to Betaflight Configurator:**
 - Install the correct VCP (Virtual COM Port) drivers for STM32 microcontrollers.
 - Try a different USB port or cable.

- Ensure Betaflight Configurator is up to date.

- **Drone Not Arming:**

- Check the "Motors" tab in Betaflight to ensure motors are not spinning when disarmed.
- Verify that your radio receiver is properly connected and configured in Betaflight (Receiver tab). Check stick inputs.
- Review the "Modes" tab to ensure the Arm switch is correctly assigned and functioning.
- Check for pre-arm safety features (e.g., accelerometer not calibrated, low battery voltage, motor output too high).

- **Unstable Flight/Drifting:**

- Recalibrate the accelerometer in Betaflight on a perfectly level surface.
- Check for vibrations affecting the flight controller; ensure it is soft-mounted if necessary.
- Verify PID tuning settings.

- **OSD Not Displaying:**

- Ensure the camera and VTX are correctly wired to the OSD pads on the flight controller.
- Check OSD settings in Betaflight Configurator.

For more detailed troubleshooting, refer to the extensive documentation and community forums available for Betaflight flight controllers.

Warranty and Support

For information regarding warranty coverage, return policies, or technical support for your Goolsky Tracker F405 V2 Flight Controller, please contact the seller or manufacturer directly. Keep your proof of purchase for any warranty claims.

Online resources and community forums for Betaflight and FPV drones can also provide valuable support and troubleshooting tips.

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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