

STRIX H7

1. Product Description

The **ZERODRAG STX H7** is a high-performance flight controller developed for next-generation UAV platforms. Powered by the **STM32H743** running at 480 MHz, it delivers exceptional computational capacity for advanced navigation, sensor fusion, and autonomous applications. Its architecture emphasizes **precision sensing and reliability**, featuring dual ICM42688P IMUs, an Infineon DPS310 barometer, and dedicated low-noise power domains.

With a **30.5 × 30.5 mm standard mounting format**, the STX H7 integrates seamlessly into industry-standard airframes. It offers flexible connectivity through plug-and-play connectors and solder pads, while supporting leading open-source firmware, including **Ardupilot**, **PX4**, **Betaflight**, and **INAV**.

Key Features

- **High-Performance MCU** — STM32H743 @ 480 MHz for advanced flight control and navigation.
- **Redundant IMU System** — Dual ICM42688P accelerometer/gyroscopes for robust flight data and fault tolerance.
- **Integrated OSD** — AT7456E for real-time FPV video overlay.
- **Noise-Isolated Power Supply** — Dedicated low-noise rails for MCU, sensors, and OSD, ensuring clean data and stable performance.
- **UAVCAN Interface** — Native UAVCAN support for next-generation peripheral integration.
- **Blackbox Logging** — MicroSD card slot for high-speed flight data recording.
- **Flexible Power Architecture** — Up to 36 V DC input with onboard 5 V / 2.5 A and 12 V / 2.5 A rails.
- **Pit Mode on 12 V** — Controlled power switching for VTX management and safety.

2. Specifications

Processor & Storage

- MCU: **STM32H743** @ 480 MHz
- Onboard Blackbox: **MicroSD card slot**
- OSD: **AT7456E**

Sensors

- IMU: **2 × ICM42688P** (accelerometer & gyroscope)
- Barometer: **Infineon DPS310**

Power

- Input Voltage: **Up to 36 V DC**
- 5 V Rail: **2.5 A max**
- 12 V Rail: **2.5 A max**

Connectivity

- **UARTs**: 7 full ports
- **I²C**: 2 ports
- **PWM Outputs**: 12 channels + 1 LED output
- **CAN**: 1 port (UAVCAN compatible)
- **ADC**: 6 inputs
- **USB**: 1 × USB Type-C
- **PIO**: 1 + dedicated pit control

Physical

- Mounting: **30.5 × 30.5 mm**
- Dimensions: **37 × 38.5 × TBD mm**
- Weight: **TBD**

Additional

- Plug-and-play connectors alongside solder pads
- Full MCU breakout available
- Dedicated low-noise power supply for sensors, OSD, and MCU
- Pit mode control on 12 V supply
- Multi-firmware support: **Ardupilot, PX4, Betaflight, INAV**

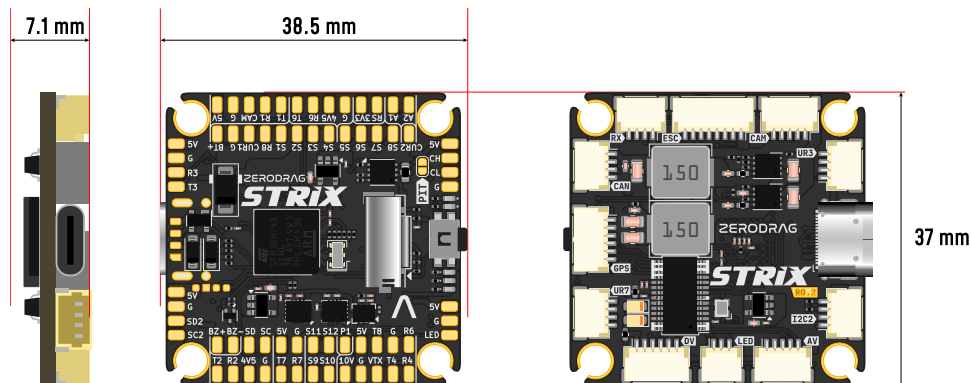


Figure 1: Dimensions

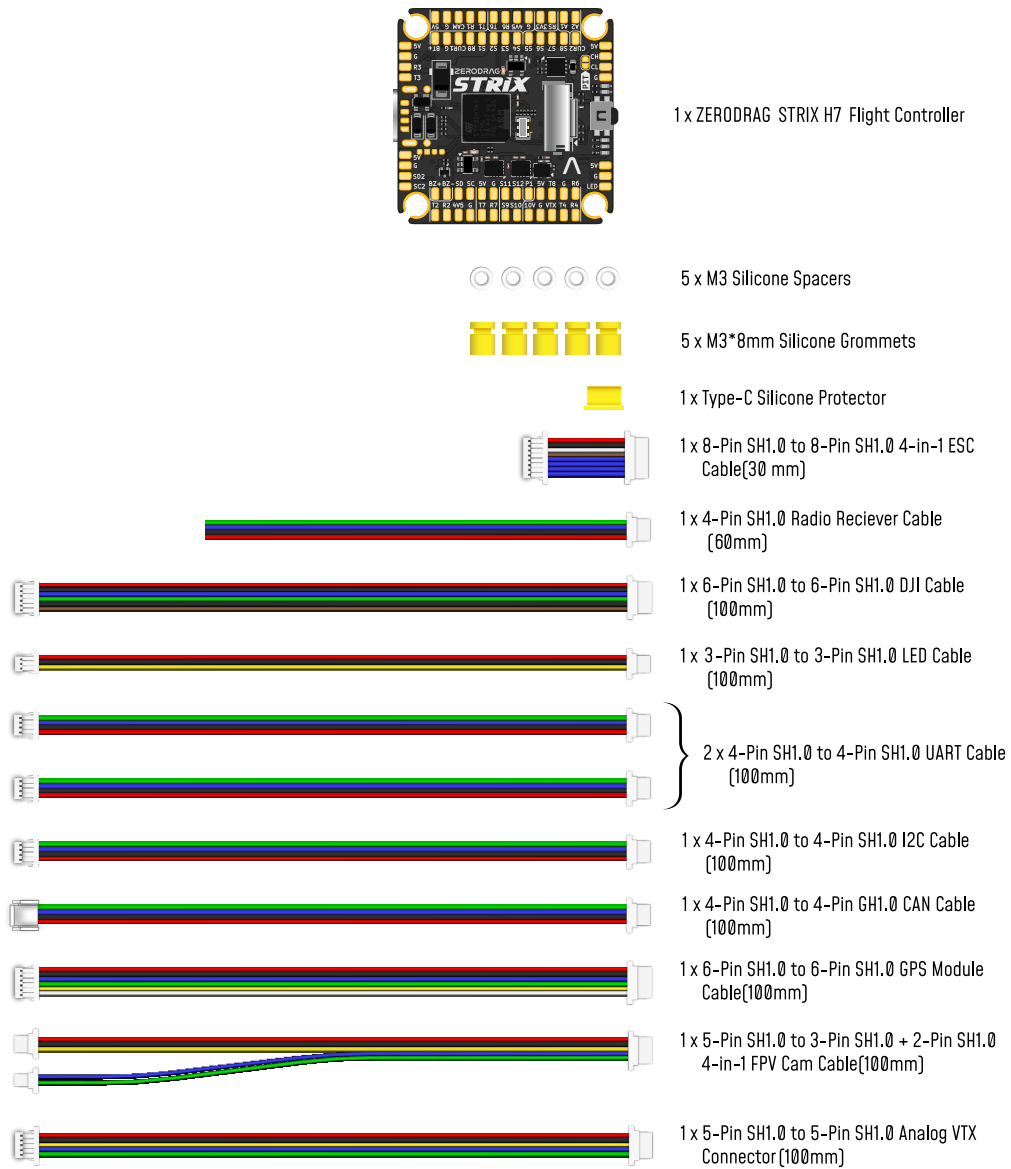


Figure 2: In the box components

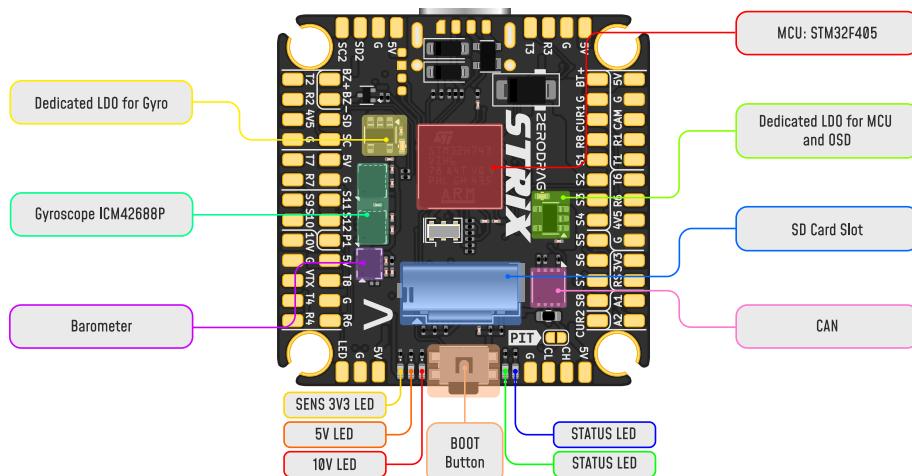


Figure 3A: Components on board

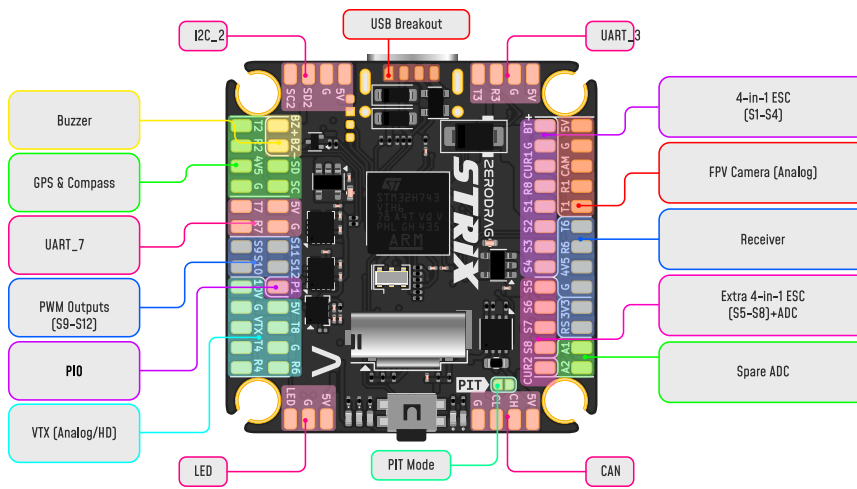


Figure 3B: Front-Label

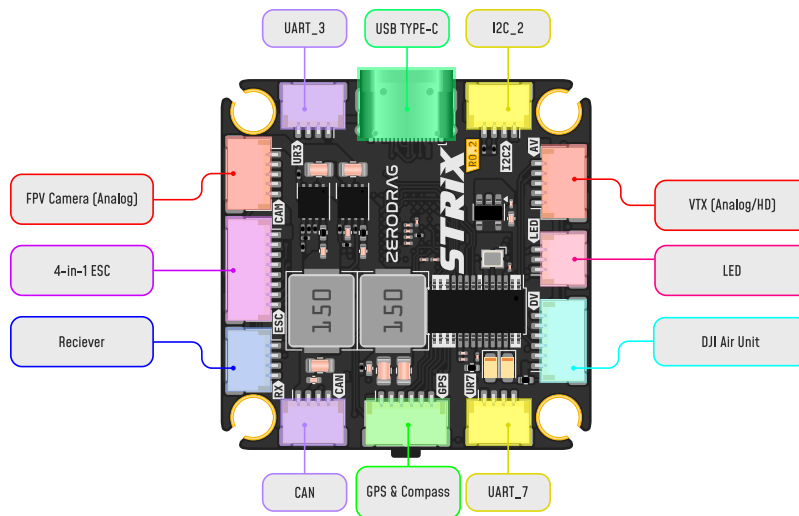


Figure 3C: Back-Label

ORANGE LED 1 - Sensor 3.3 Voltage indication

BLUE LED - FC Status Light.

Unlit: USB disconnected and disarmed,

Lit: USB disconnected and armed,

Flashing: USB connected and disarmed,

5x Rapid Flash then Flashing: USB connected and arming command prevented.

GREEN LED - FC Status Light.

ORANGE LED 2 - 5V Power Indicator.

RED LED - 10V Power Indicator

5. Connections

Method 1 - Direct Soldering

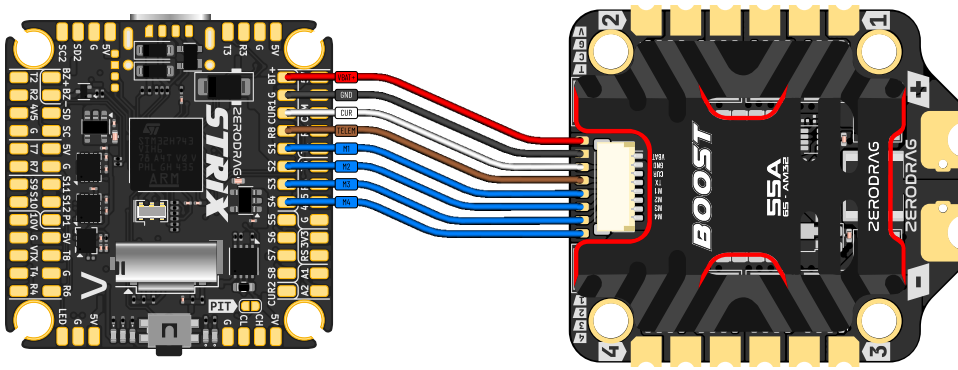


Figure 4A: FC-ESC

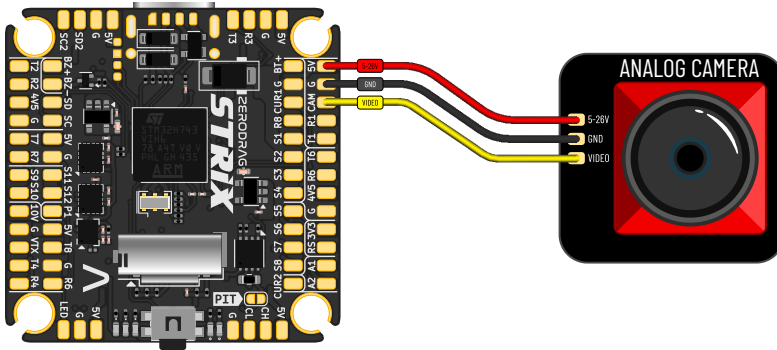


Figure 5A: FC-CAM

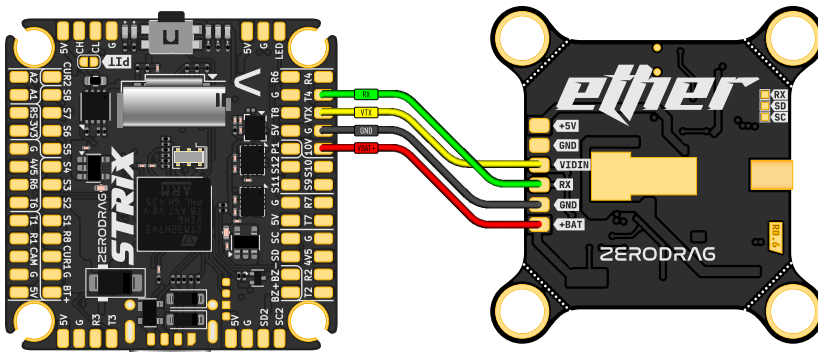


Figure 6A: FC-VTX

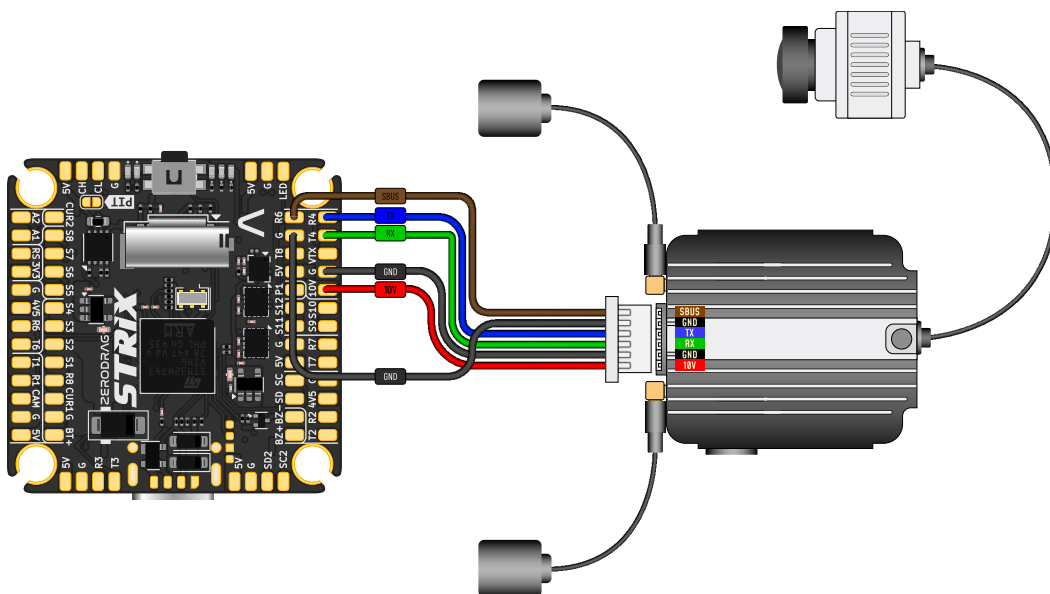


Figure 7A: FC-DJI AirUnit

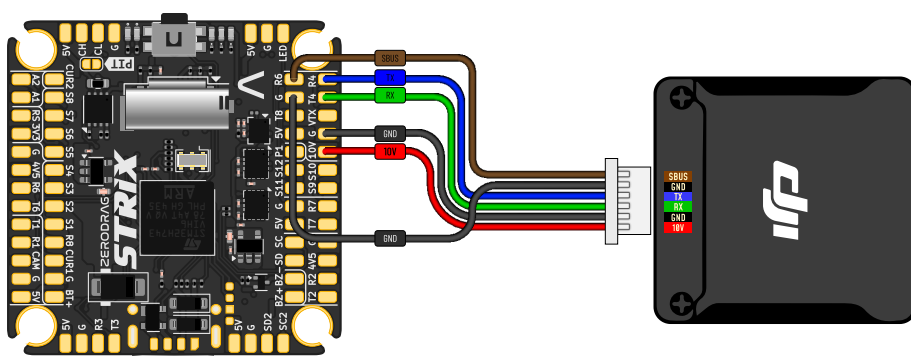


Figure 8A: FC-DJI O3

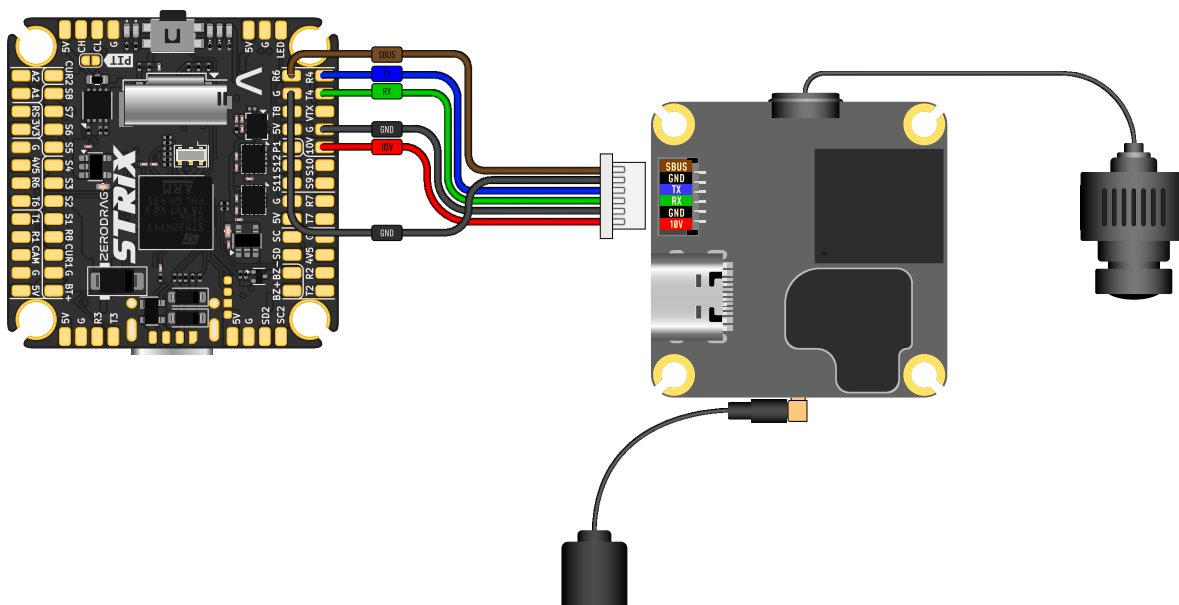


Figure 9A: FC-DJI O4

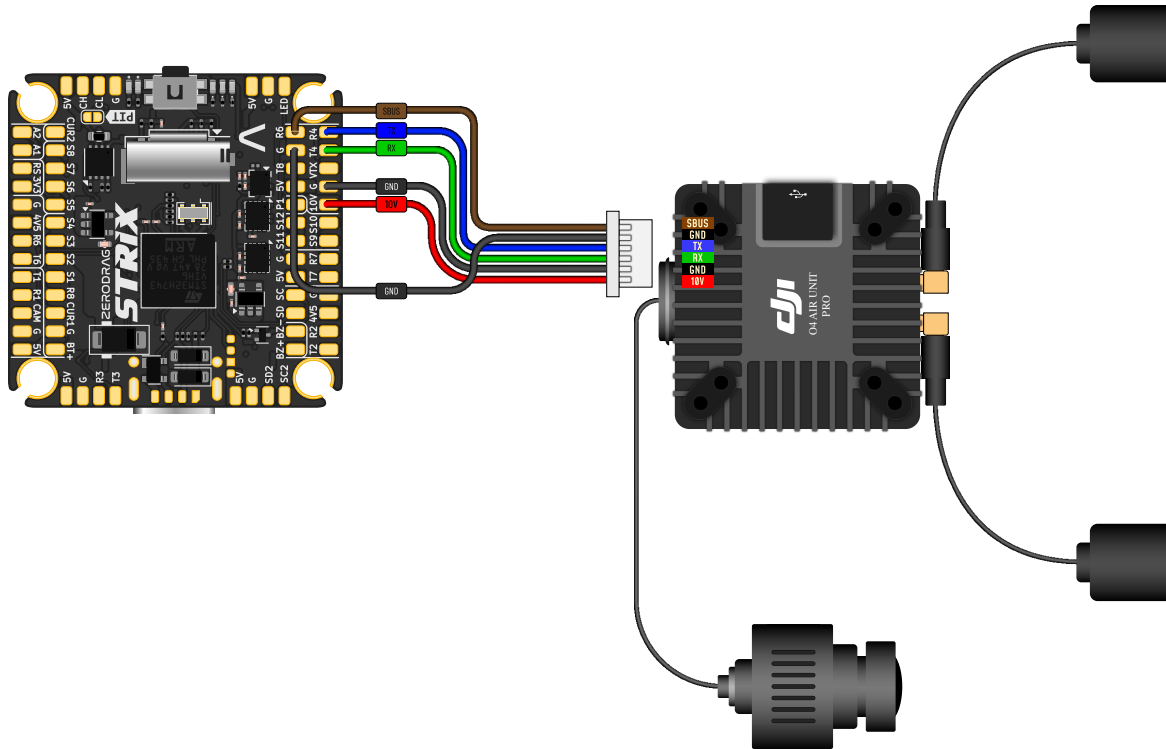


Figure 10A: FC-DJI O4 PRO

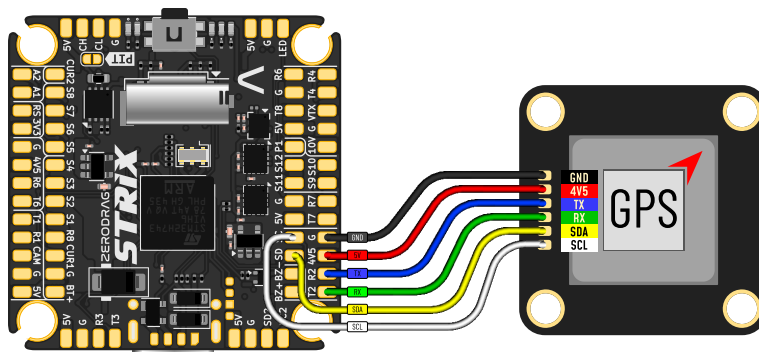


Figure 11A: FC-GPS

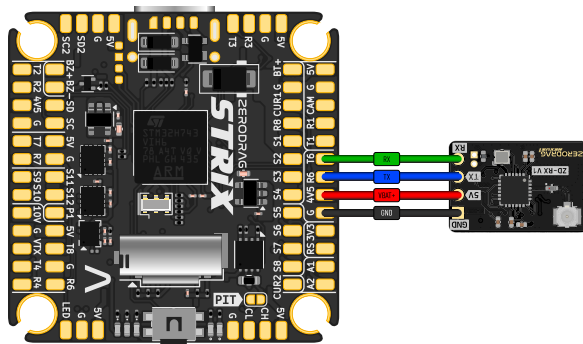


Figure 12A: FC-ELRS/CRSF Receiver

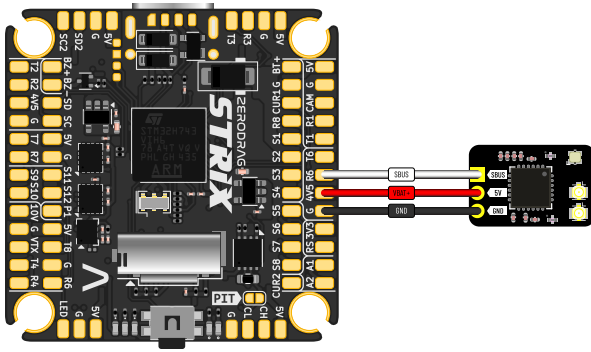


Figure 13A: FC-SBUS

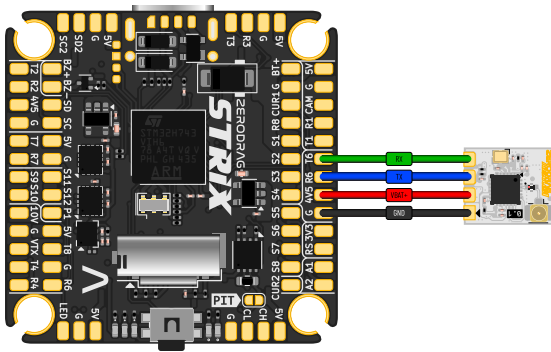


Figure 14A: FC-CRSF Nano

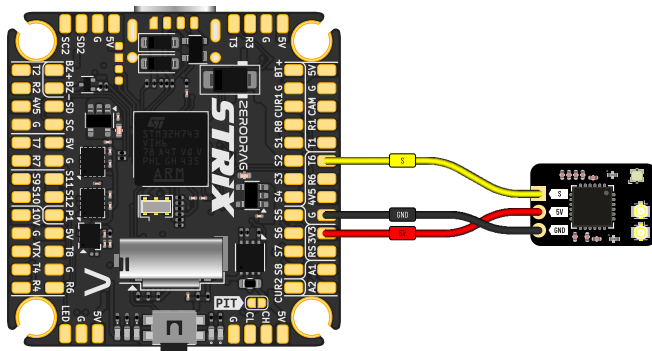


Figure 15A: FC-Spectrum

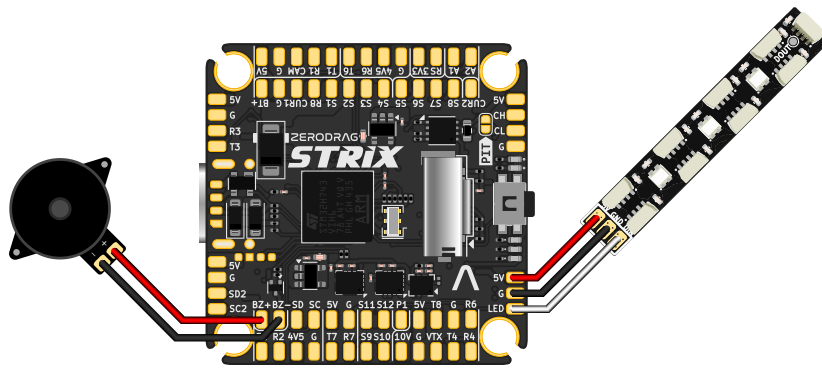


Figure 16A: FC-LED's/Buzzer

Method 2 - Direct Connector wiring.

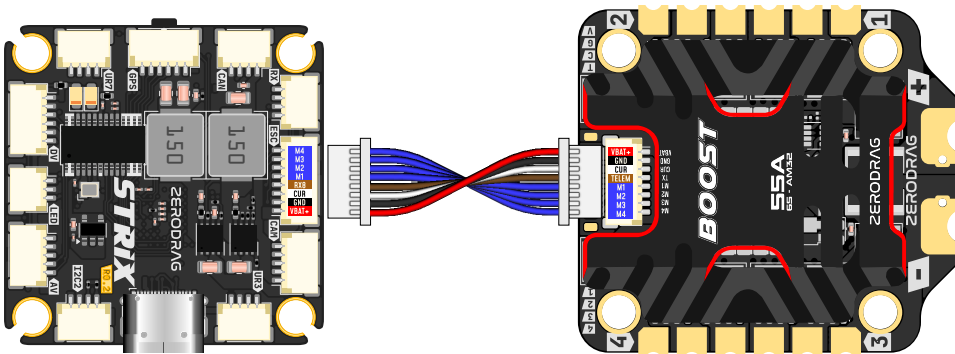


Figure 4B: FC-ESC

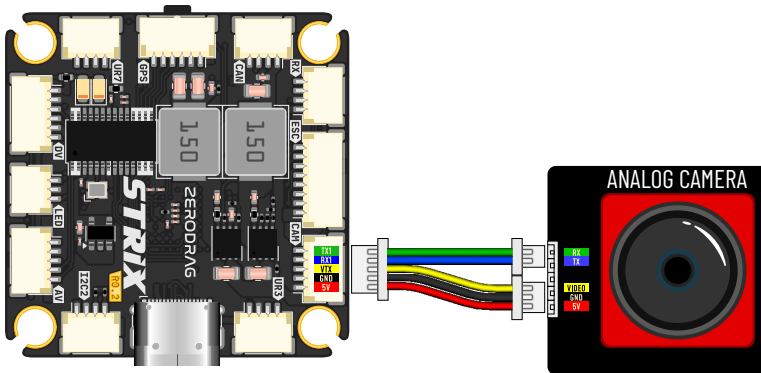


Figure 5B: FC-CAM

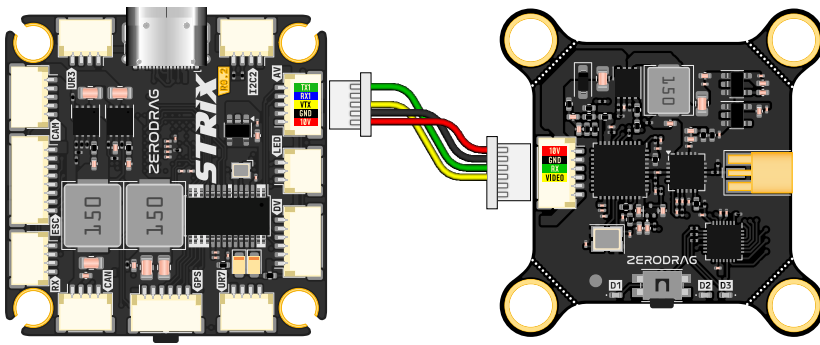


Figure 6B: FC-VTX

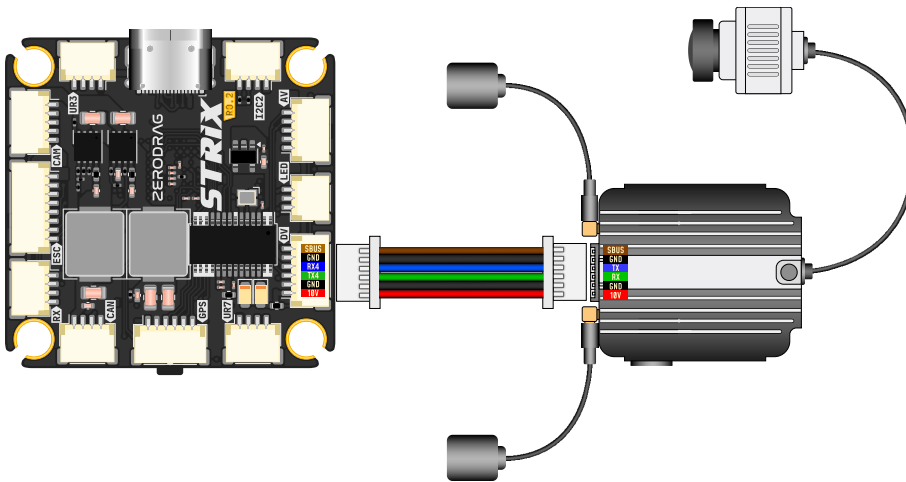


Figure 7B: FC-DJI AirUnit

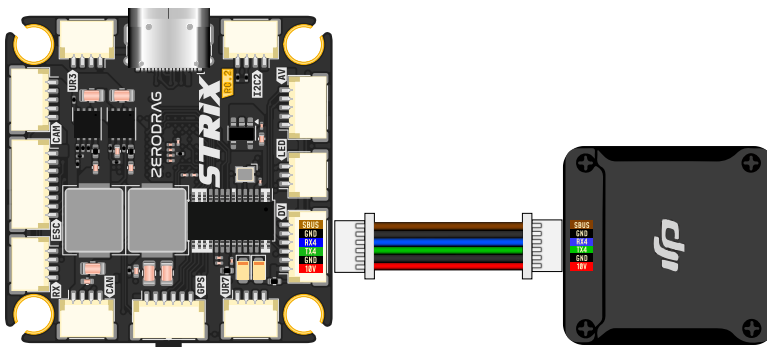


Figure 8B: FC-DJI O3

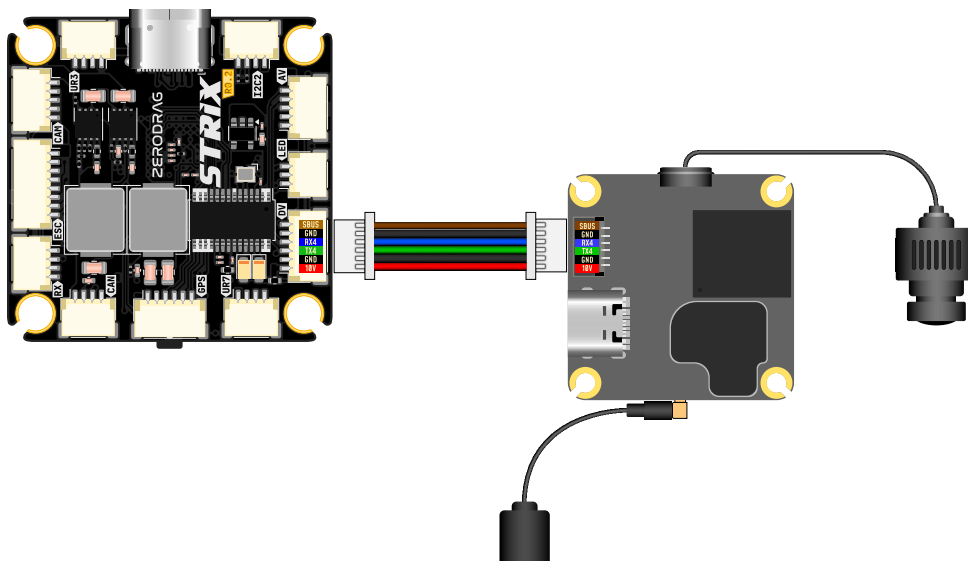


Figure 9B: FC-DJI O4

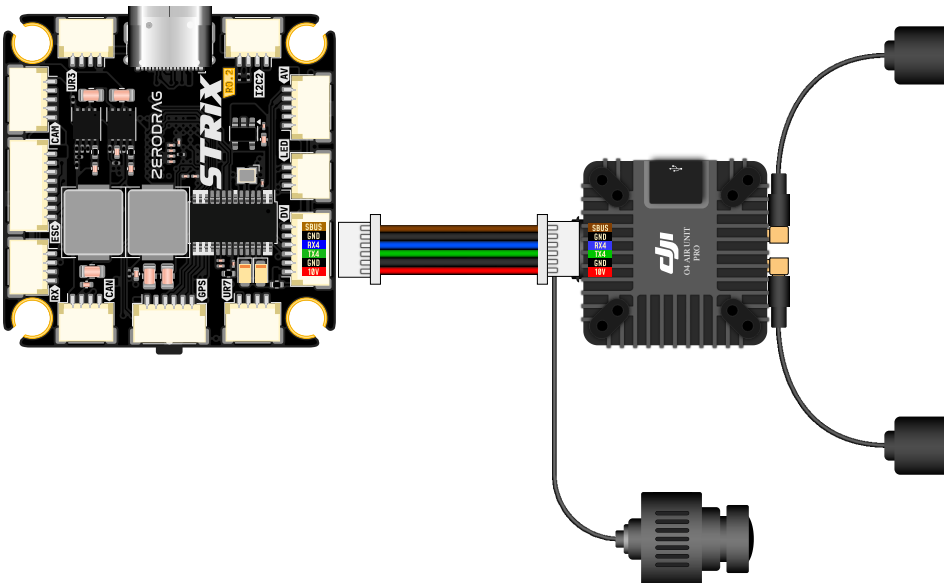


Figure 10B: FC-DJI O4 PRO

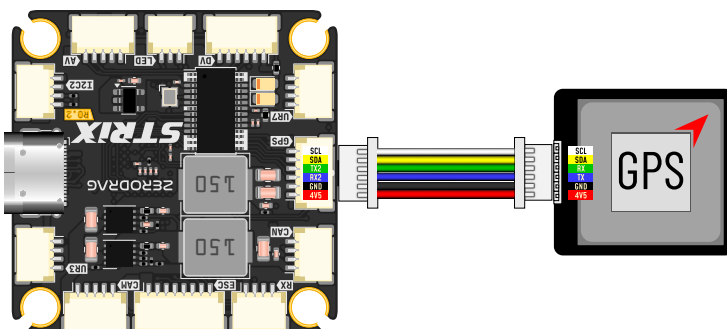


Figure 11B: FC-GPS

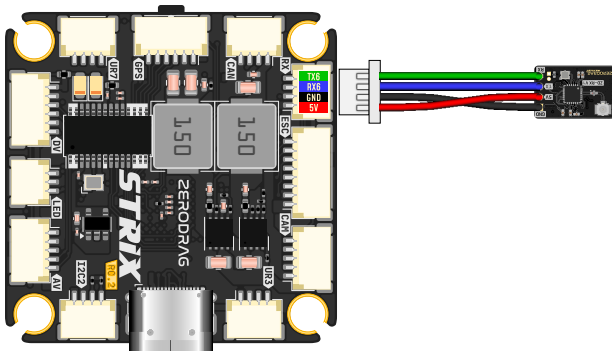


Figure 12B: FC-ELRS/CRSF Receiver

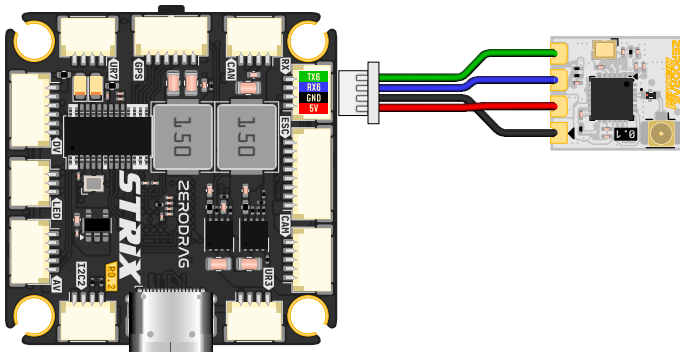


Figure 14B: FC-CRSF Nano

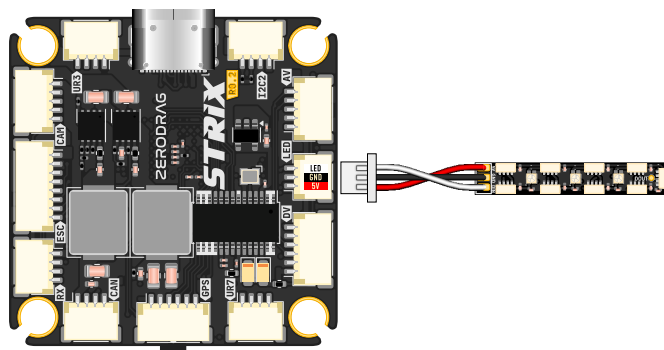


Figure 16B: FC-LED

LED Connection Options:

You have two options for connecting LEDs to your flight controller:

1. Soldering:
 - Use the three solder pads: 5V, Ground, and Signal.
2. Connector:
 - Use the 4-pin connector with pins for 5V, Ground, Signal In, and Signal Out.

Daisy Chain Feature:

- By default, the connectors are daisy-chained, meaning each connector can control LEDs independently.
- If you prefer to use standard LEDs and control all connectors simultaneously, follow these steps:

Steps to Use Standard LEDs in Parallel:

- On each of the three connectors (except the first one), cut the Signal Out wire.
- Bridge the small pad next to the Signal pad on the flight controller.
- This will set all connectors to use the same signal, allowing them to operate in parallel.

Important:

- You only need to do this on the second connector, as the first connector already provides the signal.

Avoid Sbus or RX use with DJI or Vice versa.

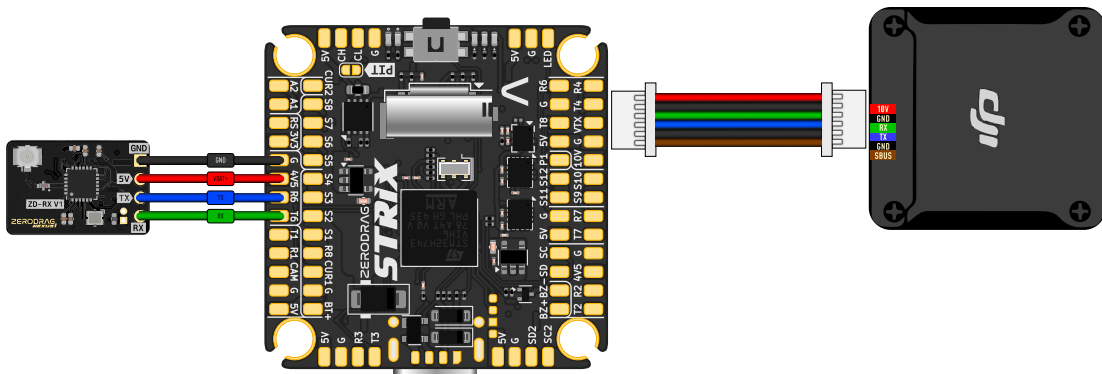


Figure 18A: DJI SBUS-ELRS

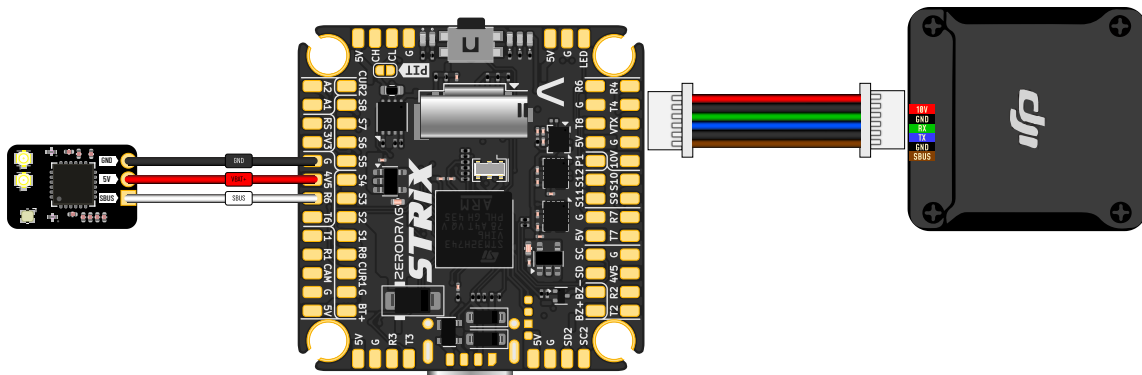


Figure 18B: DJI SBUS

When using an SBUS receiver, connect its SBUS signal wire to the SBUS pad on the front side of the flight controller, utilising UART2 internally. If employing the DJI Air Unit (O4/O3/Link/Vista/Air Unit V1), disconnect the SBUS signal wire from the Air Unit harness to ensure proper recognition by the flight controller. Use tweezers to remove or cut this wire from the 6-pin harness connector, and insulate the exposed part meticulously. Similarly, when utilising ELRS receivers, connect their TX and RX to the T2 and R2 pads on the flight controller. However, in case of recognition issues with ELRS receivers when using the DJI Air Unit simultaneously, repeat the process of disconnecting the SBUS signal wire from the Air Unit harness to resolve the issue.

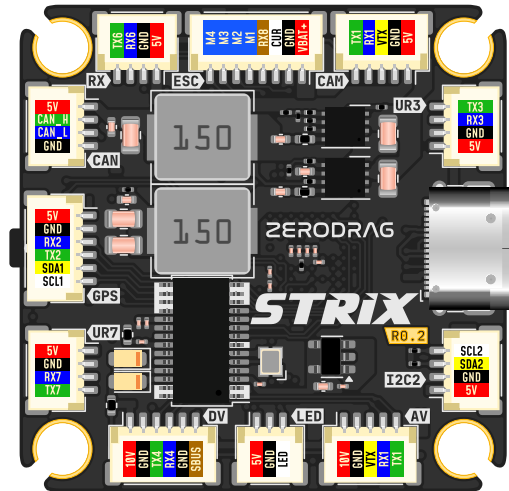


Figure 19: Pinouts

Connecting the Video Transmitter:

1. Connection Options:

- Refer to the connection options described in Step 5: Connections, where the two methods for connecting peripherals were outlined. Choose the connection method that best suits your setup:
- Connector Method: Connect your video transmitter (VTX) to the designated connector on the NOVA F4 flight controller.
- Soldering Method: Alternatively, solder the VTX power wires to the 10V, Ground, and Signal pads on the flight controller.

2. Enable Pit Mode:

1. • Locate the Pit Mode solder pad on the NOVA F4.
2. • Solder/bridge this pad to enable Pit Mode.

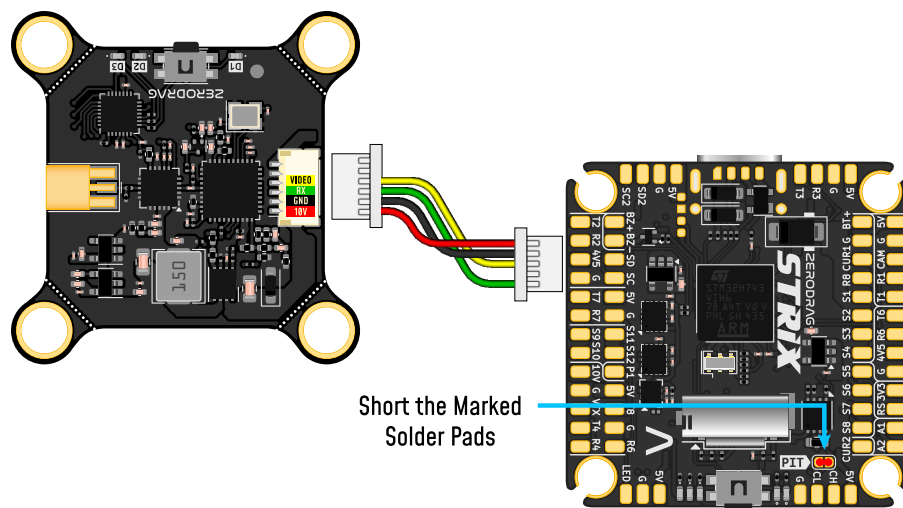


Figure 20: VTX Pit Mode

7. Using USB Breakout Pads for Extended USB Connectivity

In certain situations, such as when dealing with large builds or a broken USB connector on the flight controller, the NOVA F4 offers USB breakout pads as an alternative way to connect your flight controller to a computer for updates and configuration changes.

How to Use USB Breakout Pads:

1. Locate the USB Breakout Pads:

1. • The NOVA F4 flight controller features dedicated USB breakout pads on the board.

2. Connecting to USB Breakout Pads:

1. • Soldering: Carefully solder a USB cable's corresponding wires to the breakout pads (D+, D-, 5V, and GND).

1. • D+ and D-: Data lines for USB communication.
2. • 5V: Power supply line.
3. • GND: Ground line.

3. Using the Extended USB Connection:

1. • Once connected, use this extended USB setup to link` the flight controller to your computer, just like you would with the onboard USB connector.
2. • This setup allows you to access Betaflight Configurator for firmware updates and configuration changes.

Important Considerations:

- Ensure secure and accurate soldering to avoid shorts or connectivity issues.
- Double-check the USB wiring connections to the breakout pads to prevent damage to the flight controller or connected devices.

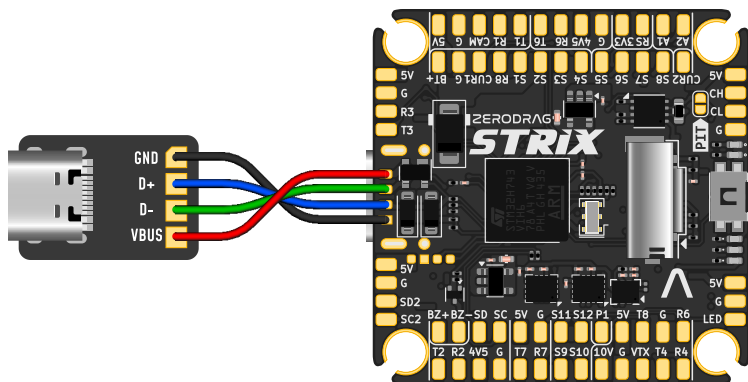


Figure 21: USB Extension

8. Firmware

******<https://zerodrag.in/Strix/Firmware>

9. Contact

******Website: <https://zerodrag.in/>

Instagram: <https://www.instagram.com/zerodrag.in/>

LinkedIn: <https://www.linkedin.com/company/zerodrag/>

WhatsApp: <https://wa.me/9821734544>