



BOTWING

Flight Controller F722

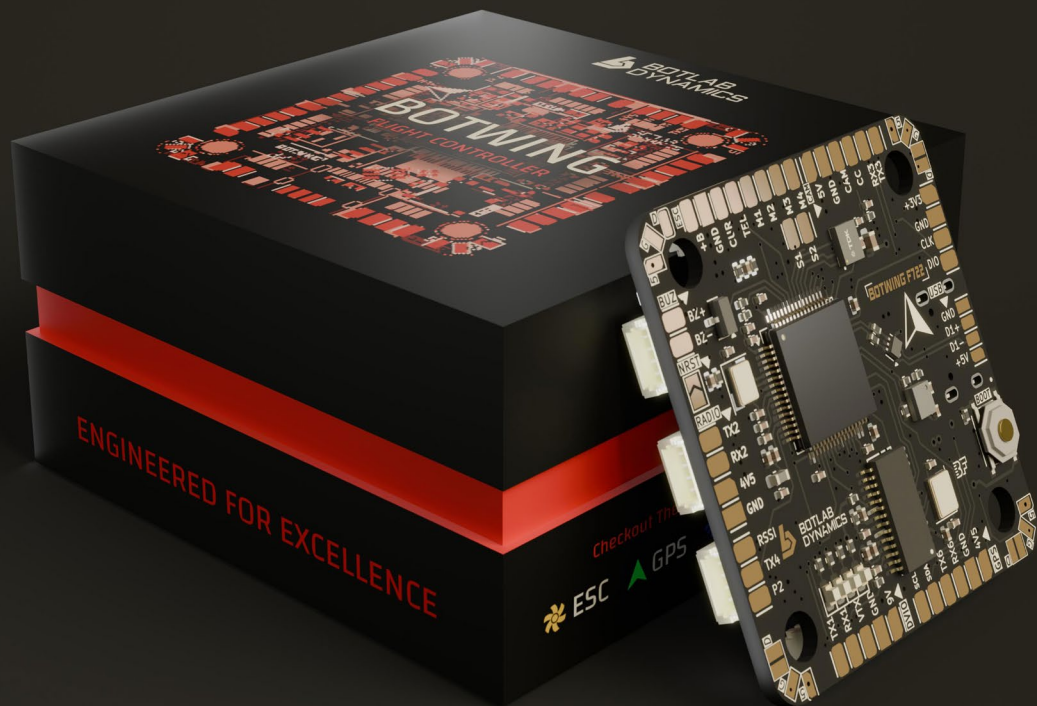
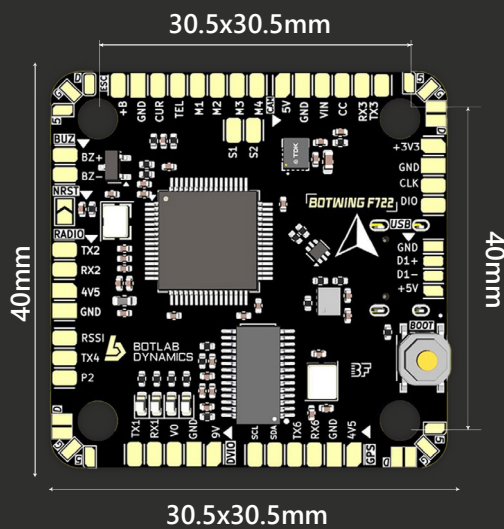
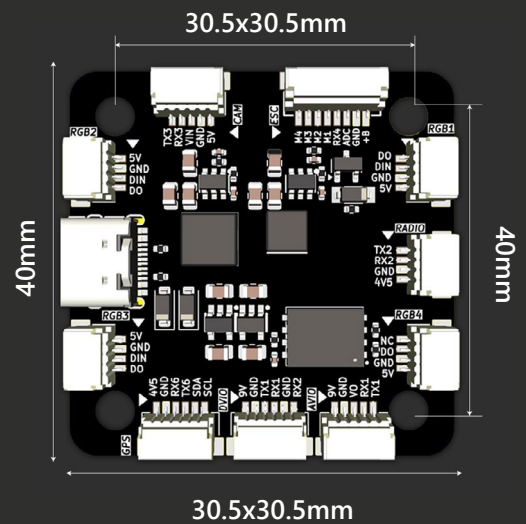


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FRONT



BACK

6.2mm



1.6mm

SIDE

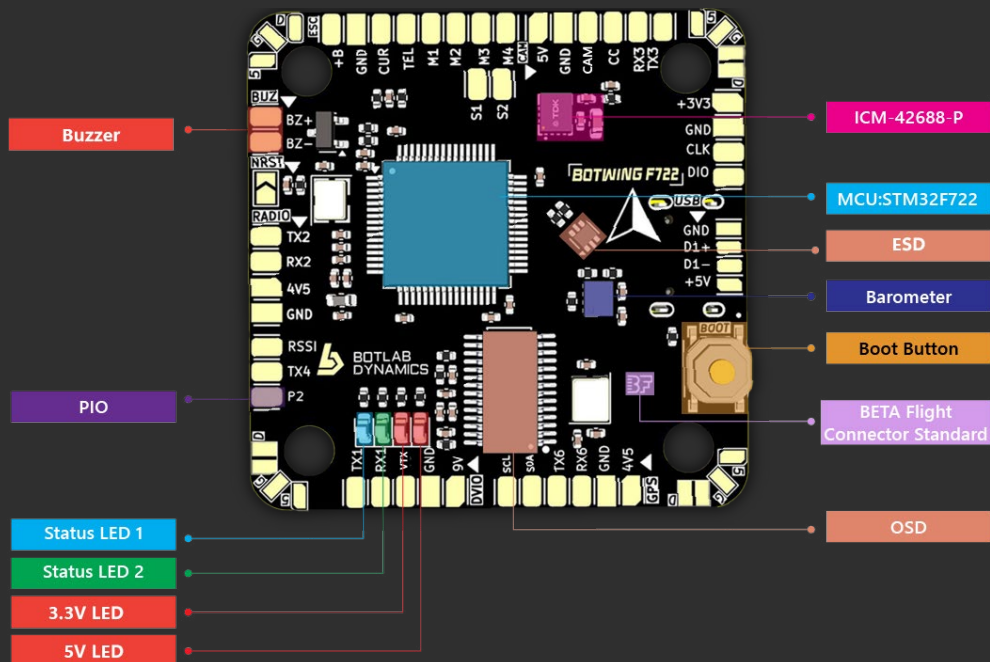
About BOTWING F722

Power meets precision with BotWing F722, the elite flight controller for pilots who demand total control. Built with the powerful STM32F722 MCU and ICM42688P gyro, BotWing F722 offers expanded capabilities including 4 motor outputs and 2 servo outputs - ideal for advanced drone configurations.

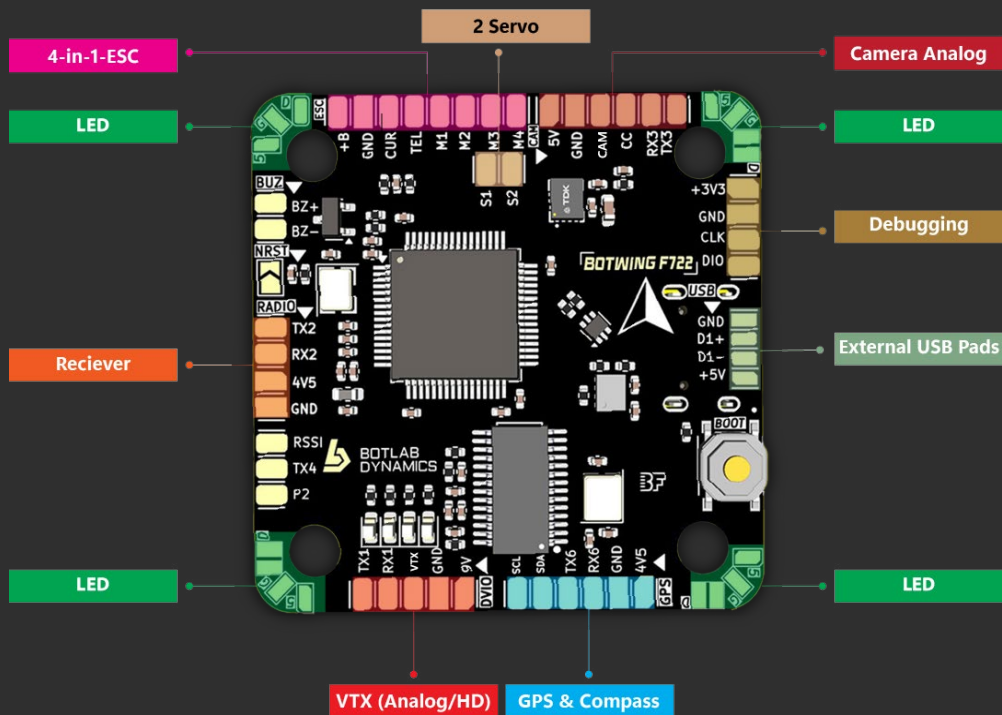
With full compatibility with BetaFlight and iNav, BotWing F722 unlocks powerful mission planning and autonomous navigation, giving you the freedom to design complex flight missions with confidence. Its robust telemetry, 32MB onboard Blackbox, plug-and-play DJI Air Unit port, and flexible 5 UART layout make it the perfect heart for serious builds.

Whether you're racing, exploring, mapping, or executing precision flights, BotWing F722 ensures flawless execution and endless potential - all housed within a clean 30.5×30.5mm mounting holes.

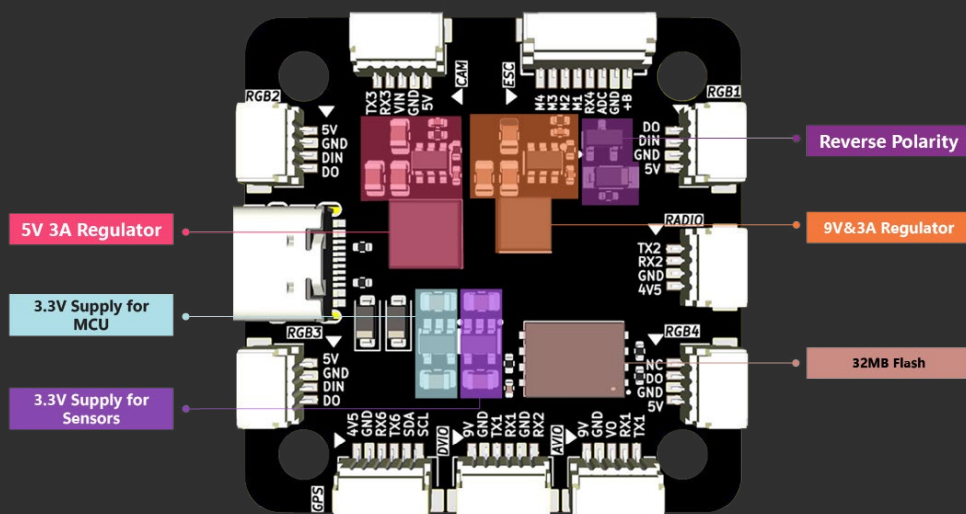
LAYOUT



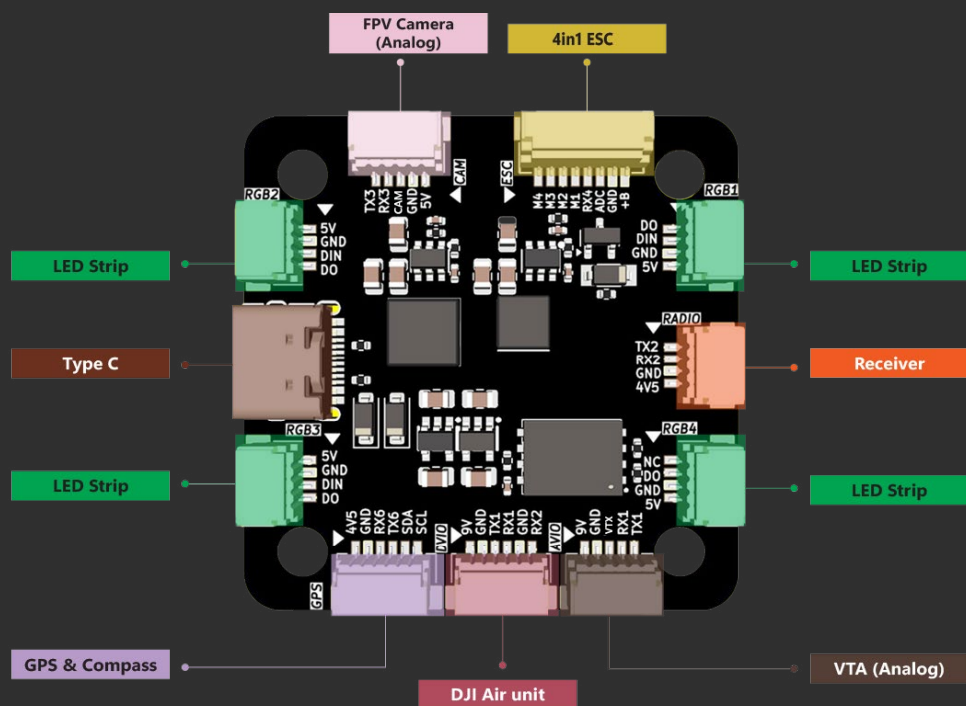
FRONT-I



FRONT-II



BACK-I



BACK-II

Specification

Dimensions	40x40mm
Firmware	BetaFlight and iNav
Firmware Target Name	BOTWING F722
Mounting	30.5mm x 30.5mm (3.2mm hole size)
MicroController(MCU)	STM32F722
Motors Outputs	4 Motors
Gyro (IMU)	ICM42688P
Power Input	2S-6S LiPO
On Screen Display (OSD)	AT7456E
BlackBox-Flash	32 MB
Buzzer	BZ+ and BZ- pad used for 5V Buzzer
i2C	SDA & SCL Pads for sensors like Magnetometer etc.
RSSI	Named as RSSI on the front side
Boot Button	Press boot button, then power FC to activate DFU mode for flashing.
5 x LED Pad	Supported by BetaFlight firmware
Connector	BetaFlight Standard

Weight	9.35gm
Barometer	DPS310XTSA1
OSD Chip	AT7456E
USB Port Type	Type C
4.5V Pads	4 group of 4.5Vpads is used
5V Bec	3 Amp
9V Bec	2.5 Amp
3.3V Regulator	500 mA
USB 4.5V	For Receiver and GPS module
ESC Signal Pads	M1 - M4 and 2 servos on top side
UARTs	UART 1 (VTX), UART 2 (Receiver), UART 3 (Camera), UART 4 (ESC), UART 6 (GPS)
Camera Control Pad	Present

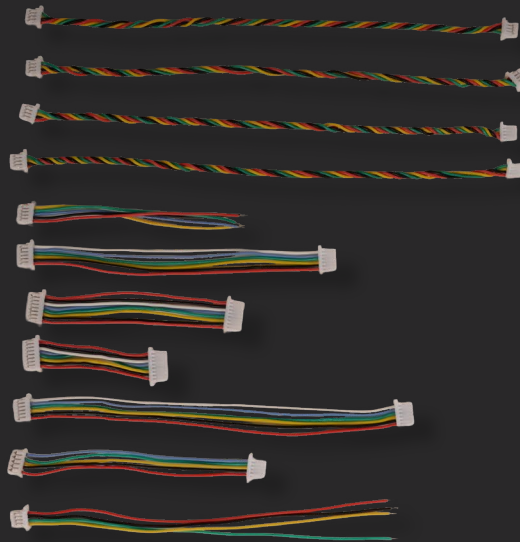
Package Include



1 x USB Protector



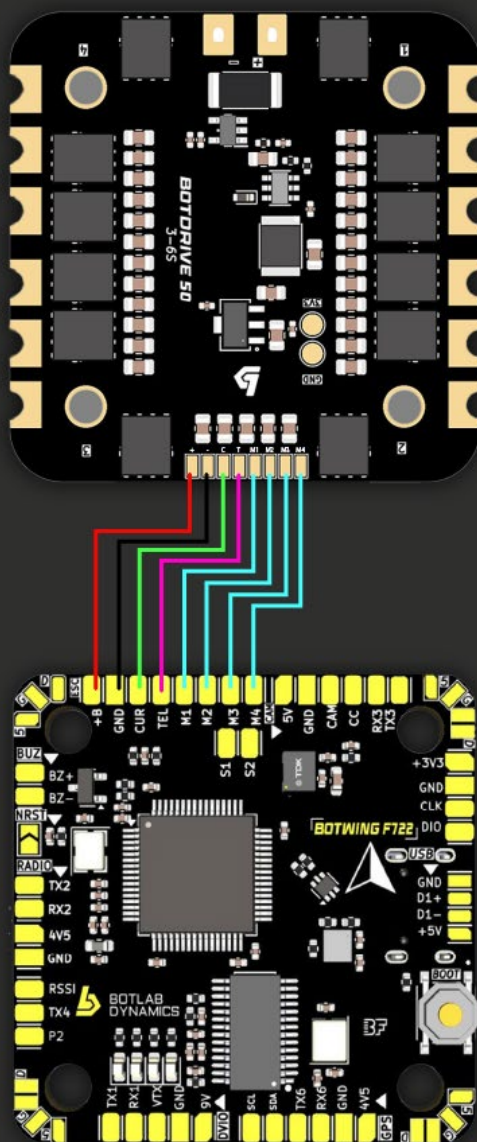
5 x M3 Anti-Vibration
Silicone Grommet Insert



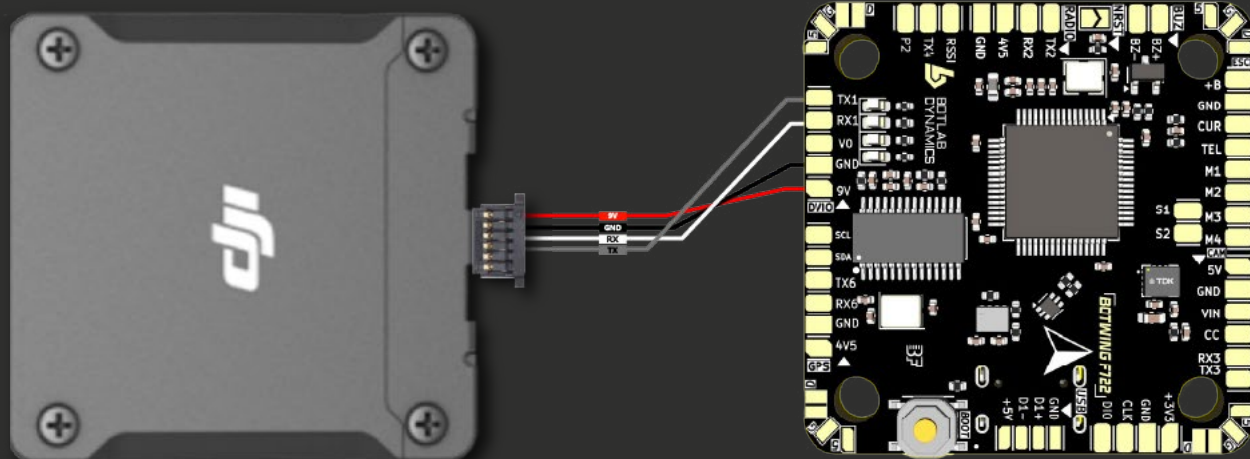
10 x Connectors Cables
Including - 5 x 150 & 180 mm length (4pin cable),
2 x 50 & 30 mm length (8pin cable),
2 x 60 & 80 mm length (6pin cable),
1 x 60 mm length (5pin cable)

Connections

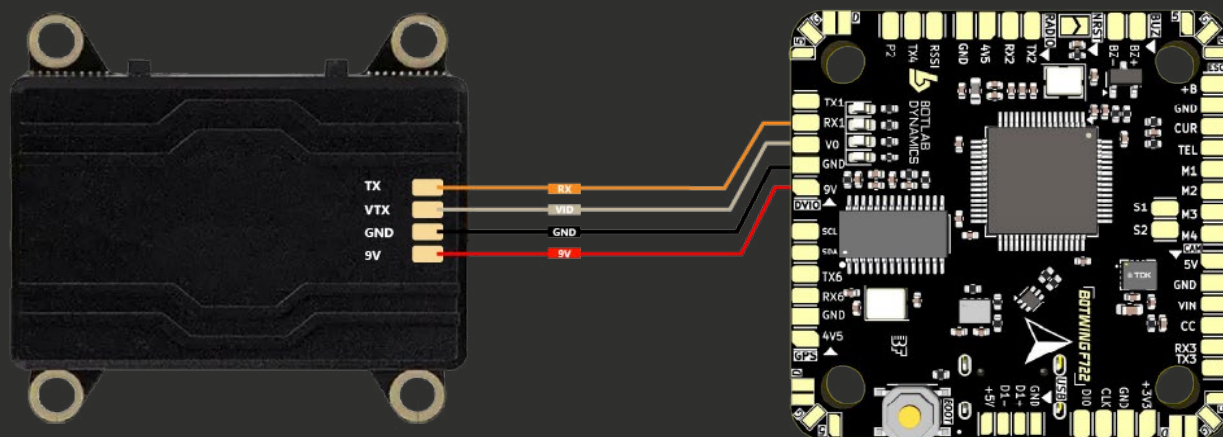
Method 1 - Soldering



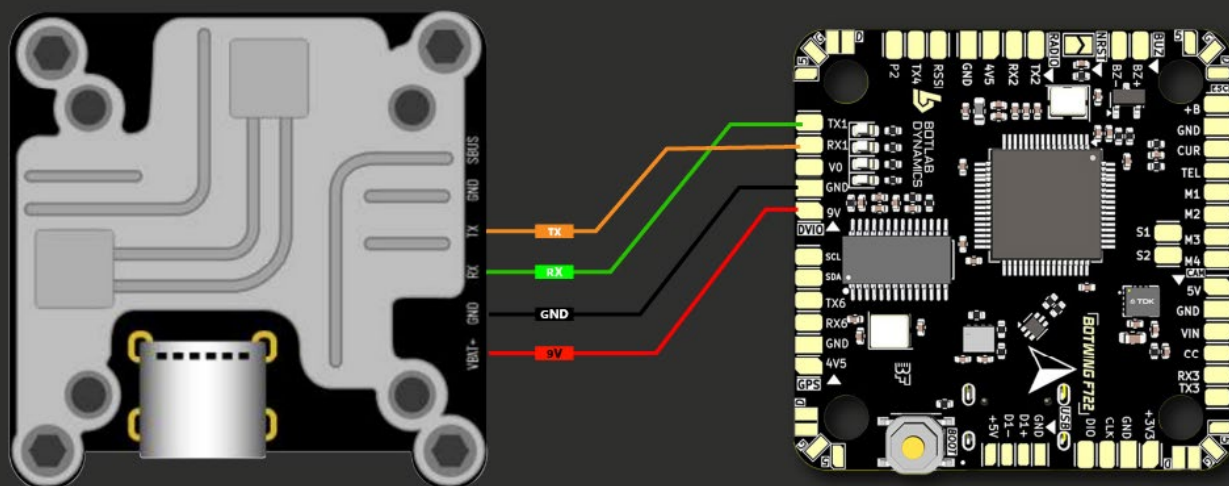
ESC-FC



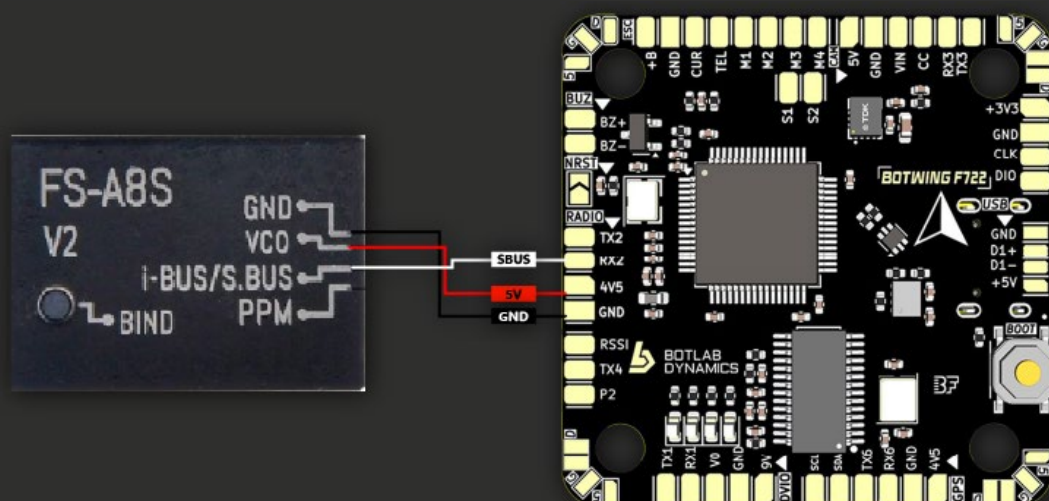
DJIO3



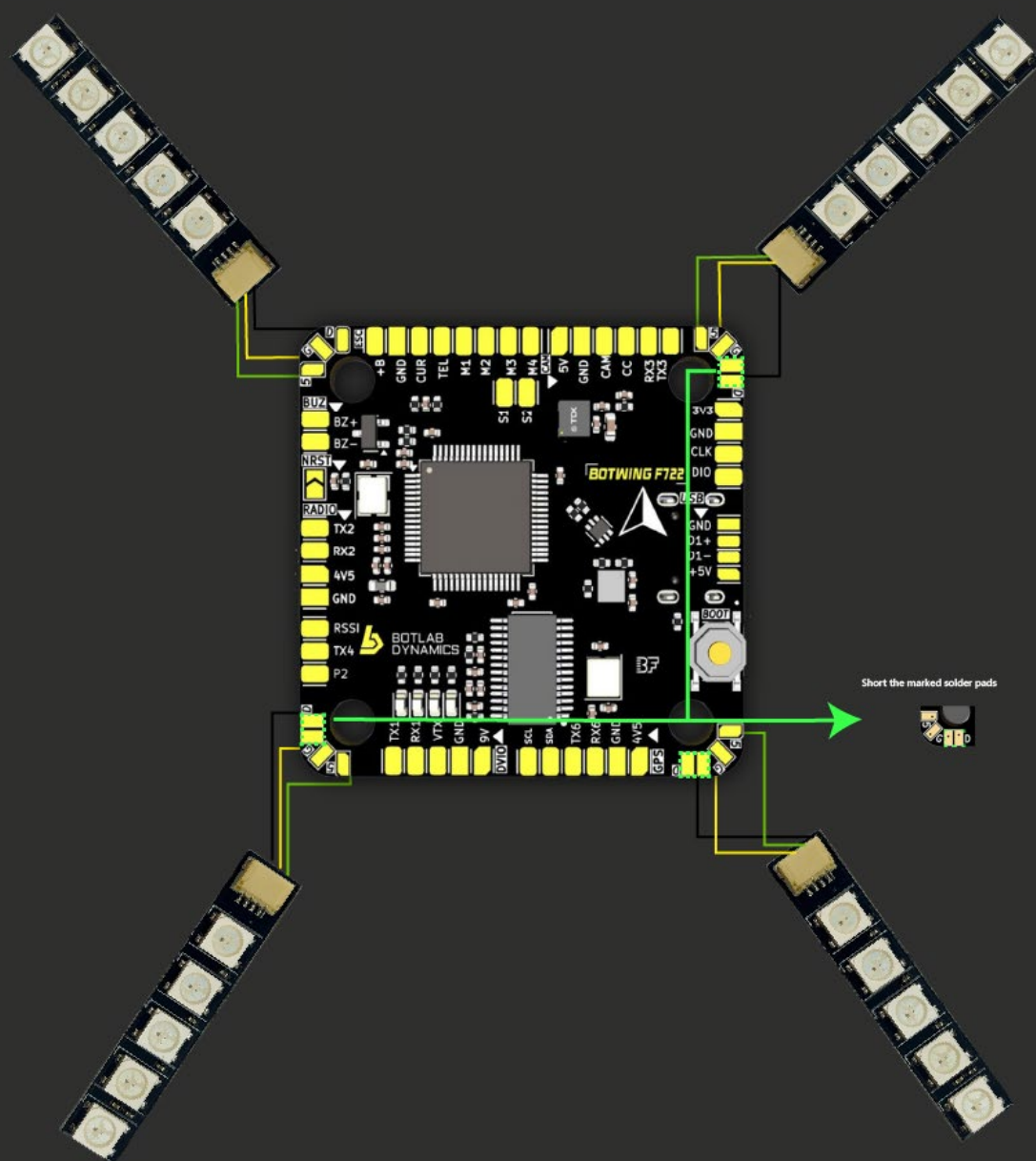
VTX-FC



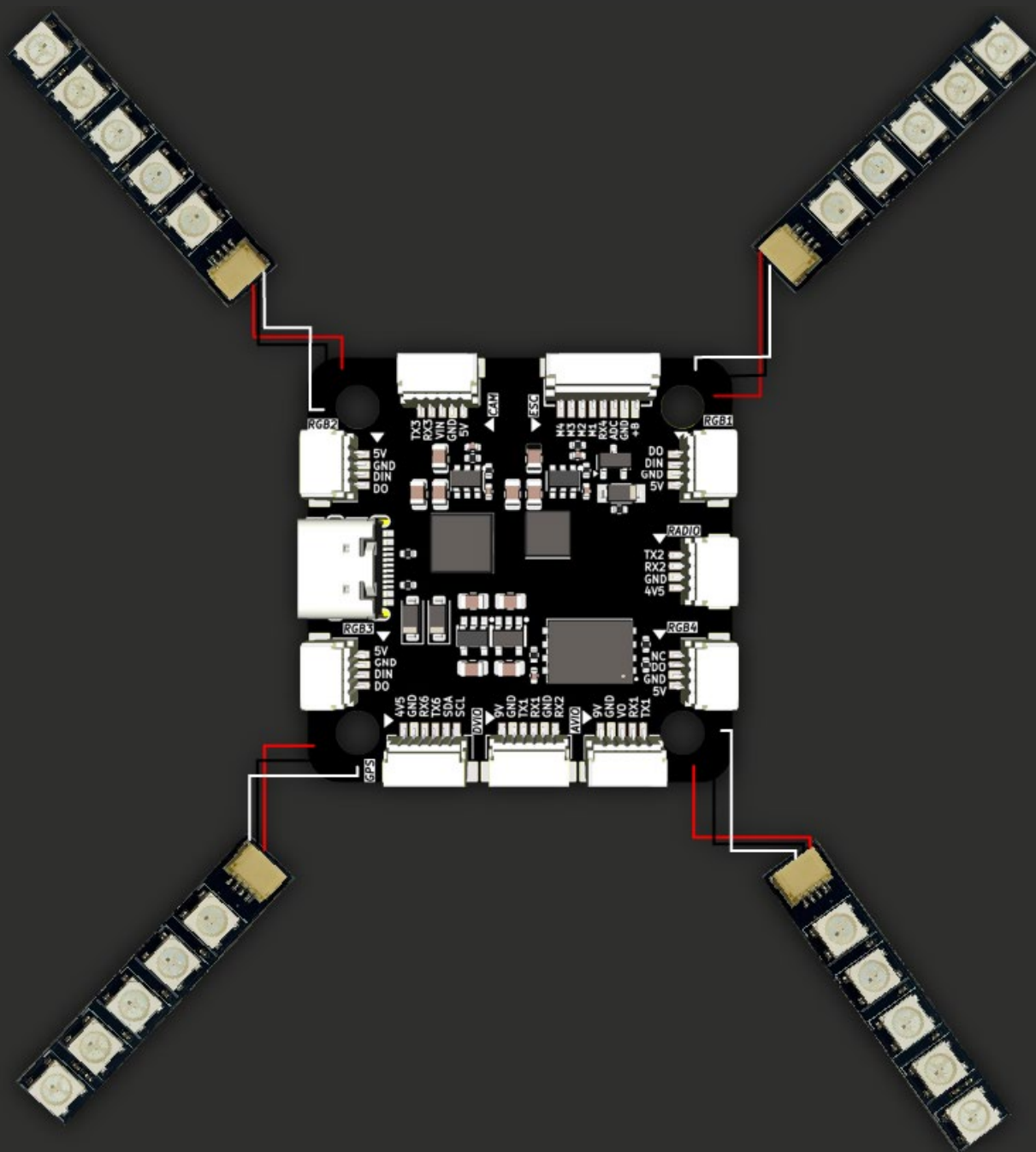
CADDX VISTA-FC



SBUS-FC

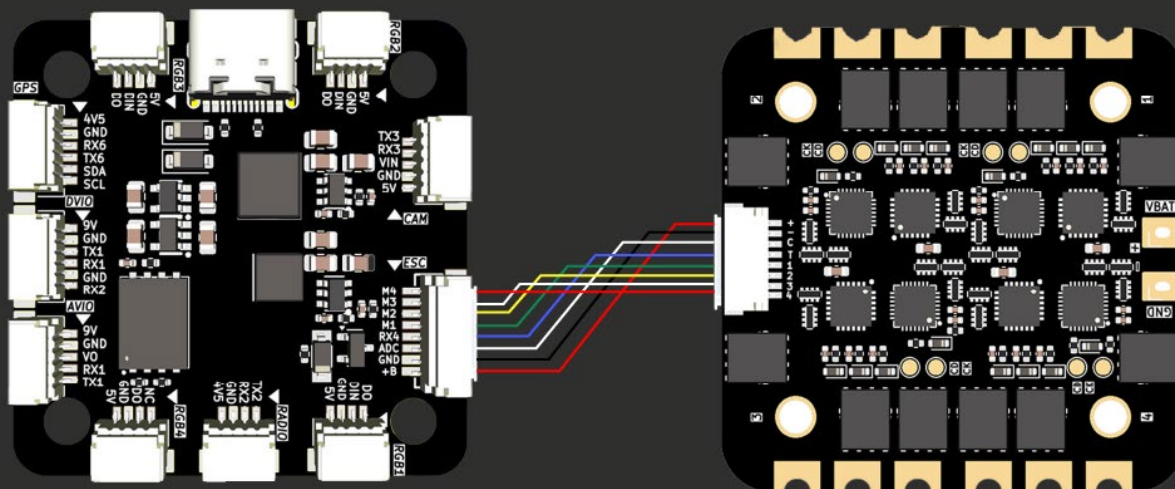


LED Strip Connections in parallel

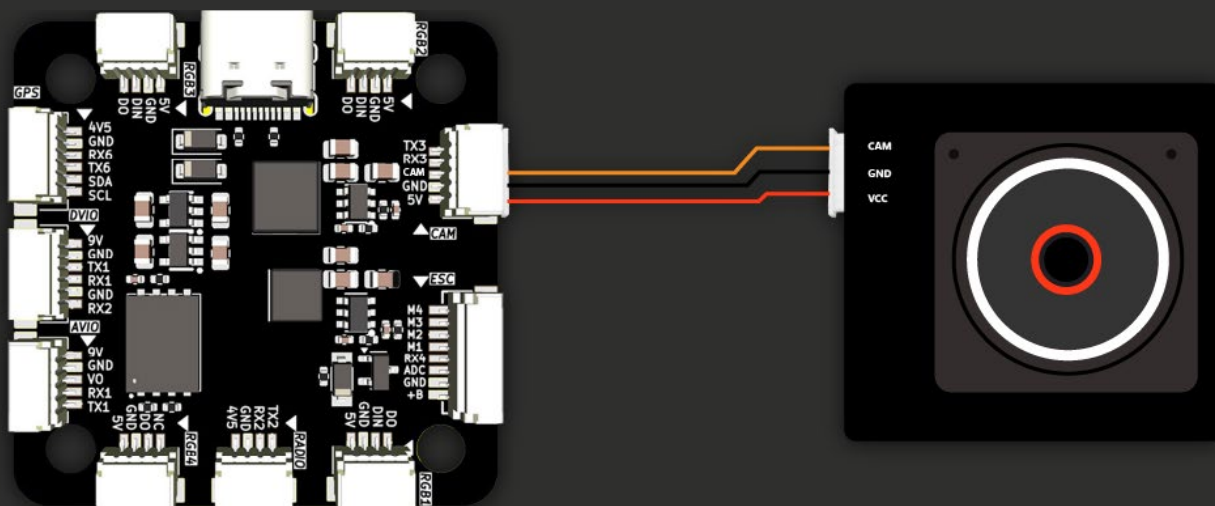


LED Strip Connections in series

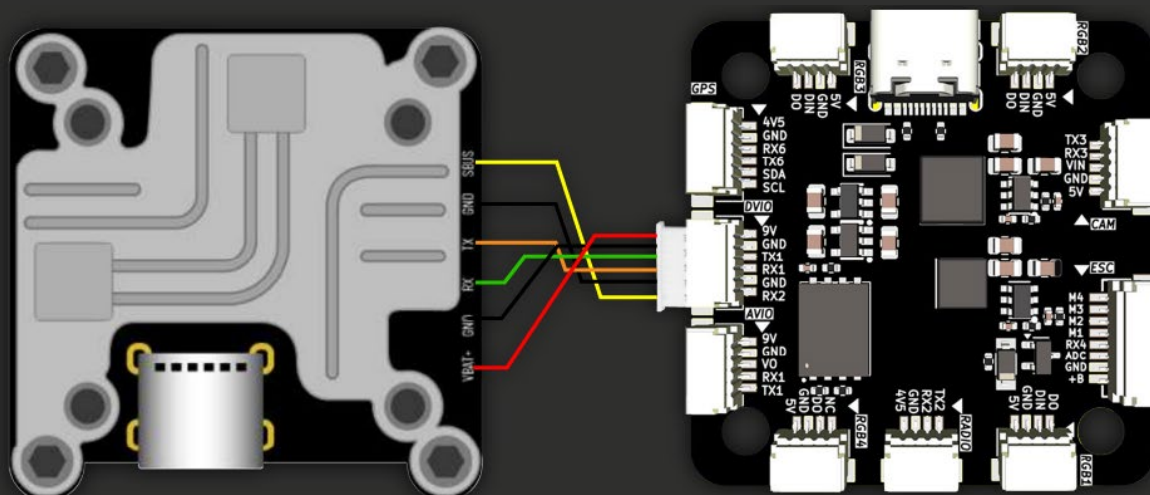
Method 2 - Connectors



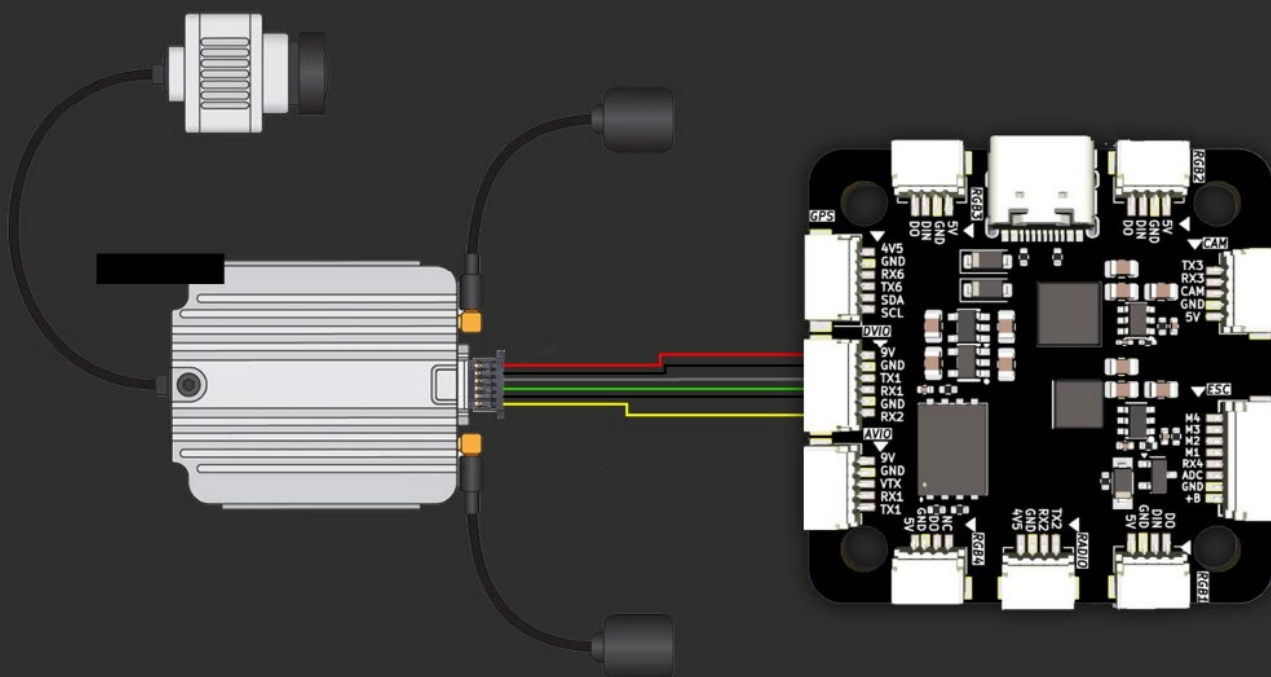
FC-ESC



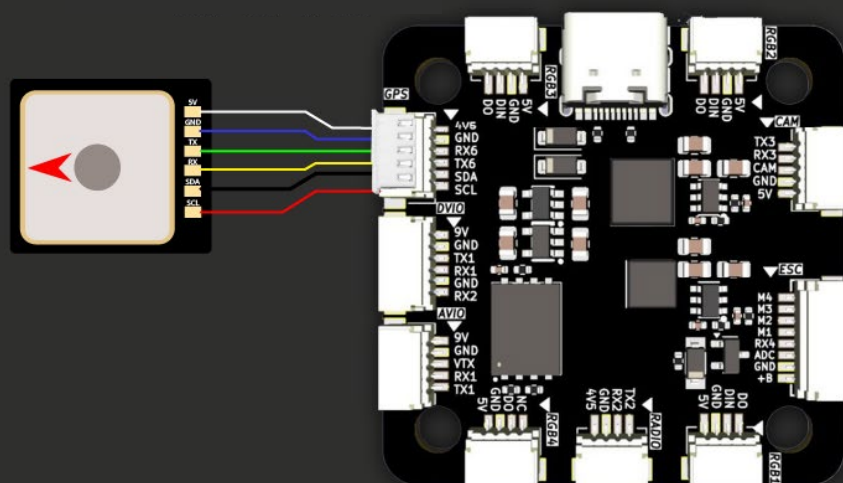
FC-CAM



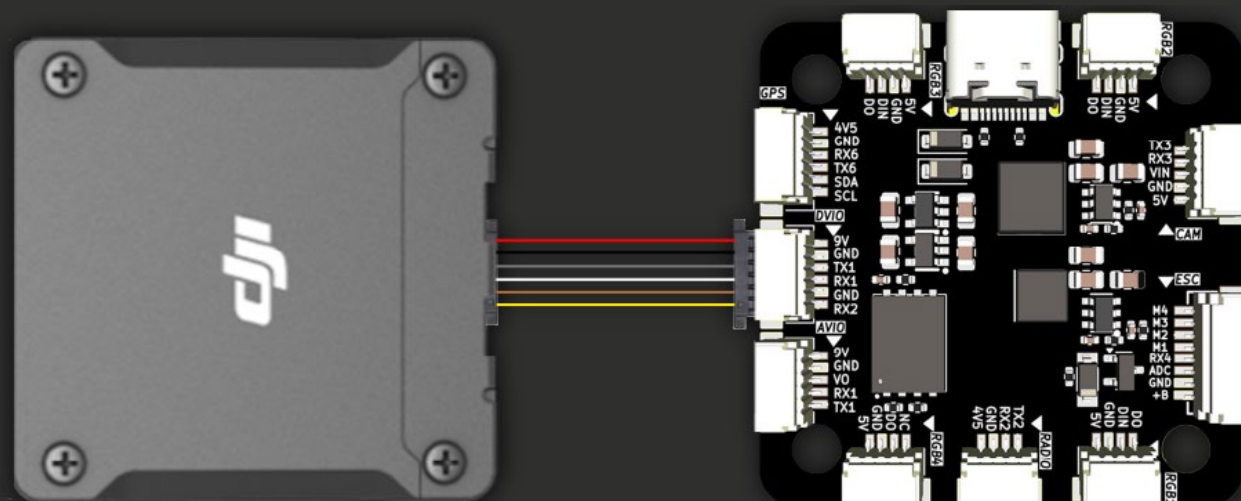
VTX-FC



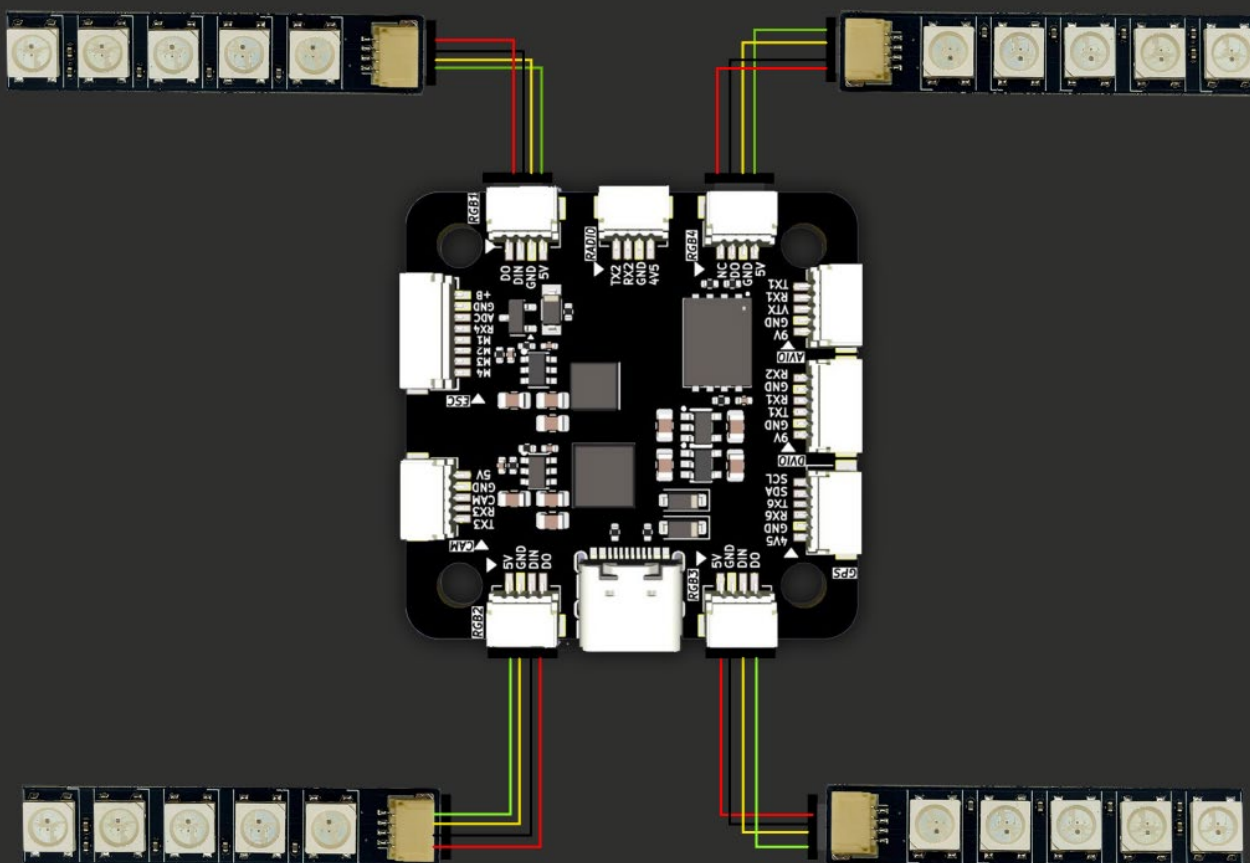
DJI AirUnit



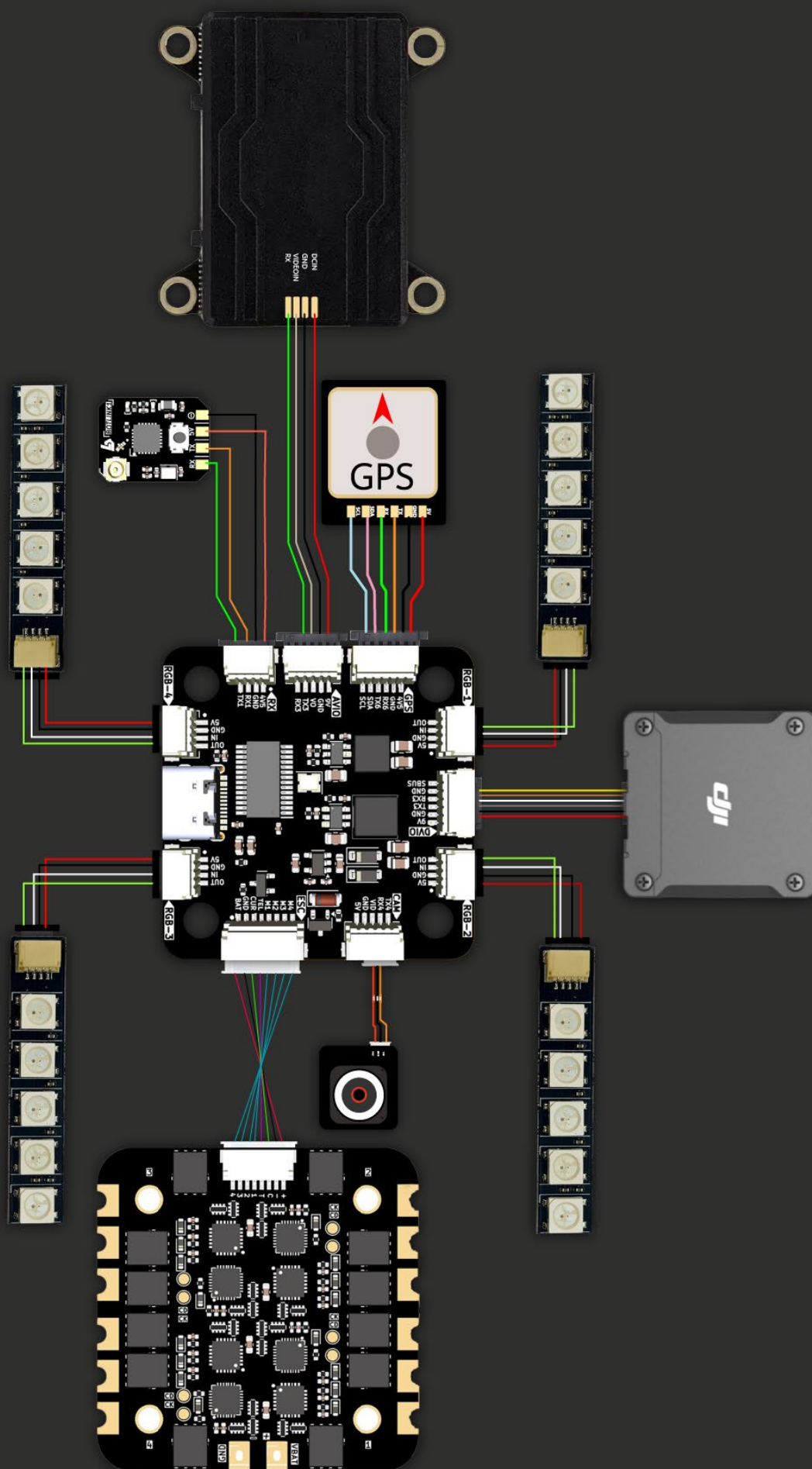
GPS-FC



DJIO3



FC-4pin LED's



LED Indication

RED LED 1, LED 2	Sensor 3.3,5 voltage indication
Blue LED	FC Status Light
Green LED	FC Status Light
Unlit	USB disconnected and disarmed
Lit	USB disconnected and armed,
Barometer	USB connected and disarmed,
OSD Chip	USB connected and arming command prevented
USB Port Type	FC Status Light
4.5V Pads	5V Power indicator.
5V Bec	9V Power indicator.

LED Connection Options:

You can connect LEDs to the F722 flight controller in two ways:

1. Solder Pads: Use the dedicated 5V, GND, and Signal pads on the board.
2. 4-Pin Connector: Use the 4-pin LED connector which includes: 5V, GND, Signal In, and Signal Out.

Daisy Chain Functionality

1. By default, the LED connectors are daisy-chained, allowing each connector to control a separate LED strip independently.
2. If you want all connectors to control standard LEDs in parallel (same signal to all strips), follow these steps:

Parallel LED Setup Instructions

1. Cut the Signal Out wire on all connectors except the first one.
2. Bridge the small pad next to the signal pad on the flight controller for each modified connector.
3. This reroutes all connectors to share the same signal line from the first connector, enabling synchronized LED behavior.

Note: Perform this modification only on three connectors. The first connector already supplies the master signal.

Avoid Sbus or RX use with DJI or Vice versa

When using an SBUS receiver, connect its signal wire to the RX2 pad located on the front side of the flight controller, which internally maps to UART2.

If you're using a DJI Air Unit (O3, Link, Vista, or Air Unit V1), it's important to disconnect the SBUS signal wire from the Air Unit harness to ensure the flight controller recognizes the correct input. Use tweezers to carefully remove or cut the SBUS wire from the 6-pin connector, and thoroughly insulate the exposed end to prevent shorts.

For ELRS receivers, connect the TX and RX lines to the T2 and R2 pads on the flight controller. However, if the ELRS receiver fails to be recognized when a DJI Air Unit is connected, follow the same step: disconnect the SBUS signal wire from the Air Unit harness to resolve the conflict.

Firmware Flashing

Step1: Install Betaflight configurator

1. Download the latest version of Betaflight Configurator from the official Betaflight GitHub repository.
2. Install the appropriate version based on your operating system (Windows, macOS, or Linux).

The screenshot shows the GitHub repository for `betaflight/betaflight-configurator`. The page is for the `10.10.0` release, which is the latest version. The release notes include a welcome message, a link to report issues, and a note that this version is required for firmware 4.5.0. A list of files for different operating systems is provided, including installers and portable versions for Windows, macOS, Linux (Ubuntu, Debian, Red Hat, Fedora, CentOS), and Linux (others). The 'What's Changed' section is also visible.

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betaflight/betaflight-configurator Public

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Apr 28
bickmn
10.10.0
c97deaf

Compare

10.10.0 Latest

Welcome to 10.10.0! Thank you to all that have contributed to this release, including development and testing.

Please report back any issues at <https://github.com/betaflight/betaflight-configurator/issues>. Thank you.

NOTE: You must use this version 10.10.0 (or better) configurator for firmware 4.5.0.

Which file do I need?

- Windows (8, 10, 11) 64 bit (installed): `betaflight-configurator-installer_10.10.0_win64-installer.exe` (please uninstall before installing this release);
- Windows (8, 10, 11) 64 bit (portable): `betaflight-configurator-installer_10.10.0_win64-portable.zip`;
- Mac OS X: `betaflight-configurator_10.10.0_macOS.dmg` (please read 'Important information when upgrading' below);
- Linux (Ubuntu, debian): `betaflight-configurator_10.10.0_amd64.deb`;
- Linux (Red Hat, Fedora, CentOS): `betaflight-configurator-10.10.0-1.x86_64.rpm`;
- Linux (others): `betaflight-configurator_10.10.0_linux64-portable.zip`;

What's Changed

The screenshot shows the 'Contributors' and 'Assets' sections of the Betaflight GitHub repository. The 'Contributors' section lists 26 contributors, including atomgomba, Benky, and 25 others. The 'Assets' section lists 9 assets, including installers and portable versions for Windows, macOS, Linux (Ubuntu, Debian, Red Hat, Fedora, CentOS), and Linux (others). The assets are listed with their names, sizes, and release dates.

Contributors

atomgomba, Benky, and 25 other contributors

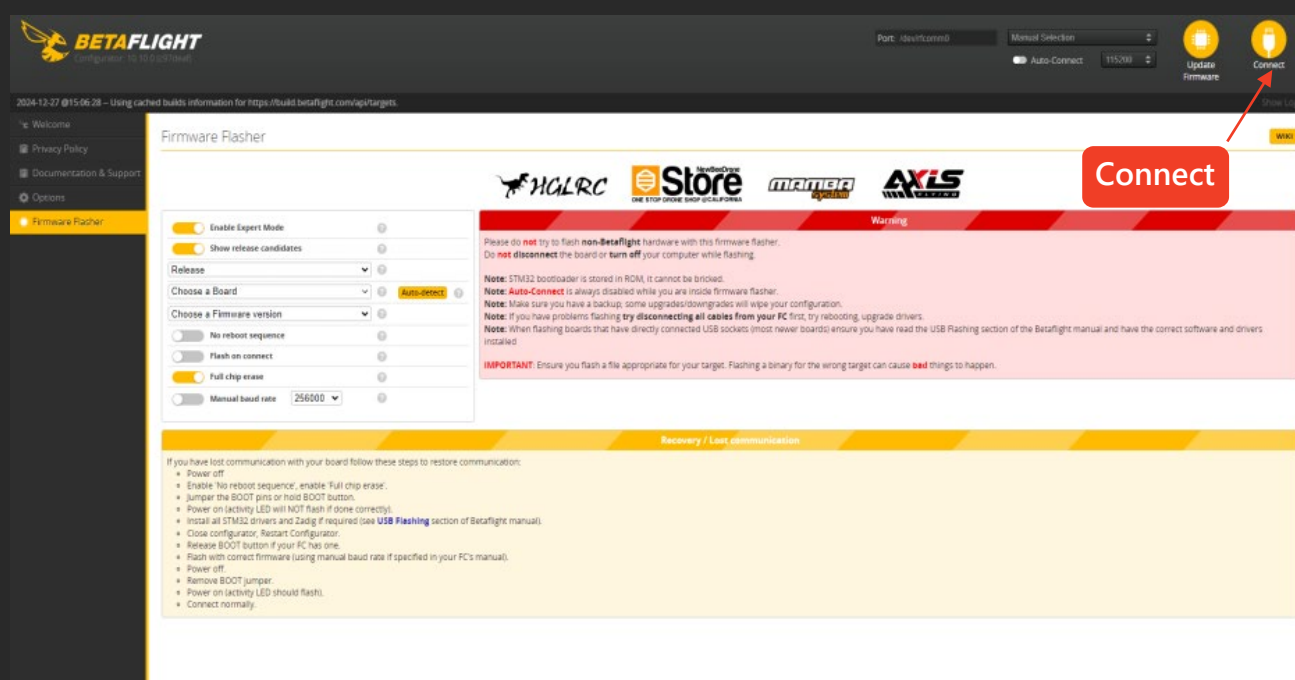
▼ Assets 9

<code>betaflight-configurator-10.10.0-1.x86_64.rpm</code>	146 MB	Apr 28
<code>betaflight-configurator_10.10.0-debug-c97deaf_android.apk</code>	19.5 MB	Apr 28
<code>betaflight-configurator_10.10.0_amd64.deb</code>	102 MB	Apr 28
<code>betaflight-configurator_10.10.0_linux64-portable.zip</code>	150 MB	Apr 28
<code>betaflight-configurator_10.10.0_macOS.dmg</code>	131 MB	Apr 28
<code>betaflight-configurator_10.10.0_win64-installer.exe</code>	89.7 MB	Apr 28
<code>betaflight-configurator_10.10.0_win64-portable.zip</code>	133 MB	Apr 28
Source code (zip)		Apr 28
Source code (tar.gz)		Apr 28

55 14 23 19 1 78 people reacted

Step 2: Connect the Flight Controller

1. Use a USB Type-C cable to connect your Botwing F722 flight controller to your computer.
2. Launch the Betaflight Configurator on your system.



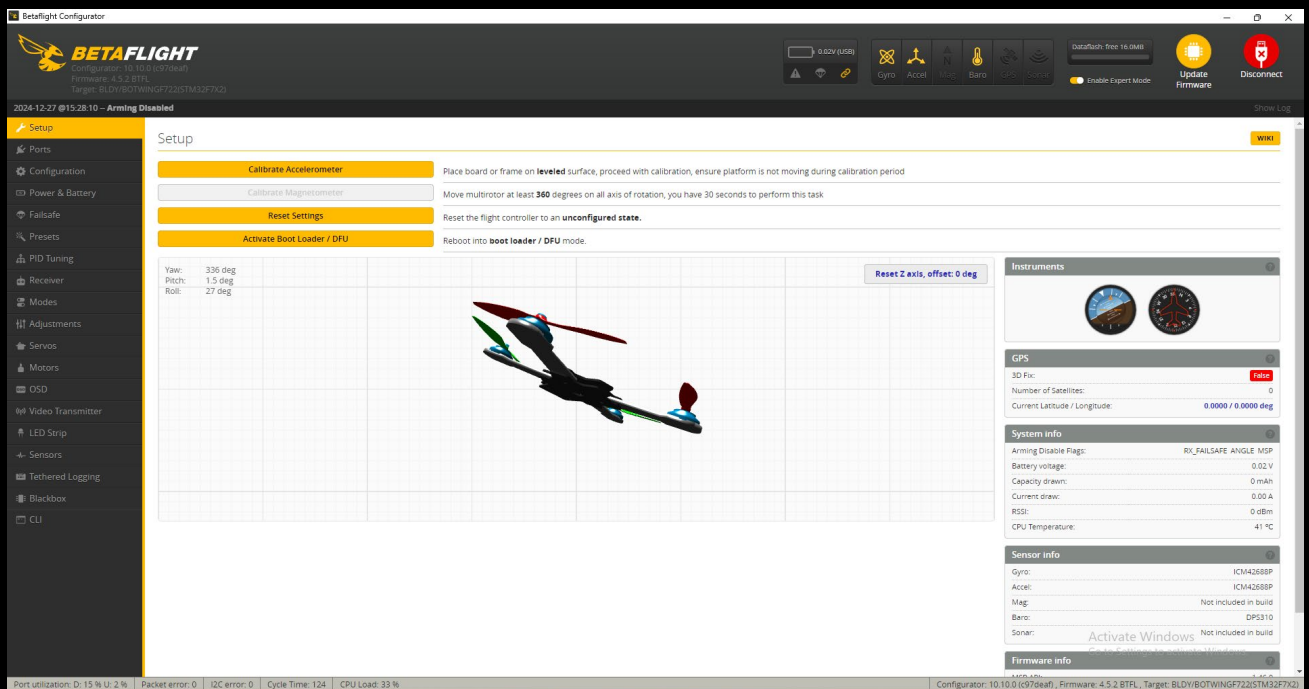
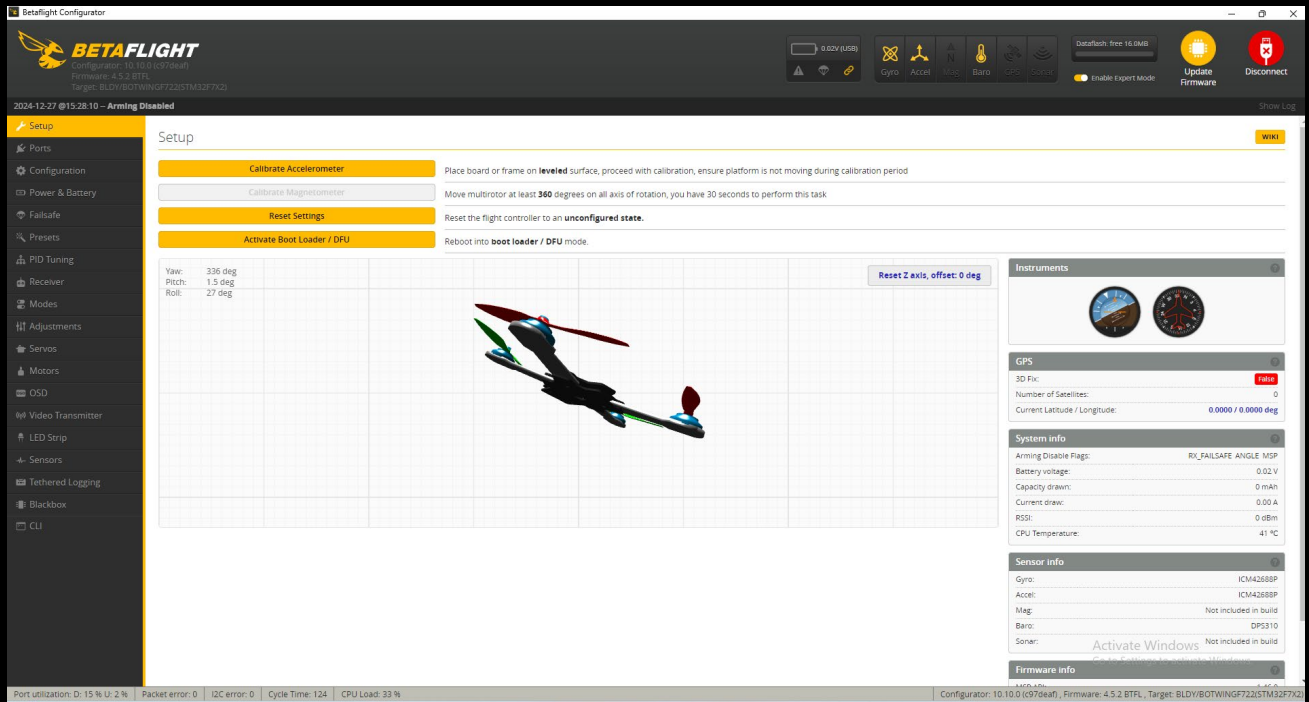
Step 3: Enter Bootloader (DFU) Mode

1. Locate the BOOT button on the Botwing F722 flight controller.
2. Press and hold the BOOT button, then connect the USB cable to power the board.
3. The flight controller will enter DFU mode.

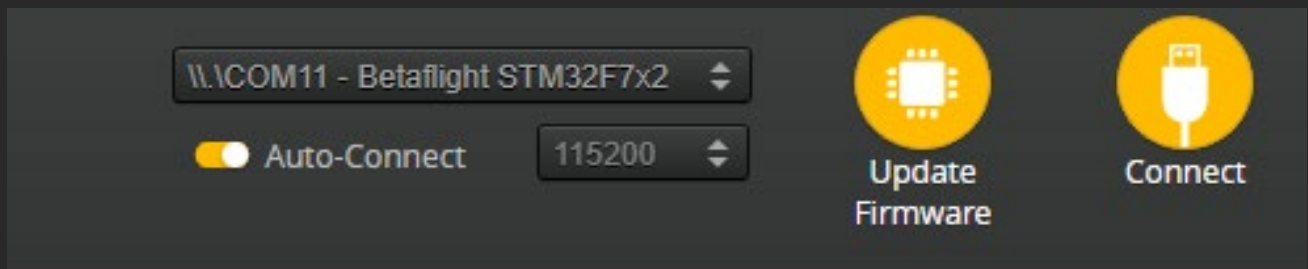


Step 4: Confirm DFU Mode in Betaflight

1. In Betaflight Configurator, go to the “Manual Bootloader (DFU)” option under the “Ports” section.

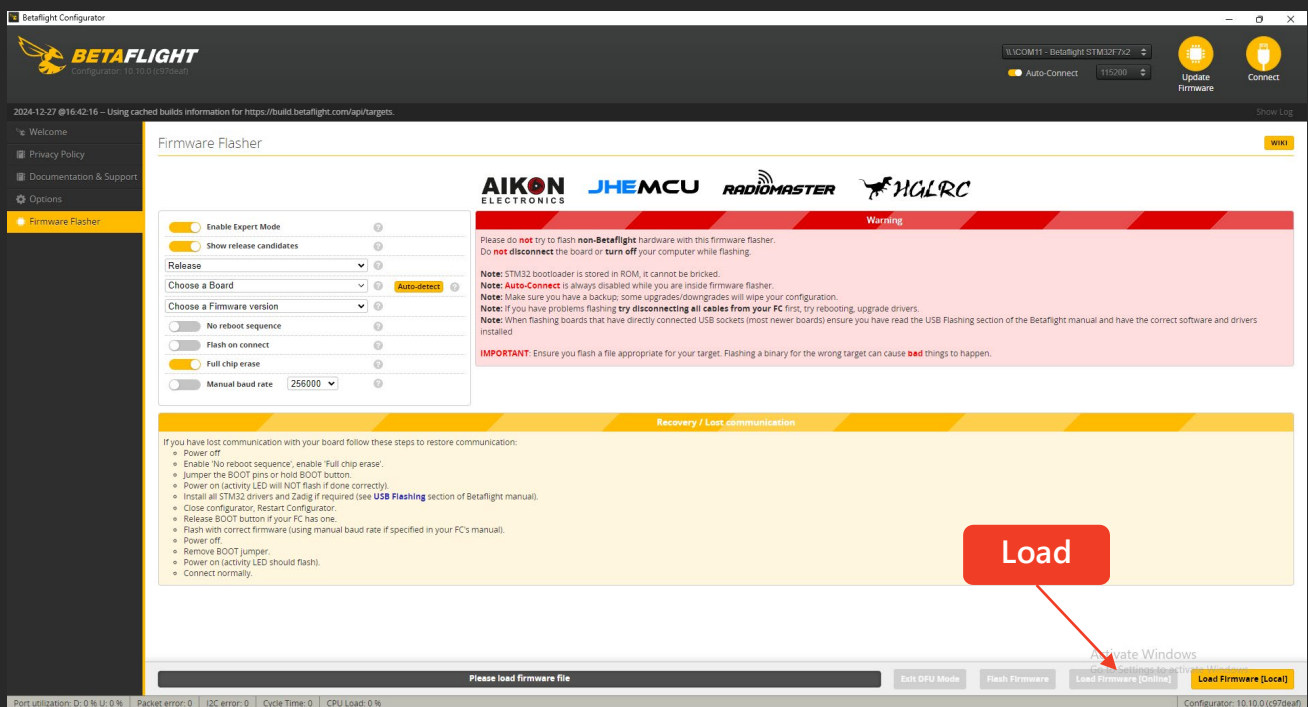


2. Ensure that the flight controller is detected in DFU mode — “DFU” will appear in the top-right status bar.



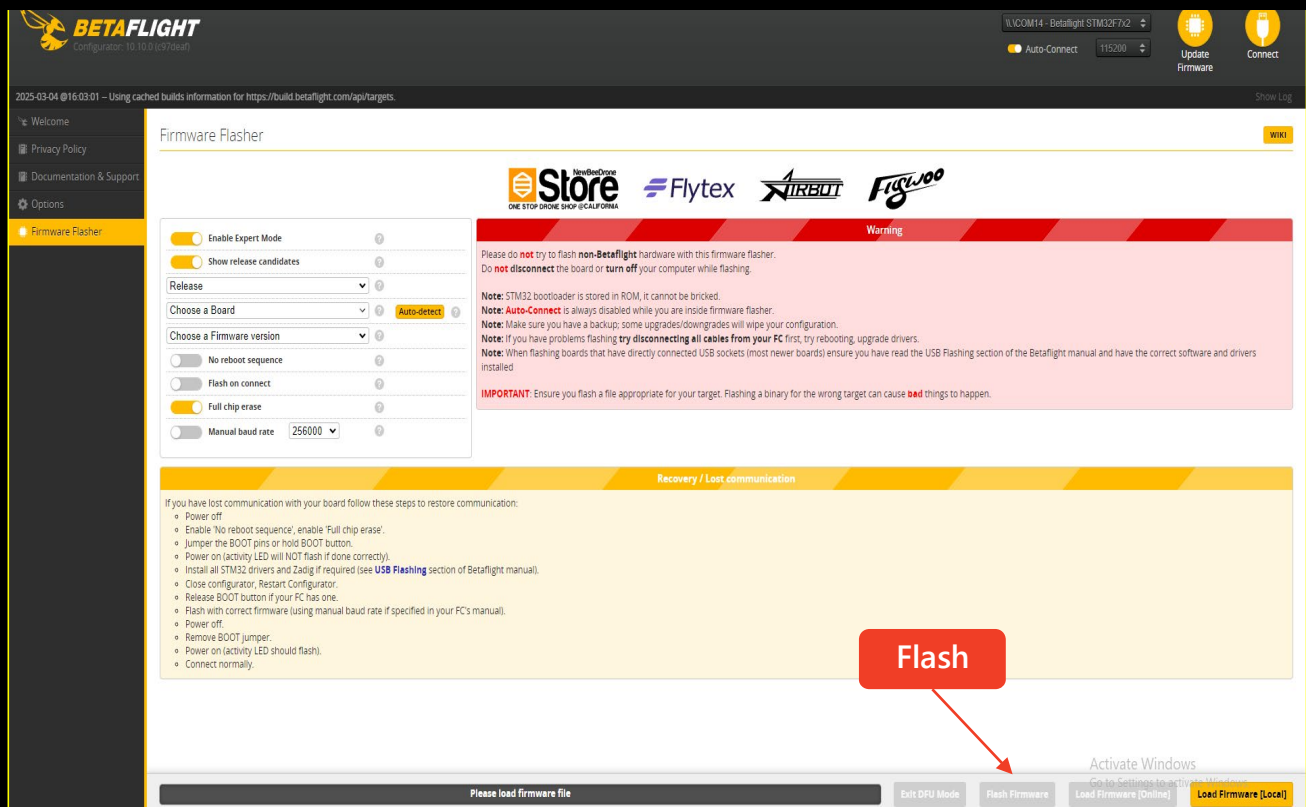
Step 5: Load Firmware

1. Navigate to the "Firmware Flasher" tab.
2. Under "Choose a board", select Botwing F722.
3. Choose the desired firmware version from the dropdown under "Firmware Flasher" tab in Betaflight configurator.
4. Enable "Full chip erase" to ensure a clean install.
5. Click: "Load Firmware (Online)" to download the firmware from the internet, or "Load Firmware 9 (Local)" if you already have the firmware file.



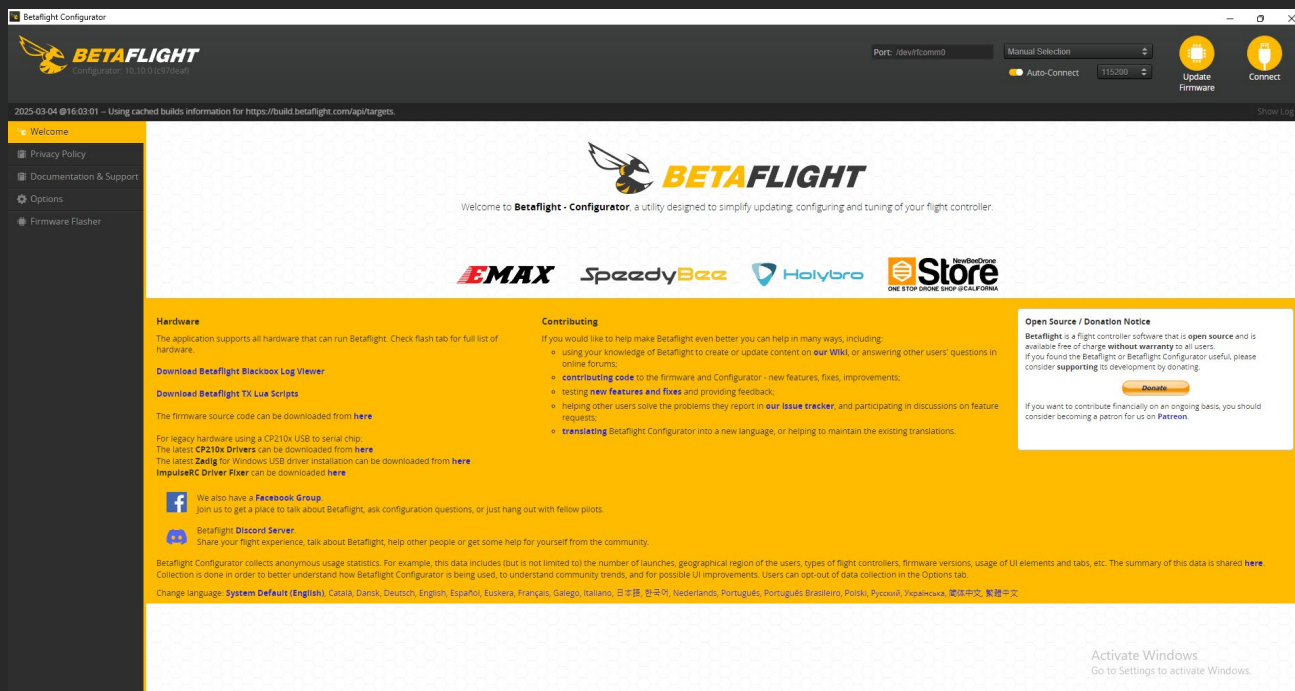
Step 6: Flash Firmware

1. Click "Flash Firmware" to begin the installation process.
2. A progress bar will indicate flashing status.
3. Once complete, a success message will appear.



Step 7: Reconnect and configure

1. After flashing, disconnect and reconnect the USB cable to reboot the flight controller.
2. Betaflight Configurator should now detect the Botwing F722.
3. Proceed with the initial setup and configuration.



Step 8: Verify Firmware Installation

1. Go to the "Setup" tab in Betaflight.
2. Confirm the firmware version and verify that all sensors and peripherals are functioning correctly.

Connecting the Video Transmitter (VTX):

Refer to the connection methods outlined in Step 5. You can connect your VTX using either of the following methods:

1. Connection options:
 - Connector Method: Plug the video transmitter into the designated connector on the BotWing F722 flight controller.
 - Soldering Method: Solder the VTX power wires directly to the appropriate pads: 10V, Ground, and Signal.

BETAFLIGHT
 Configuration 10.10.0 (c97deaf)
 Firmware: 4.5.1 BTFL
 Target: BLDY/BOTWINGF722S(TM32F7X2)

0.12V (USB)

Cyrc

Accel

Magn

Baro

GPS

Compu

dataflash free: 32.0MB

Enable Expert Mode

Update Firmware

Disconnect

2025-03-05 @10:47:57 - Arming Disabled

Show Log

Setup

Ports

Configuration

Power & Battery

Failsafe

Presets

PID Tuning

Receiver

Modes

Adjustments

Motors

OSD

Video Transmitter

LED Strip

Sensors

Tethered Logging

Blackbox

CU

Add Range

PREARM

Add Link

Add Range

VTX PIT MODE

Add Link

Add Range

PARALYZE

Add Link

Add Range

USER1

OR

AUX 1

Min: 975

Max: 1700

Add Link

Add Range

USER2

Add Link

Add Range

ACRO TRAINER

Add Link

Add Range

VTX CONTROL DISABLE

Add Link

Add Range

Save

Port utilization: D: 20 % U: 1 %

Packet error: 0

I2C error: 0

Cycle Time: 124

CPU Load: 31 %

Configurator: 10.10.0 (c97deaf), Firmware: 4.5.1 BTFL, Target: BLDY/BOTWINGF722S(TM32F7X2)

Using USB Breakout Pads for Extended USB Connectivity

In scenarios where the onboard USB connector is damaged or inaccessible - such as in large drone builds - the Botwing F722 flight controller provides USB breakout pads as an alternative interface for connecting to a computer.

How to use USB Breakout Pads:

1. Locate the USB Breakout Pads:

The Botwing F722 includes clearly marked USB breakout pads on the board.

2. Connecting to USB Breakout Pads:

- Soldering: Carefully solder the USB cable wires to the corresponding pads:
 - D+ and D- : USB data lines
 - 5V: Power supply line.
 - GND: Ground line.

3. Using the Extended USB connection:

- Once soldering is complete, you can use the extended USB connection to interface with your computer, functioning the same as the onboard USB port.
- This enables full access to the Betaflight Configurator for firmware flashing and configuration tasks.

Let's Connect

Please visit the botlabdynamics.store for manuals and support.