

Stack F405 V4 ICM3055 AM32 55A

User manual



Content

1. Product overview	3
2. ESC Installation & Wiring	3
3. Flight Controller (FC) Wiring	4
4. Safety & Usage Rules	6
Contacts:	6

1. Product overview

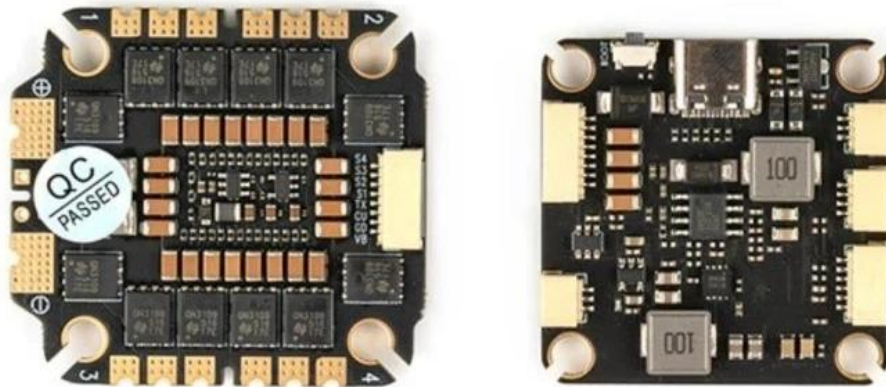


Fig.1. Pilotix F405 V4 ICM3055 AM32 55A

The F405 V4 ICM3055 AM32 55A is a flight controller and electronic speed controller (ESC) system designed for FPV applications. It is equipped with an STM32F405 flight controller microcontroller and features Betaflight firmware support, operating with an analog OSD type. The ESC utilizes the AT32F421K8U7 microcontroller, supporting protocols such as DShot150, DShot300, and Multishot, with a continuous current rating of 55A and a peak current of 60A. This system operates in environments with temperatures ranging from -20°C to 40°C and includes multiple built-in sensors for gyroscopic and accelerometric data retrieval, alongside telemetry capabilities for parameters such as voltage and current. The unit has a weight of 25.2 grams and dimensions compatible with various mounting configurations.

2. ESC Installation & Wiring

The ESC is designed to handle high current loads. Pay close attention to the power leads.

Wiring Steps:

1. Power Input: Solder high-quality XT60/XT90 leads to the "+" and "-" pads. Ensure the polarity is correct.
2. Capacitor: Solder a high-voltage capacitor to the power pads. This is mandatory for 3S-8S builds to filter voltage spikes.
3. Motor Pads: Solder motor wires to the pads on the left (3 & 4) and right (1 & 2).
4. Link to FC: Connect the 8-pin harness to the socket on the top edge. This transmits power, motor signals (S1-S4), and telemetry to the FC.

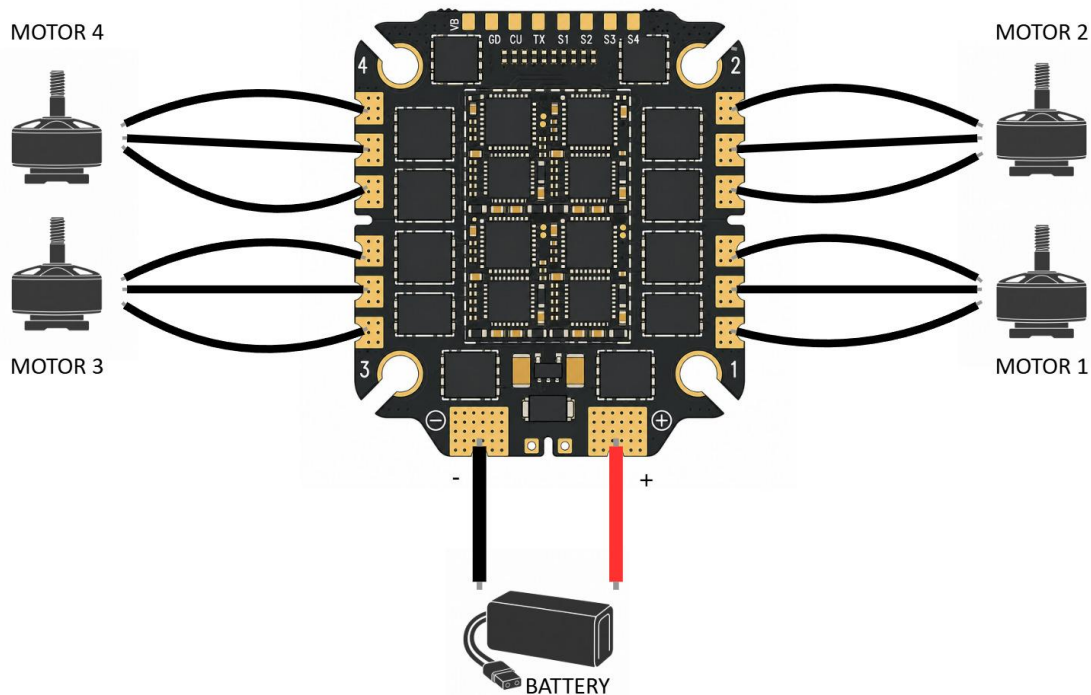


Fig.2. ESC installation & wiring

3. Flight Controller (FC) Wiring

The Pilotix F405 V4 is a versatile flight controller designed for both analog and digital builds, featuring dual camera switching and a high-performance F405 MCU.

1. Power and Battery Connections

- BAT / GND: Main power input. Connect to the battery output or ESC PDB.
- VCC / 9V / 5V Pads: Provides filtered power for your peripherals.
 - Use 9V for high-power video transmitters.
 - Use 5V for receivers (RX) and GPS.
- 4V5 Pad: A special 4.5V output powered by USB. Perfect for powering your receiver during configuration without plugging in a battery.

2. ESC and Motor Control

- S1 - S4: Primary motor signal outputs for a Quadcopter.
- S5 - S8: Additional signal outputs for X8 or Hexacopter configurations.
- CURR: Analog Current Sensor input. Connect to the CUR pad of your ESC to monitor battery consumption in real-time.

3. Analog Video and Dual Cameras

This FC supports two cameras switchable via your radio:

- CAM1 / CAM2: Signal inputs for Camera 1 and Camera 2.
- VTX Pad: Video output to your analog Video Transmitter.
- GND / 5V: Power and ground shared between the cameras and VTX to prevent ground loops (diagonal lines in video).

4. Digital System & Jumper Settings

The F405 V4 uses a smart jumper system to simplify wiring for digital systems like DJI O3, Walksnail, or HDZero:

- SBUS for DIJ UNIT: Bridge the SBUS pads (left side) to route the signal correctly for DJI-compatible receivers.
- VTX for Video Transmitter: Bridge the VTX pads (right side) to enable video transmission through the dedicated VTX port.
- UART4 (T4/R4): Specifically designated for digital video system communication (MSP DisplayPort).

5. Peripherals (RX, GPS, Buzzer)

- RX1 / TX1 & R2 / T2: Available UARTs for your Receiver or GPS.
- SCL / SDA: I2C pads for the GPS Magnetometer (Compass).
- BZ- / 5V: Connection for an active 5V buzzer.
- LED: Dedicated pad for programmable RGB LED strips.

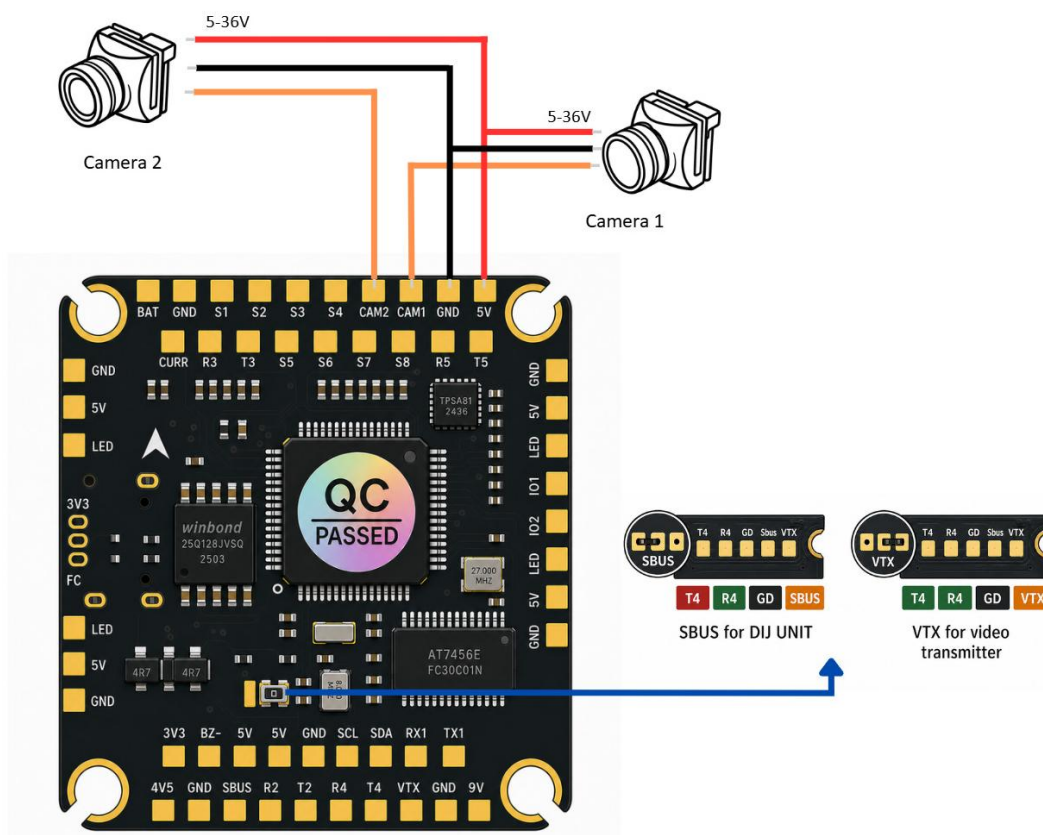


Fig.3. FC wiring diagram

4. Safety & Usage Rules

1. **Voltage Check:** Before connecting a 6S battery, ensure your VTX can handle the voltage if you are using the BAT pad. Otherwise, use the 9V regulated output.
2. **Smoke Stopper:** Always use a current-limiting device for the first power-on.
3. **Firmware Updates:** Use esc-configurator.com for the AM32 ESC.
4. **Mounting:** Use the provided anti-vibration grommets. High-current ESCs create electromagnetic noise; keep the FC physically separated by at least 2-3mm from the ESC.

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