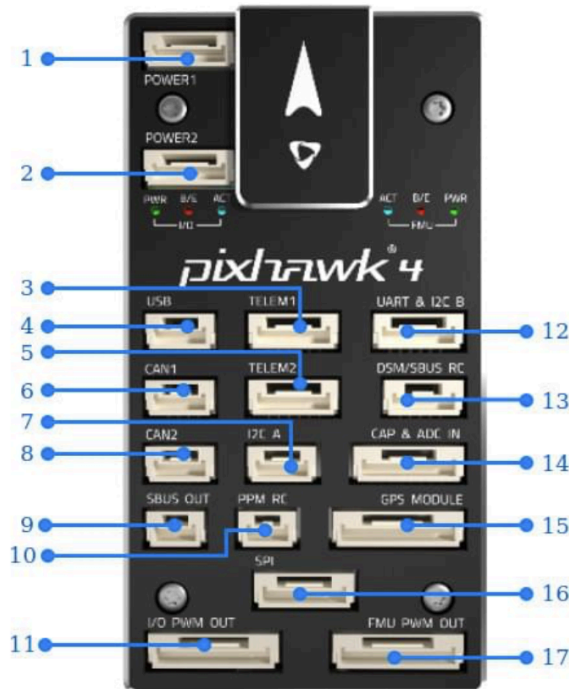


Components:

- Main FMU Processor: STM32F765
 - 32 Bit Arm® Cortex®-M7, 216MHz, 2MB memory, 512KB RAM
- IO Processor: STM32F100
 - 32 Bit Arm® Cortex®-M3, 24MHz, 8KB SRAM
- On-board sensors:
 - Accel/Gyro: ICM-20689
 - Accel/Gyro: BMI055 or ICM20602
 - Magnetometer: IST8310
 - Barometer: MS5611
- GPS: u-blox Neo-M8N GPS/GLONASS receiver; integrated magnetometer IST8310

Pins:



1. Power module 1
2. Power module 2
3. Telemetry 1 (radio telemetry)
4. USB
5. Telemetry 2 (companion computer)
6. CAN1 (controller area network) bus
7. I²C (for I²C splitter to use additional sensors)
8. CAN2 (controller area network) bus
9. S.BUS out for S.Bus servos
10. Radio Control Receiver Input (PPM)
11. Main outputs (I/O PWM out)
12. UART and I2C (for additional GPS)
13. Radio Control Receiver Input (DSM/SBUS)
14. Input Capture and ADC IN
15. GPS module
16. SPI (serial peripheral interface) bus
17. AUX outputs (FMU PMU out)



1. Micro-USB Port
2. IO Reset button
3. SD card
4. FMU Reset button



1. Power Module 1

- **Purpose:** Main power input for the flight controller.
- **Connects To:** A power module or battery monitor that provides battery voltage/current sensing and regulated power.

2. Power Module 2

- **Purpose:** Secondary/redundant power input.
- **Connects To:** An additional power module or backup supply, enhancing power redundancy.

3. Telemetry 1 (radio telemetry)

- **Purpose:** Primary UART port for wireless telemetry.
- **Connects To:** Telemetry radio (e.g., 915 MHz/433 MHz modules) to communicate with a ground control station.

4. USB

- **Purpose:** USB interface for firmware updates, configuration, and direct communication with ground station software.
- **Connects To:** A computer or laptop via a micro USB cable.

5. Telemetry 2 (companion computer)

- **Purpose:** Secondary UART port.
- **Connects To:** Companion computers (e.g., Raspberry Pi) or a second telemetry link.

6. CAN1 (controller area network) bus

- **Purpose:** First CAN bus interface for UAVCAN peripherals.
- **Connects To:** Smart batteries, advanced sensors (e.g., LiDAR), lighting controllers, etc.

7. CAN2 (controller area network) bus

- **Purpose:** Second CAN bus interface.
- **Connects To:** Additional or separate UAVCAN devices, allowing more peripherals or network segmentation.

8. I2C (for I2C sensors)

- **Purpose:** I²C bus for external digital sensors.
- **Connects To:** Devices like external magnetometers, rangefinders, or other I²C-based peripherals.

9. DSM/SBUS RC Input

- **Purpose:** Digital RC receiver input port.
- **Connects To:** Receivers using DSM or SBUS protocols for pilot control signals.

10. Radio Control Receiver Input (PPM or SBUS)

- **Purpose:** Another input port for RC signals (either PPM or SBUS).

- **Connects To:** Traditional PPM receivers or SBUS-compatible receivers.

11. Main Outputs (I/O PWM Out)

- **Purpose:** PWM signals generated by the dedicated I/O microcontroller.
- **Connects To:** ESCs or servos for primary flight control surfaces or motors (the I/O MCU can maintain outputs if the main FMU fails).

12. UART & I2C (for additional GPS)

- **Purpose:** Combined UART/I²C port.
- **Connects To:** A secondary GPS module or other peripherals that require a serial or I²C interface.

13. GPS Module

- **Purpose:** Dedicated port for a primary GPS + compass unit.
- **Connects To:** A GPS receiver (UART) and onboard compass (I²C) in the same module.

14. DSM/SBUS (RC input)

- **Purpose:** Another digital RC input port.
- **Connects To:** Receivers using DSM or SBUS protocols, similar to port #9.

15. SPI (Serial Peripheral Interface) bus

- **Purpose:** Expansion port for external SPI-based peripherals.
- **Connects To:** Advanced sensors or add-on modules that communicate over SPI.

16. FMU Outputs (FMU PWM Out)

- **Purpose:** PWM signals generated directly by the main flight management unit (FMU).
- **Connects To:** Additional ESCs/servos or for advanced/auxiliary output needs.

Side/Additional Features (often shown in smaller labels)

- **Micro-USB Port** (another view of #4):

Used for firmware flashing, parameter setup, and direct PC connection.

- **I/O Reset Button:**

Resets the I/O microcontroller responsible for main PWM outputs and RC input decoding.

- **SD Card Slot:**

For logging flight data and storing parameters; accessed via a microSD card.

- **FMU Reset Button:**

Resets the main flight controller (FMU) microcontroller.

Pin out list:

<https://cdn.shopify.com/s/files/1/0604/5905/7341/files/Pixhawk4-Pinouts.pdf>