

Pilotix F7 40A

User manual



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1. Product overview



Fig.1. Pilotix F7 40A

The Pilotix F7 40A AIO is a combined flight controller and 4-in-1 ESC stack for 2.5" and larger cinewhoop builds, and for weight-sensitive 5–7" long-range builds. It pairs an STM32F722RET6 flight controller with an ICM42688P gyroscope and a 40A continuous / 50A instantaneous ESC running Bluejay firmware, with heat sinks for stable thermal performance in extended flight sessions.

2. Wiring guide

2.1. Power and FC connection

The board accepts a 4–6S LiPo battery.

- USB Type-C: onboard connector for Betaflight configuration and firmware flashing.
- Digital video link (DJI O3/O4 Air Unit, Avatar HD, Vista/Link): dedicated header carries VBAT, GND, RX, TX, GND, and SBUS — see the wiring diagram (Fig. 1) for exact pad mapping.

2.2. Peripheral wiring (UARTs)

The board provides 5 UART ports in total.

- GPS: dedicated header (TX, RX, GND, 5V, SCL, SDA). SCL/SDA only need to be connected if the GPS module includes a magnetometer.
- Receiver: supports CRSF receivers (ELRS, TBS Nano) and SBUS receivers via dedicated pads. See the wiring diagram for the correct connector for your receiver protocol.

2.3. Video and camera setup

- Camera: analog camera header supplies 5V, GND, and video signal.
- Analog VTX: header supplies 5V, GND, video, and SA/IRC (SmartAudio / IRC Tramp) for OSD and VTX table control.

BAT on the camera/VTX header reflects the battery voltage of the connected 4–6S pack.

2.4. Additional components

- Buzzer: BZ+ / BZ- pads for an active buzzer.
- LED strip: GND, 5V, and SIGNAL pads for addressable LED output.
- Motors: 4 motor outputs (Motor 1–4), rated 40A continuous / 50A instantaneous per motor.
- Blackbox: 16MB onboard flash for flight logging.
- Barometer: supported onboard.

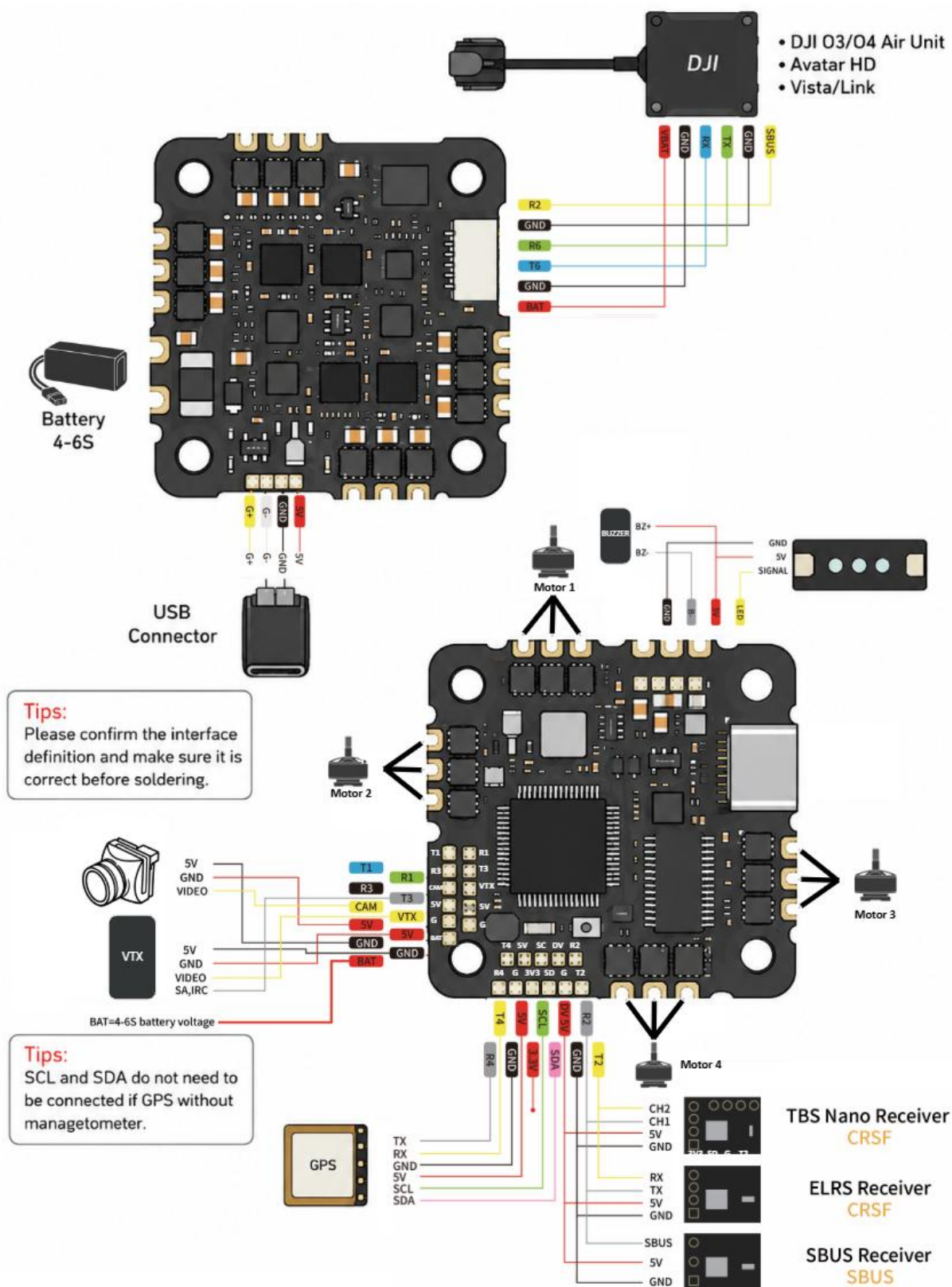


Fig.2. Wiring diagram

3. Safety & usage rules

- Smoke stopper: always use a current-limiting “smoke stopper” during the first power-up after soldering — your main line of defense against a short circuit from a solder bridge.
- Polarity: always double-check that battery polarity is correct before connecting. Incorrect polarity can permanently damage the board.
- Vibration isolation: the ICM42688P gyroscope is sensitive to mechanical noise. Use soft-mount grommets and keep wiring clear of the gyro chip.
- Current limits: do not exceed 40A continuous / 50A instantaneous current per motor output.
- Airflow: the onboard heat sinks are designed for extreme flight environments, but still need active airflow in flight. Avoid running the board on the bench under battery power for extended periods without cooling.
- Solder quality: use quality leaded or lead-free solder with flux. Cold solder joints (dull, grainy appearance) can fail under FPV-drone vibration.

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