Pilotix F405 V3 ICM42688 AM32 60A V1.0

User manual

PILOTIX™

2026

Content

1. Product overview

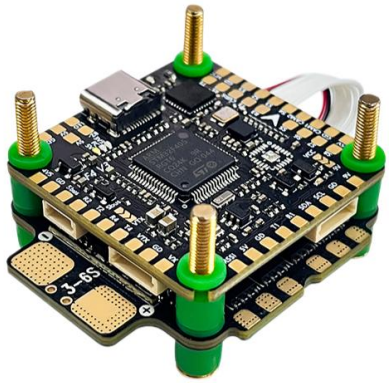

Fig.1. Pilotix F405 V3 ICM42688 AM32 60A V1.0

The Pilotix F405 V3 Stack is a professional-grade flight system. It combines an F405 Flight Controller (FC) featuring the low-noise ICM42688-P gyro and a 60A Electronic Speed Controller (ESC) running AM32 firmware. This stack is designed for high-end 5-inch to 7-inch FPV drones, offering precise handling and high current reliability.

2. ESC Installation & Wiring

The ESC is the foundation of your power system. Proper soldering is critical for safety.

Specifications:

- Continuous Current: 60A
- Input Voltage: 3-6S LiPo
- Firmware: AM32 (Target: Pilotix_60A or similar)
- Dimensions: 44.5 x 41.0mm (Mounting: 30.5 x 30.5mm)

Wiring Steps:

1. Main Power: Solder your XT60 lead to the large Vbat (3-6S) and GND pads.
2. Capacitor: Solder the included low-ESR capacitor to the power pads. Do not skip this step—it prevents voltage spikes from damaging the gyro.
3. Motor Pads: Solder your motor wires to the pads marked 1, 2, 3, 4 on the sides of the ESC.
4. 8-Pin Connector: Use the provided harness to link the ESC to the FC. The pins are:
   - Vbat: Battery voltage output to FC.
   - CRT / Current: Current sensor signal.

- Telemetry: ESC data for motor RPM and temperature.
- S1-S4: Motor control signals.

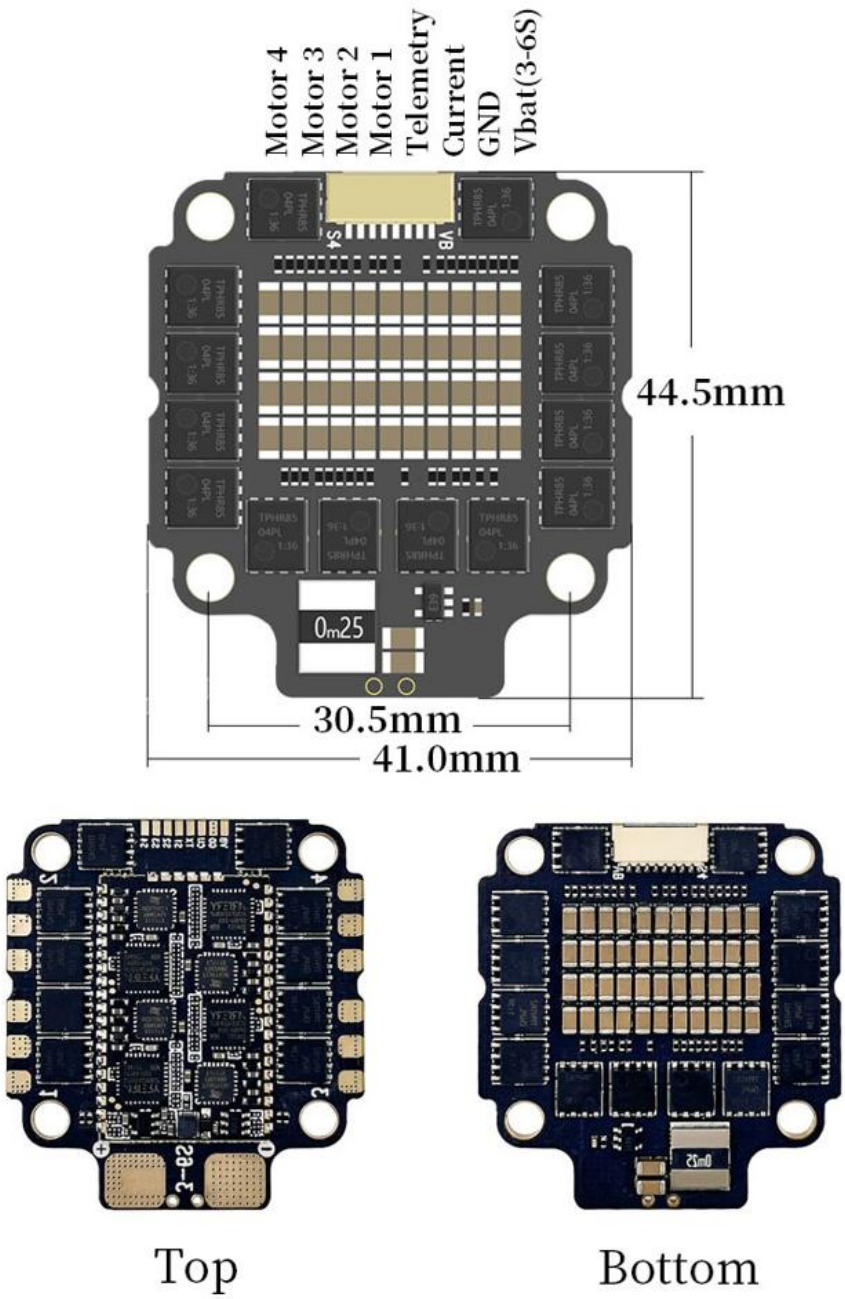

Fig.2. ESC installation & wiring

3. Flight Controller (FC) Wiring

The FC manages your sensors and peripherals.

Key Ports:

- Receiver (RX): Connect your ELRS/Crossfire to UART 2 (T2/R2).
- Video System (VTX): * Use the 9V pad for high-power video transmitters.
    - Use UART 4 (T4) for VTX Control (SmartAudio/IRC Tramp).
- Camera: Connect to CAM1 or CAM2. You can switch between them using a transmitter switch.
- GPS: Connect to UART 1 (T1/R1) and use the 5V pad.
- Buzzer: Dedicated BZ+ and BZ- pads for a 5V active buzzer.

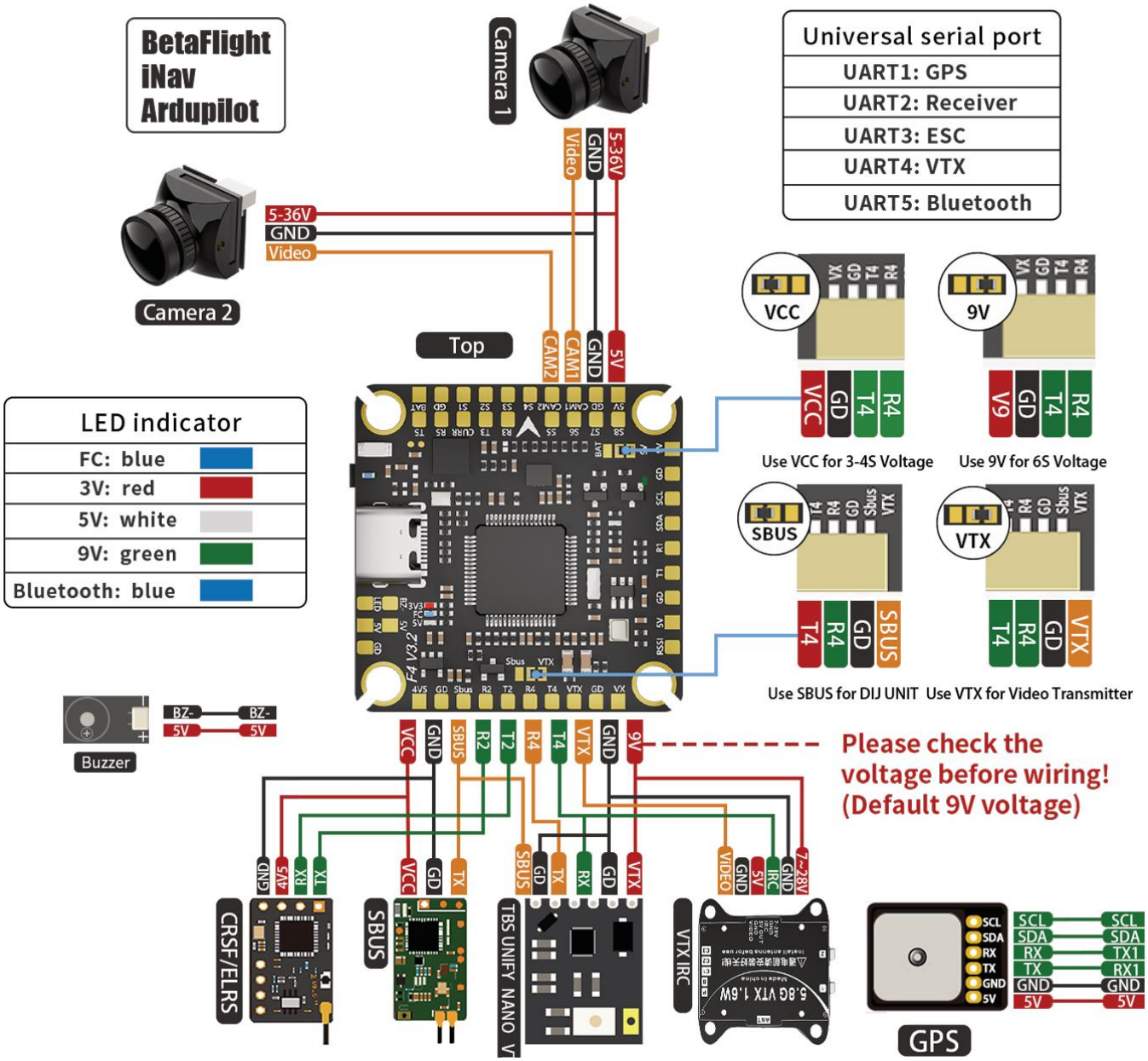

Fig.3. FC wiring diagram

4. Betaflight Configuration

To get the most out of the AM32 and ICM42688 hardware, use these settings:

Hardware Setup:

- Gyro: ICM42688 (Set PID loop to 8.00 kHz).
- Firmware Target: AOCODARCF405V3.

ESC Settings (Motors Tab):

- Protocol: DSHOT600.
- Bidirectional DShot: ON (Required for RPM Filtering).
- Motor Poles: Set according to your motor (usually 14 for 22xx/23xx motors).

User Modes:

- USER 1: VTX Power Switch (On/Off for the 9V regulator).
- USER 2: Bluetooth module toggle.
- USER 3: Camera switcher (Switch between CAM1 and CAM2).

5. Safety & Usage Rules

1. **Initial Power-Up:** Always use a Smoke Stopper for the first battery plug-in. Check for LEDs on the FC and the "startup music" from the ESC.
2. **Firmware Tools:** * For FC: Use Betaflight Configurator.
    - For ESC (AM32): Use esc-configurator.com. Do not use BLHeli_32 or BLHeli_S suites.
3. **Heat Management:** Ensure the stack is not tightly wrapped in cables. The aluminum heatsink/MOSFETs on the ESC require airflow during flight.
4. **Vibration Isolation:** Use the provided rubber gummies for "soft-mounting" the stack to the frame. This is vital for the sensitive ICM42688 gyro.
5. **Voltage Warning:** Before soldering a VTX or Camera, verify if they require 5V or 9V. Providing 9V to a 5V camera will cause permanent damage.

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