User Manual

SpeedyBee F745 35A BLS AIO

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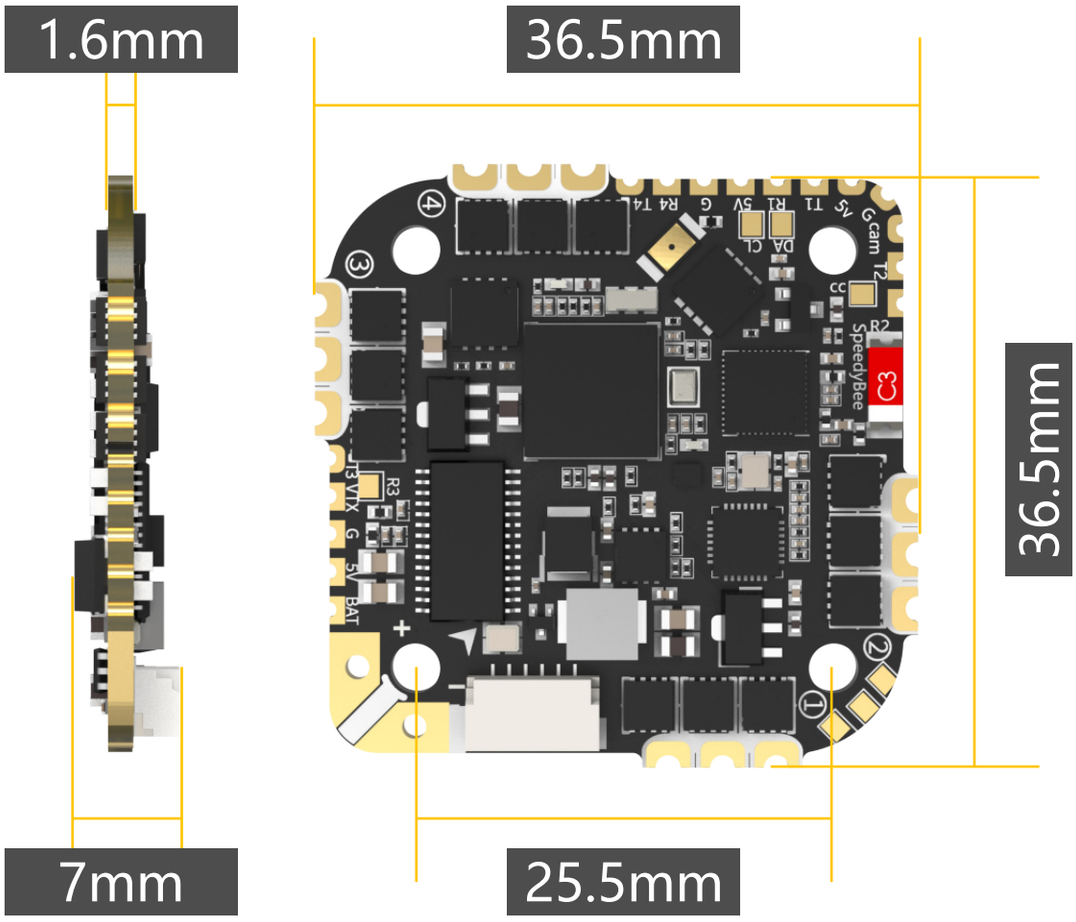
Part 1 - OverView

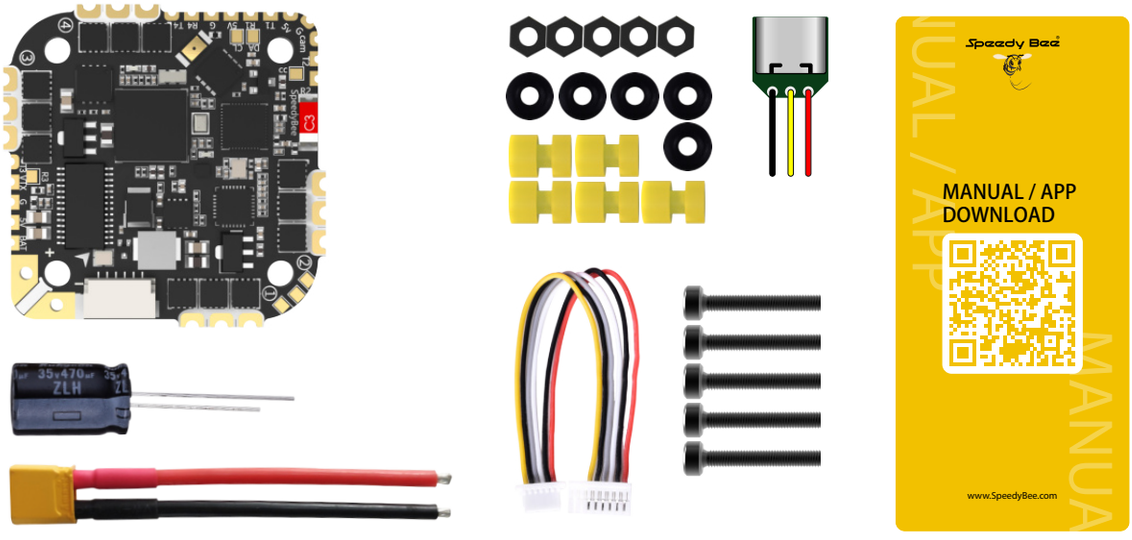
Specifications

Overview	
Product Name	**SpeedyBee F745 35A BLS AIO**
Power Input	3S - 6S Lipo
Mounting	25.5 x 25.5mm, 3mm hole diameter
Dimension	36.5mm(L) x 36.5mm(W) x 7mm(H), recommended for quads at 3.5" or above
Weight	10.1g
FC	
MCU	STM32F745
IMU(Gyro)	MPU6000
USB Connection	Need to solder a USB TYPE-C module to D+,D-,GND pads.
Barometer	BMP280
OSD	Supported
BLE Bluetooth	Supported. Used for parameter configuration
Flash FC Firmware Wirelessly	Supported
Download/Analyze Blackbox	Supported
DJI Air Unit 6-pin Connector	Built-in.
Flash(for BlackBox)	8MB
Current Sensor	Supported. Scale=256
BetaFlight Camera Control Pad	Yes(CC pad)
5V Output	4 groups of 5V output. The total current load is 2.5A.
9V Output	None
ESC Signal Pads	M1 - M4
UART	Full UART * 4(UART1, UART2, UART3,UART4)
ESC Telemetry UART	None
I2C	Supported.
LED Pad	Used for WS2812 LED
Buzzer	BZ+ and BZ- pad used for 5V Buzzer
BOOT Button	Used to enter DFU mode
RSSI Input	Not supported
SmartPort	Use any TX pad of UART for the SmartPort feature.
Supported Flight Controller	BetaFlight(Default)
Firmware Firmware Target Name	SPEEDYBEE F745AIO
ESC	
Power Input	3-6S LiPo
Continuous Current	35A * 4
Burst Current	45A(5S)
ESC Protocol	DSHOT300/600
Power Output	VBAT
Current Sensor	Supported(Sacle=256)
Firmware	BLHeli_S JH40

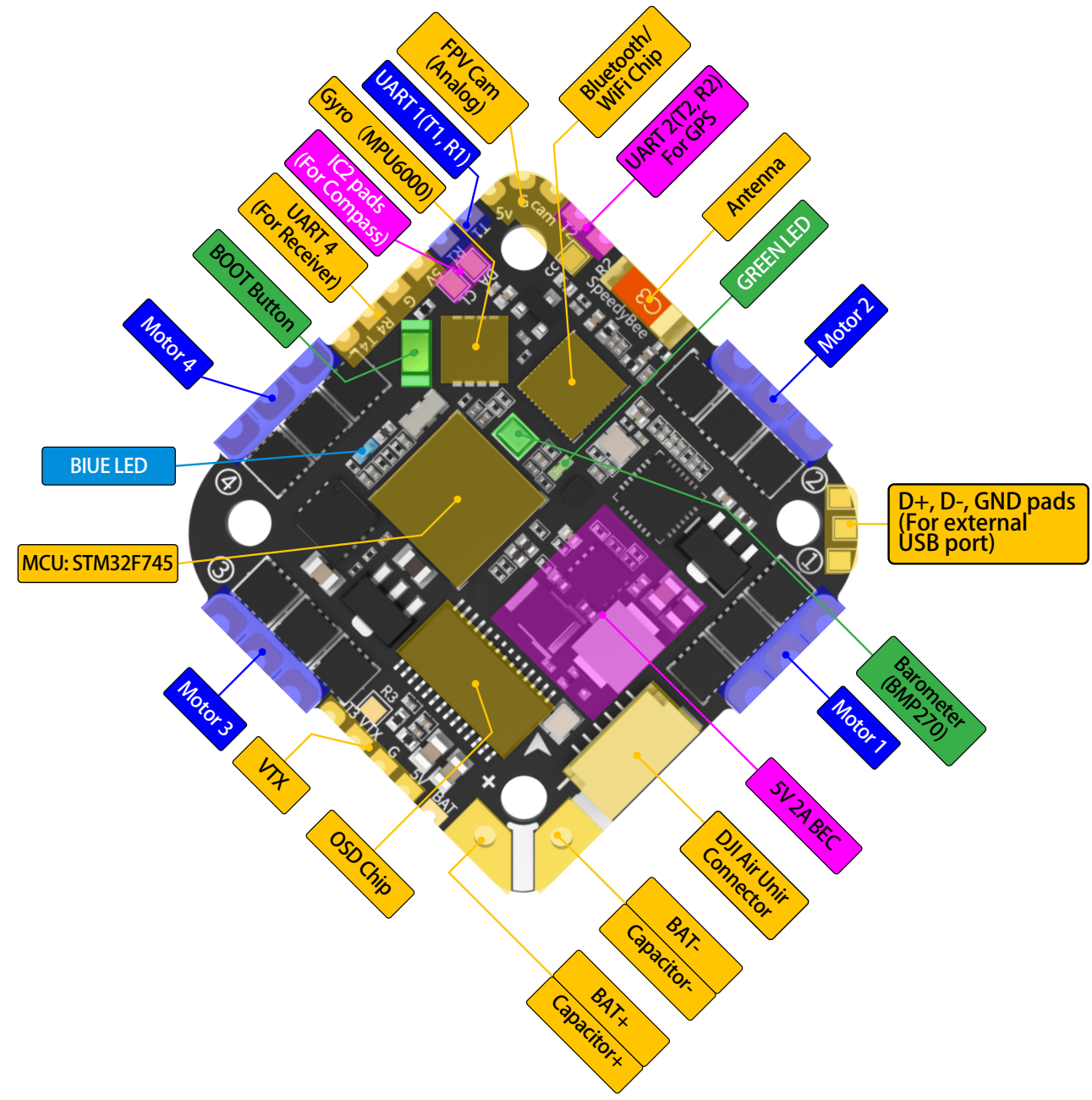
Dimensions

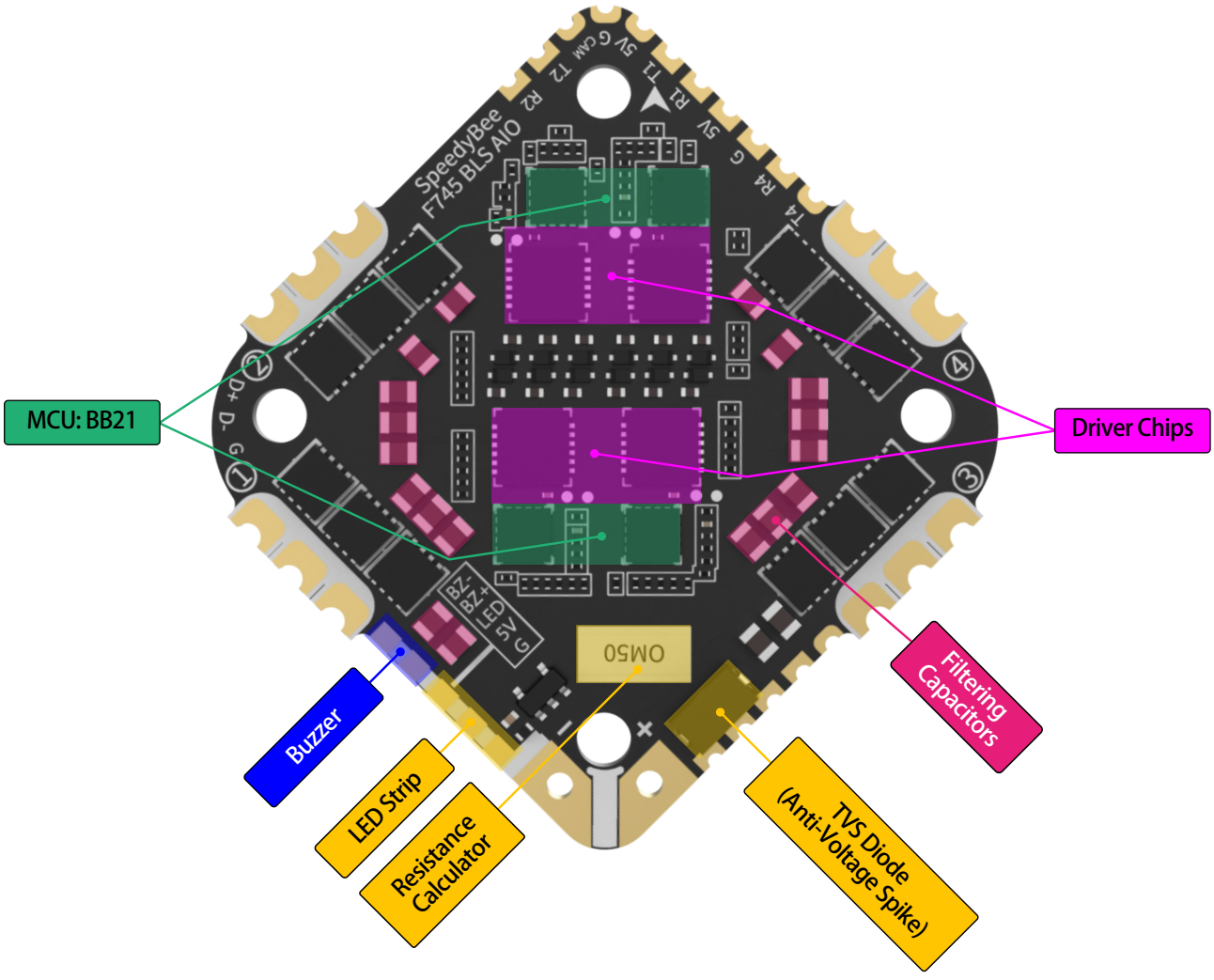


Package



- SpeedyBee F745 35A BLS AIO x 1
- 35V 470uF Capacitor x 1
- XT30 Power Cable(Length: 7cm) x 1
- 6pin DJI Air Unit cable x 1
- External USB Port module(Wire Length: 5mm) x 1
- M2(Diameter) * 12mm(Length) Screw x 5
- M2(Hole Diameter) * 6.6mm(Height) Anti-vibration Silicone Grommets x 5
- M2 Silicone O-Ring x 5
- M2 Nylon Hex Nut x 5
- Manual & App Download Card x 1





■ LED Indicator Definition

GREEN LED - Solid Green indicates Bluetooth is connected.

BLUE LED - Flight controller status light which is controlled by the flight controller firmware.

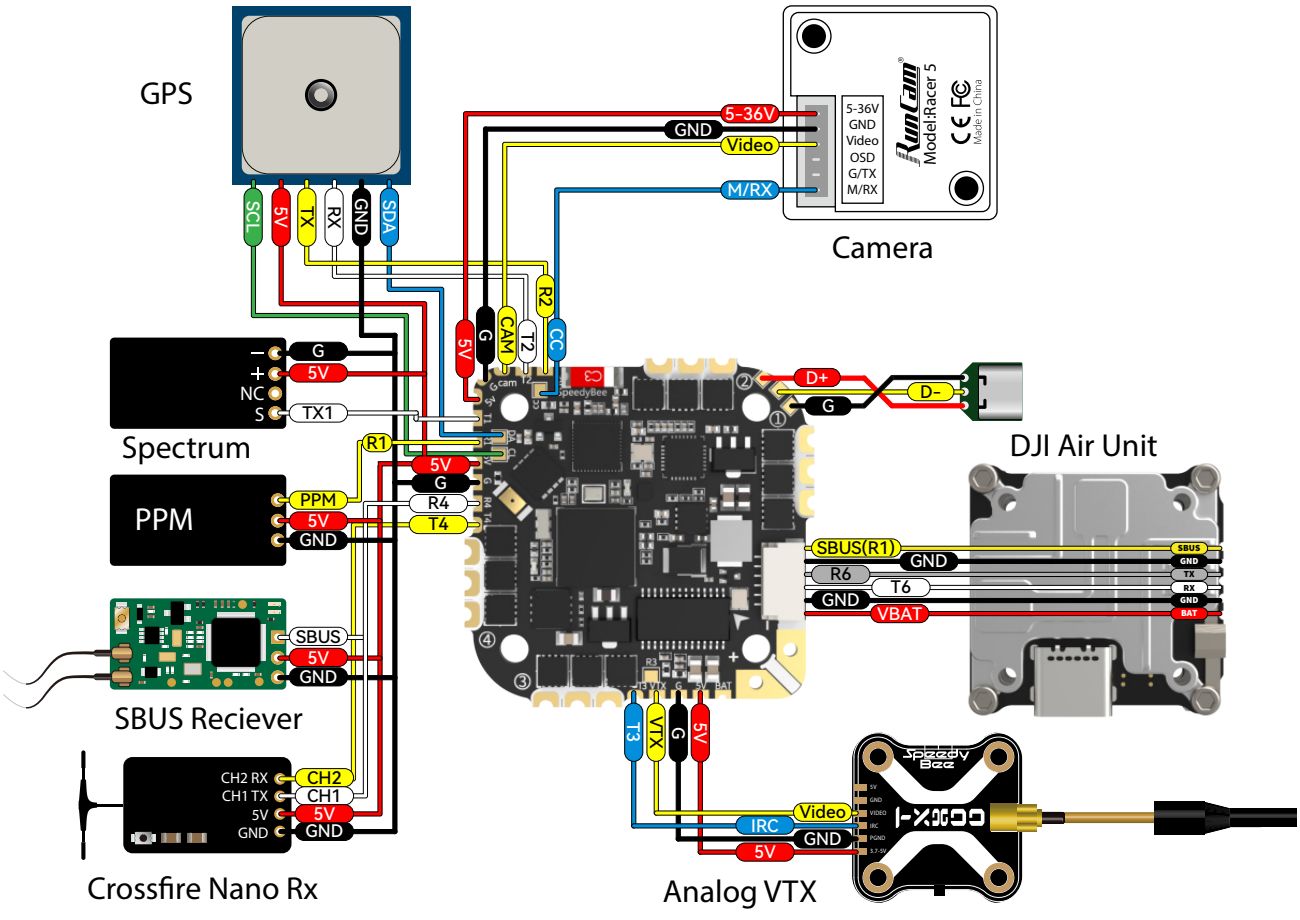
■ BOOT Button

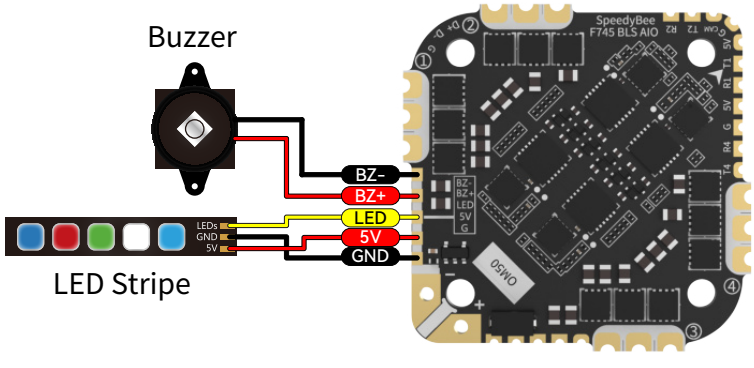
Only if the flight controller gets bricked , please follow these steps to re-flash firmware for it:

1. Hold the☒BOOT☒button (the only button on the FC), and power to FC at the same time, then the FC will enter DFU mode.
2. Open the SpeedyBee app, go to the☒FC Firmware Flashing☒page, and perform the Firmware Flashing as prompted.

Part 2 - Flight Controller

Wiring Diagram





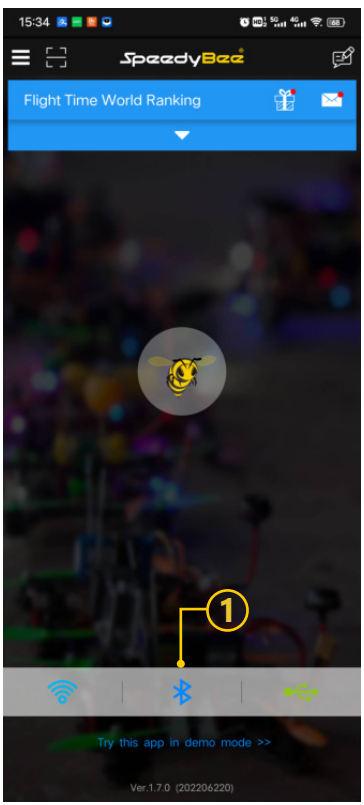
USB-C Module*

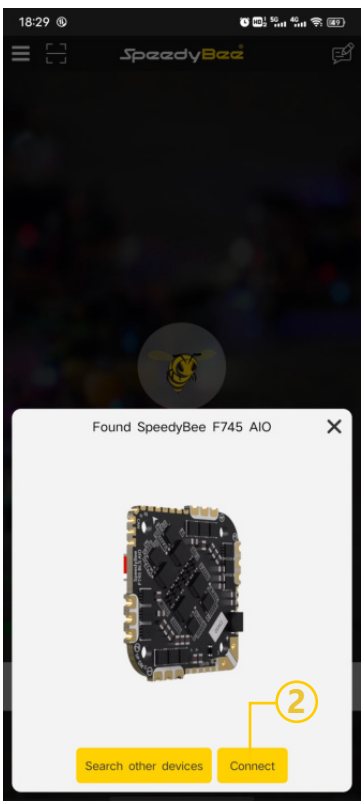
* Due to the size limitation, there's no 5V output from the FC to the USB-C module, so you need to power the AIO with a battery before you connect the AIO flight controller to your computer with a USB-C cable.

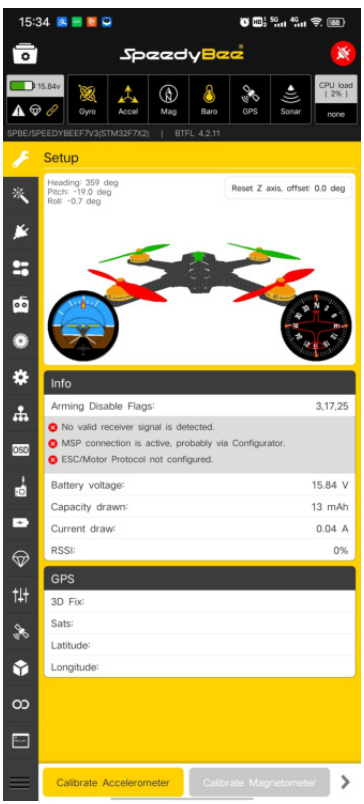
■ Get the SpeedyBee App

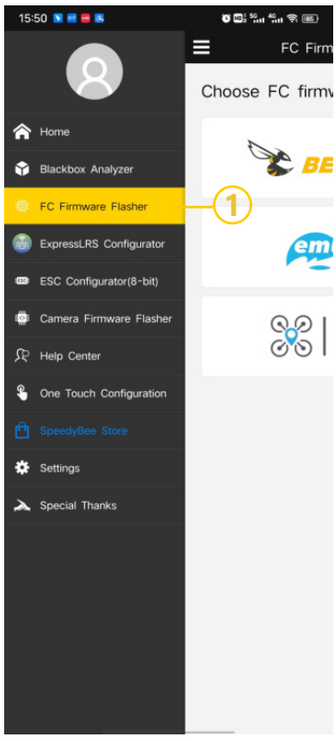
Search ‘SpeedyBee’ on Google Play or App Store. Or download the Android .apk file on our website: https://www.speedybee.com/download.

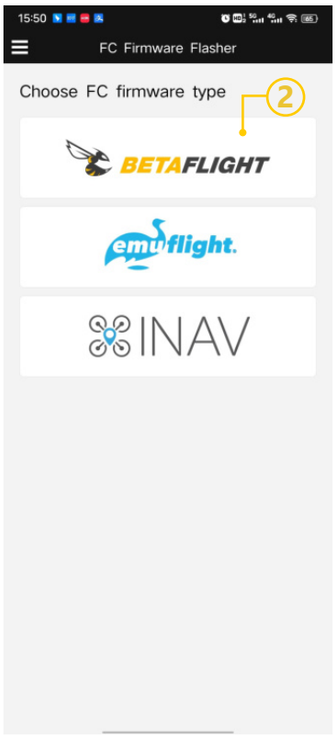
Connect the App

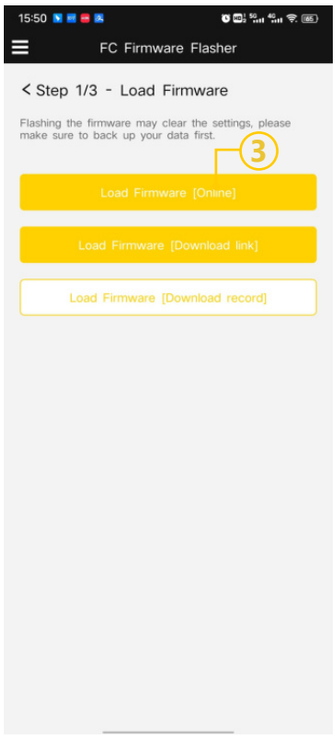


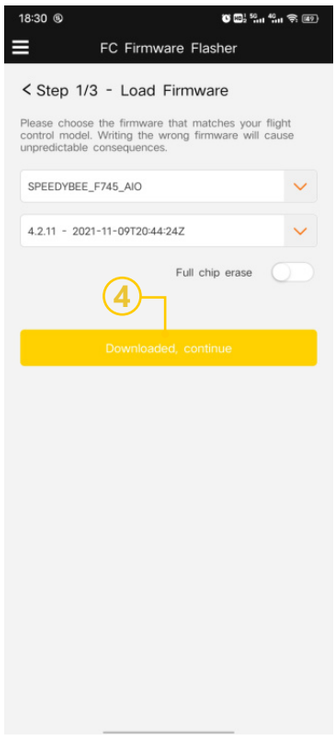


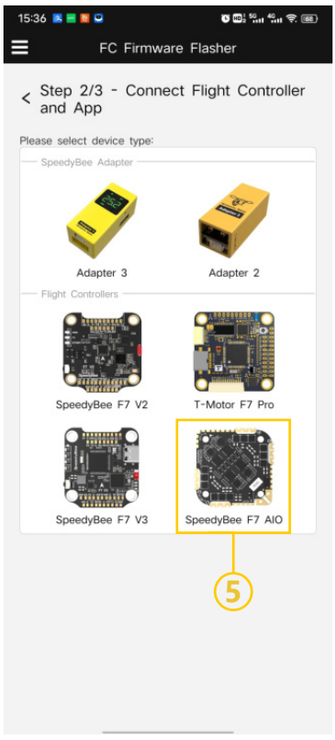


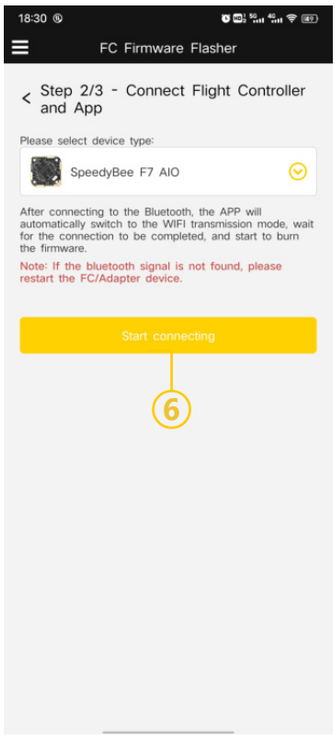

FC Firm
Choose FC firmw
Home
Blackbox Analyzer
FC Firmware Flasher
ExpressLRS Configurator
ESC Configurator(8-bit)
Camera Firmware Flasher
Help Center
One Touch Configuration
SpeedyBee Store
Settings
Special Thanks
1

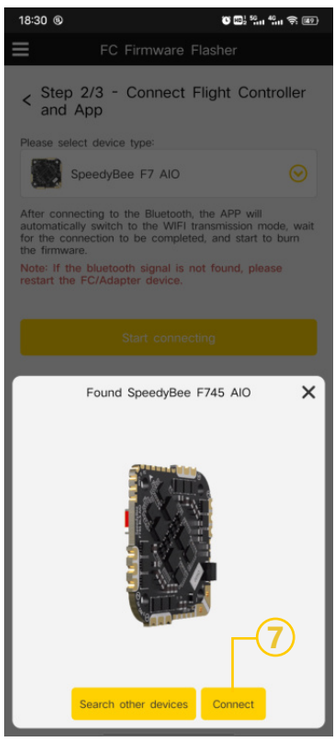

FC Firmware Flasher
Choose FC firmware type
2
BETAFLIGHT
INAV

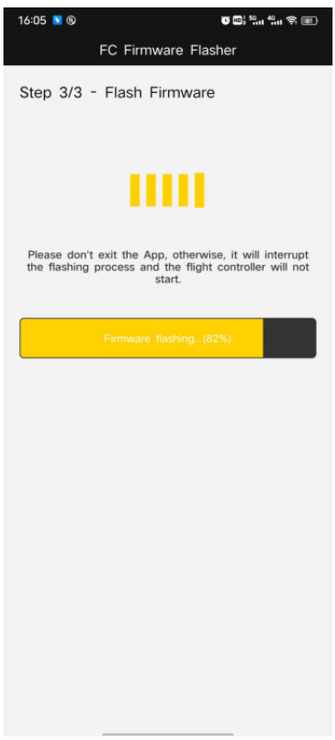

FC Firmware Flasher
Step 1/3 - Load Firmware
Flashing the firmware may clear the settings, please make sure to back up your data first.
3
Load Firmware [Online]
Load Firmware [Download link]
Load Firmware [Download record]

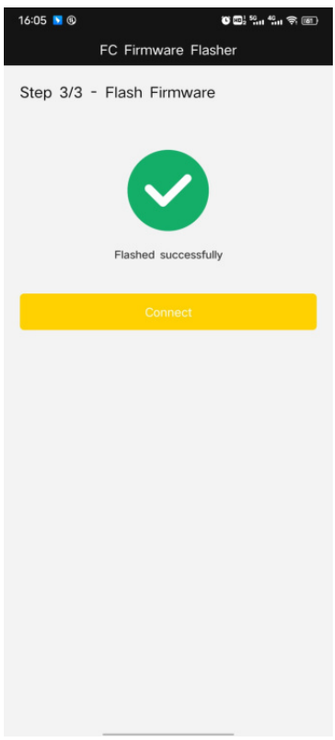

FC Firmware Flasher
Step 1/3 - Load Firmware
Please choose the firmware that matches your flight control model. Writing the wrong firmware will cause unpredictable consequences.
SPEEDYBEE_F745_AIO
4.2.11 - 2021-11-09T20:44:24Z
Full chip erase
4
Downloaded, continue

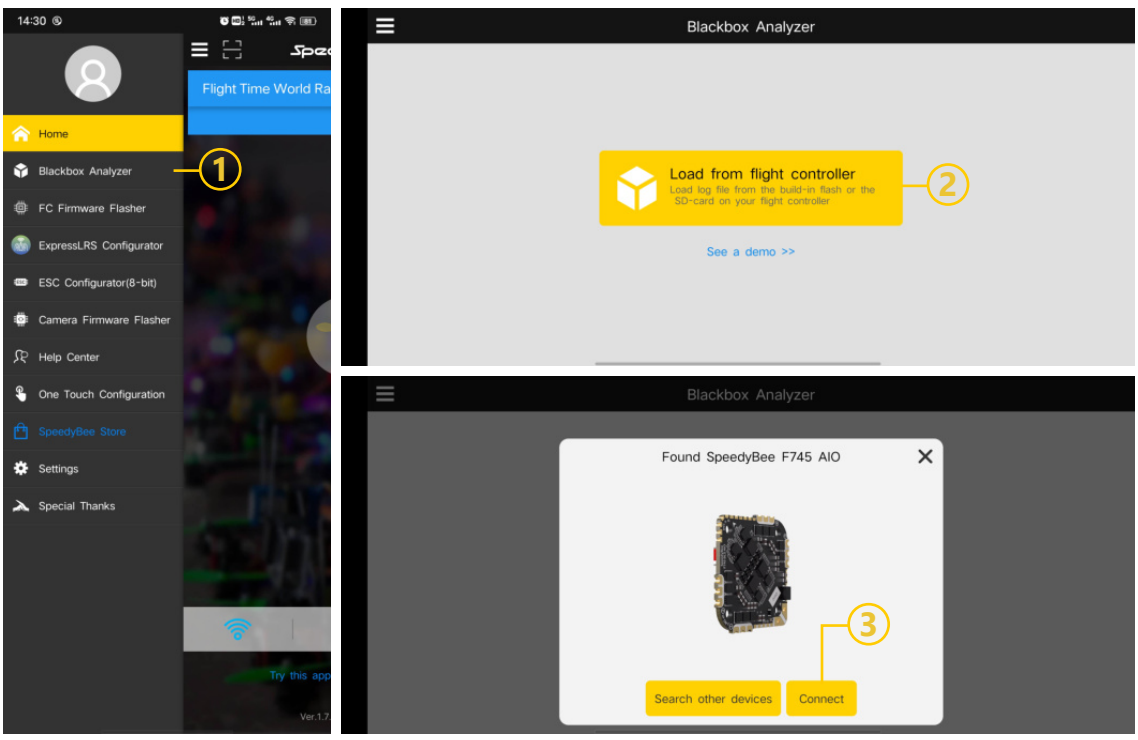

FC Firmware Flasher
Step 2/3 - Connect Flight Controller and App
Please select device type:
SpeedyBee Adapter
Adapter 3
Adapter 2
Flight Controllers
SpeedyBee F7 V2
T-Motor F7 Pro
SpeedyBee F7 V3
SpeedyBee F7 AIO
5


FC Firmware Flasher
Step 2/3 - Connect Flight Controller and App
Please select device type:
SpeedyBee F7 AIO
After connecting to the Bluetooth, the APP will automatically switch to the WIFI transmission mode, wait for the connection to be completed, and start to burn the firmware.
Note: If the bluetooth signal is not found, please restart the FC/Adapter device.
Start connecting
6


FC Firmware Flasher
Step 2/3 - Connect Flight Controller and App
Please select device type:
SpeedyBee F7 AIO
After connecting to the Bluetooth, the APP will automatically switch to the WIFI transmission mode, wait for the connection to be completed, and start to burn the firmware.
Note: If the bluetooth signal is not found, please restart the FC/Adapter device.
Start connecting
Found SpeedyBee F745 AIO
7
Search other devices
Connect

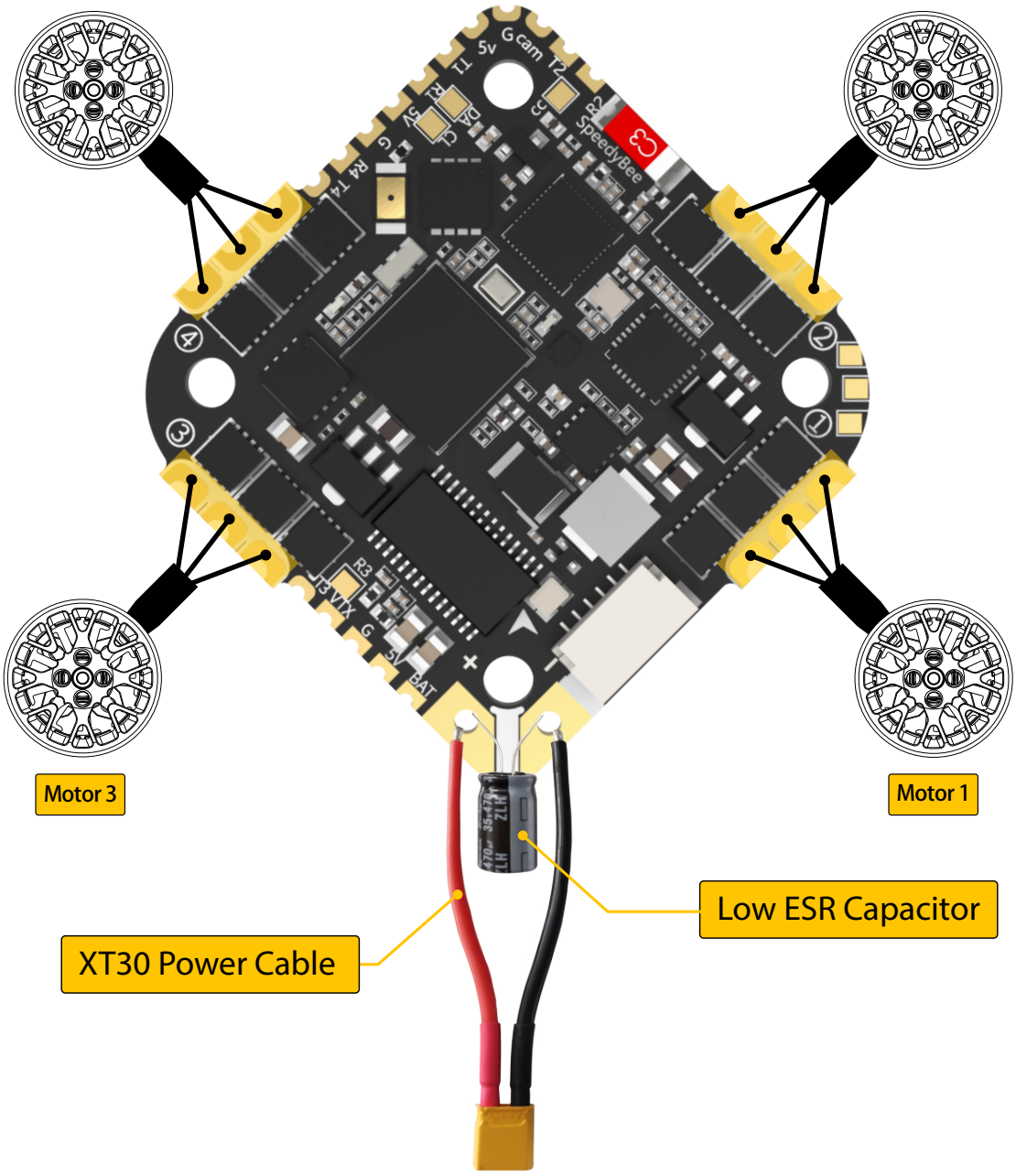

FC Firmware Flasher
Step 3/3 - Flash Firmware
Please don't exit the App, otherwise, it will interrupt the flashing process and the flight controller will not start.
Firmware flashing...(82%)


FC Firmware Flasher
Step 3/3 - Flash Firmware
Flashed successfully
Connect

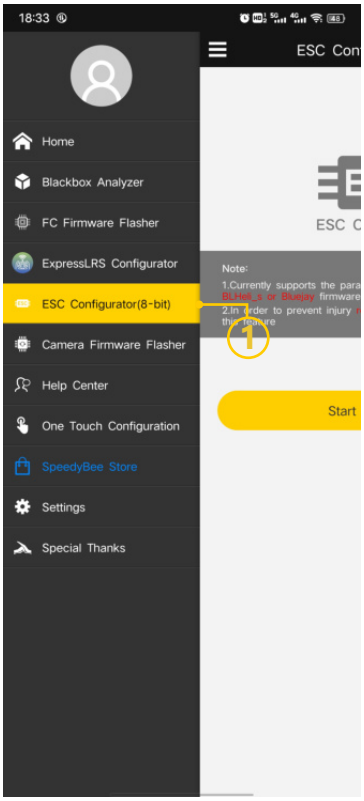


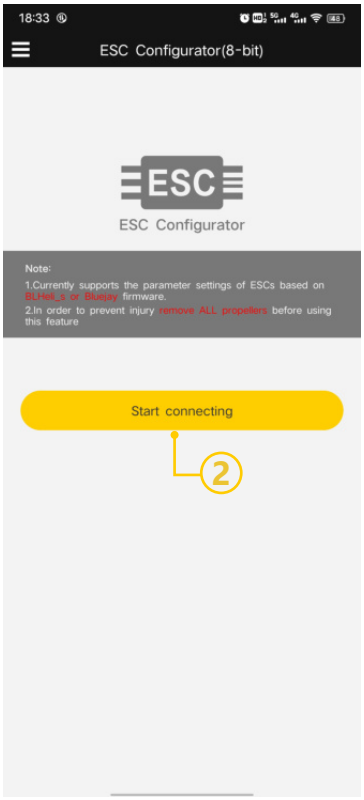
Part 3 - ESC

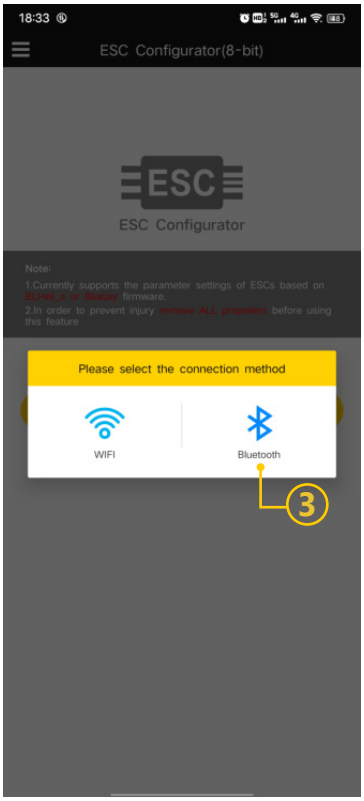
Connection with Motors & Power Cable

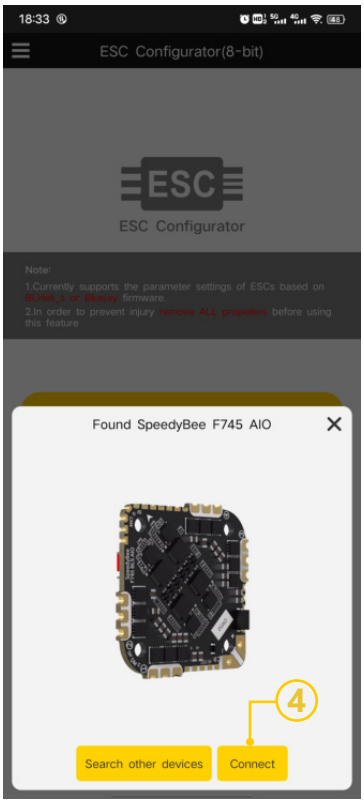


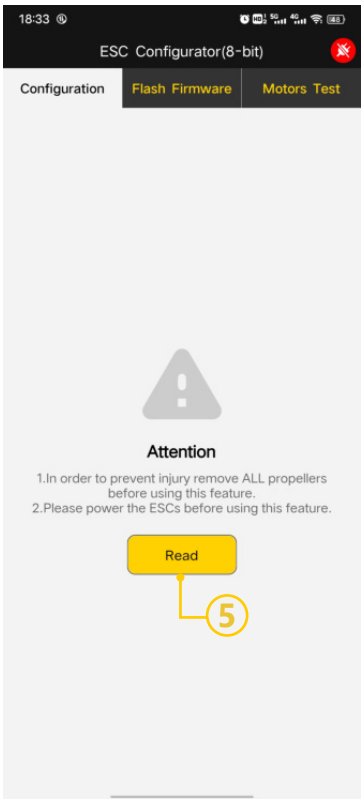
■ **Note**: In order to prevent the AIO from being burnt out instantaneous voltage spikes on powering up, it is strongly recommended to use the Low ESR capacitor in the package.

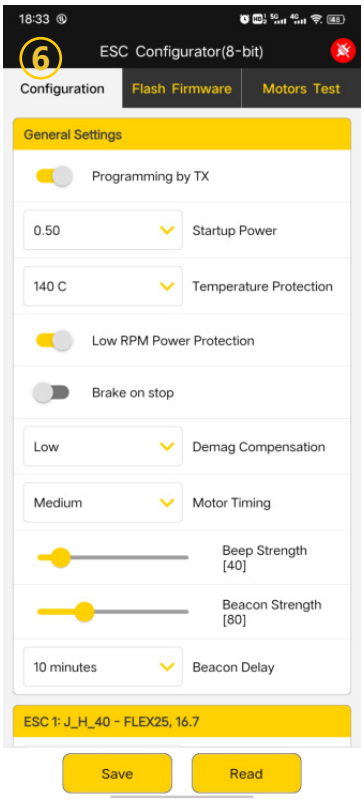

18:33
ESC Con
Home
Blackbox Analyzer
FC Firmware Flasher
ExpressLRS Configurator
ESC Configurator(8-bit)
Camera Firmware Flasher
Help Center
One Touch Configuration
SpeedyBee Store
Settings
Special Thanks
Note:
1.Currently supports the para
BLHeli_s or Bluejay firmware
2.In order to prevent injury
this feature
1
Start


18:33
ESC Configurator(8-bit)
ESC
ESC Configurator
Note:
1.Currently supports the parameter settings of ESCs based on
BLHeli_s or Bluejay firmware.
2.In order to prevent injury remove ALL propellers before using
this feature
Start connecting
2


18:33
ESC Configurator(8-bit)
ESC
ESC Configurator
Note:
1.Currently supports the parameter settings of ESCs based on
BLHeli_s or Bluejay firmware.
2.In order to prevent injury remove ALL propellers before using
this feature
Please select the connection method
WIFI
Bluetooth
3


18:33
ESC Configurator(8-bit)
ESC
ESC Configurator
Note:
1.Currently supports the parameter settings of ESCs based on
BLHeli_s or Bluejay firmware.
2.In order to prevent injury remove ALL propellers before using
this feature
Found SpeedyBee F745 AIO
4
Search other devices
Connect


18:33
ESC Configurator(8-bit)
Configuration
Flash Firmware
Motors Test
Attention
1.In order to prevent injury remove ALL propellers
before using this feature.
2.Please power the ESCs before using this feature.
Read
5

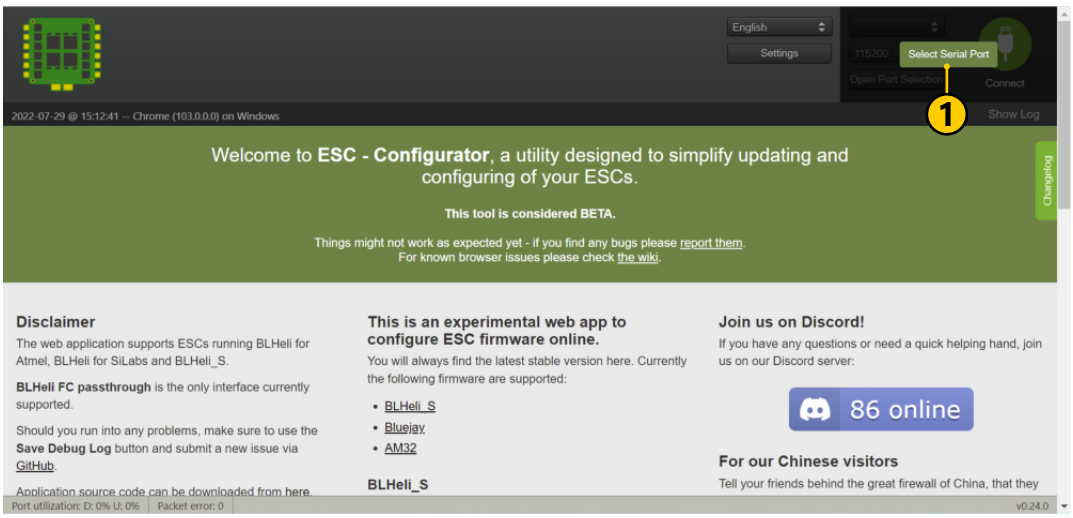

18:33
6
ESC Configurator(8-bit)
Configuration
Flash Firmware
Motors Test
General Settings
Programming by TX
0.50
Startup Power
140 C
Temperature Protection
Low RPM Power Protection
Brake on stop
Low
Demag Compensation
Medium
Motor Timing
Beep Strength
[40]
Beacon Strength
[80]
10 minutes
Beacon Delay
ESC 1: J_H_40 - FLEX25, 16.7
Save
Read

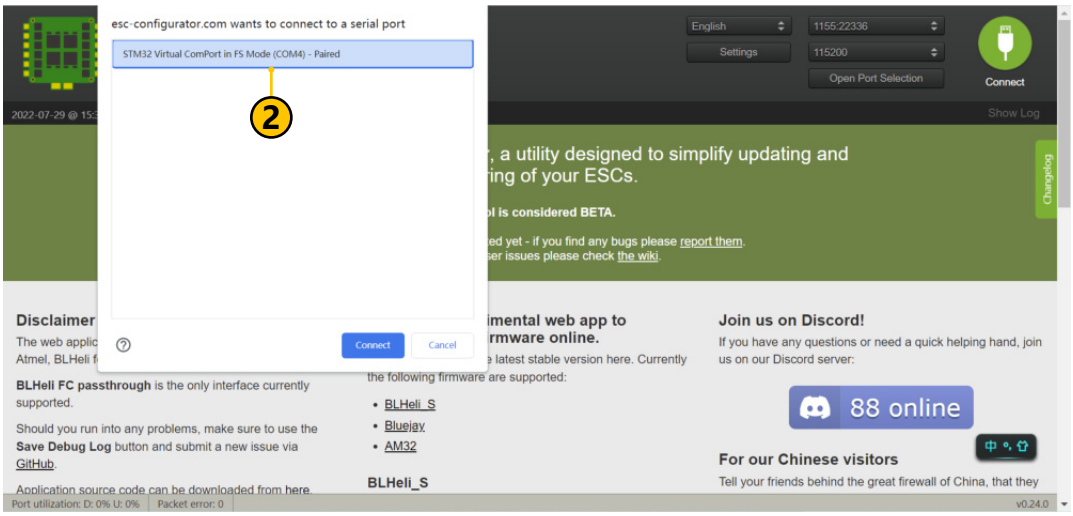
■ You could flash both **BLHeli_S** and **Blue Jay** firmware for this ESC.

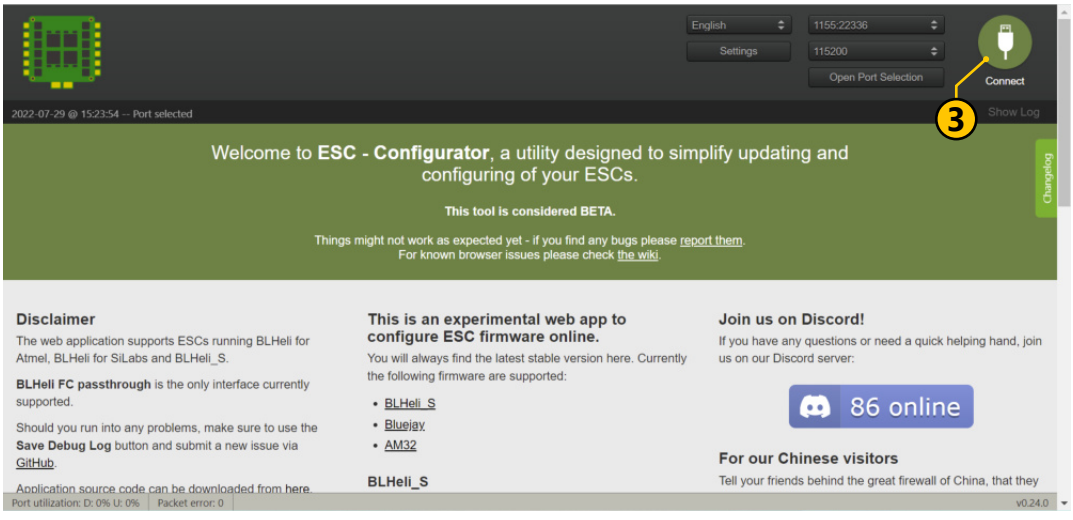
You need to pulg in the battery to the AIO and then connect a USB cable between the AIO and your PC. Then flash ESC firmware (BLHeli_S or Blue Jay) in the following online configurator:

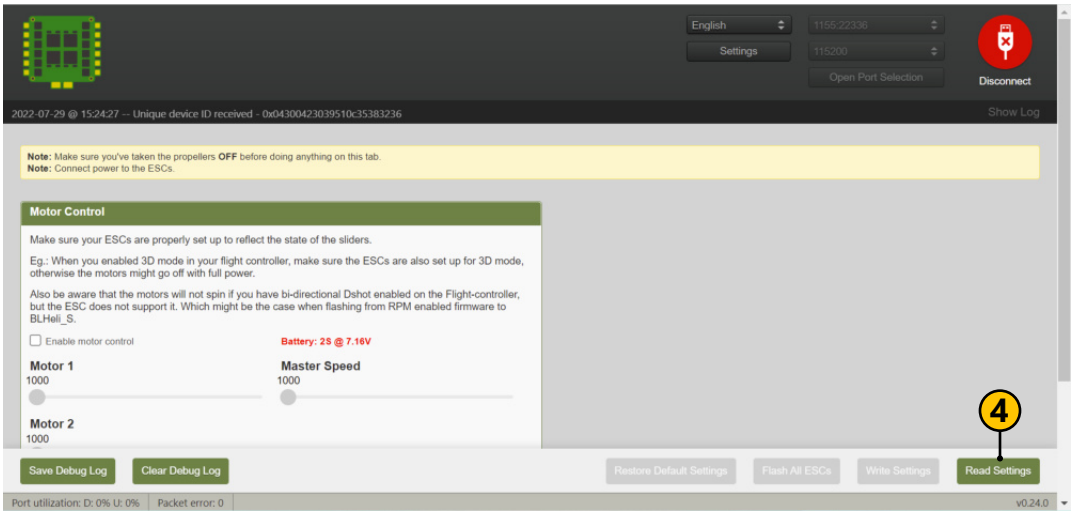
https://esc-configurator.com/

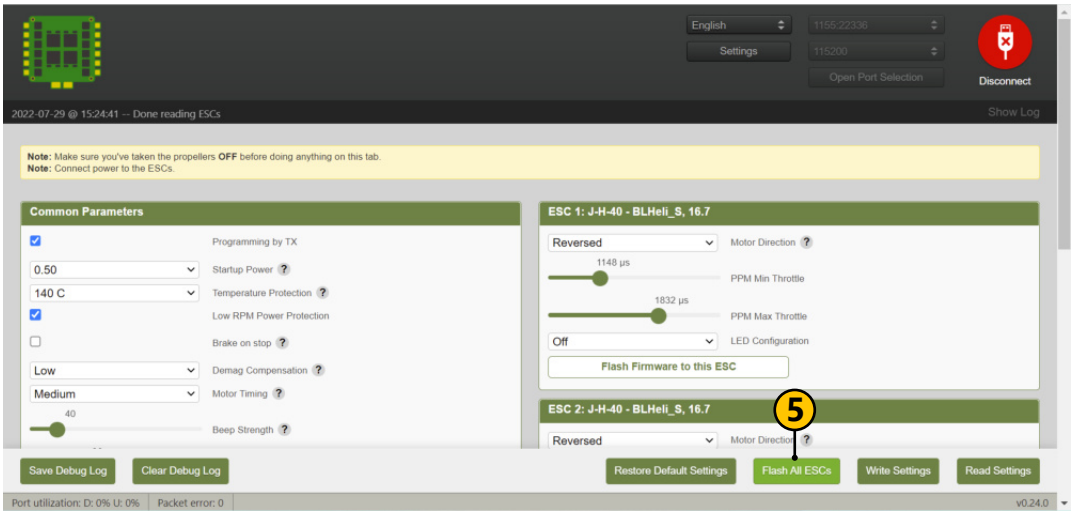
Note: ESC Type should be set as 'J-H-40'.

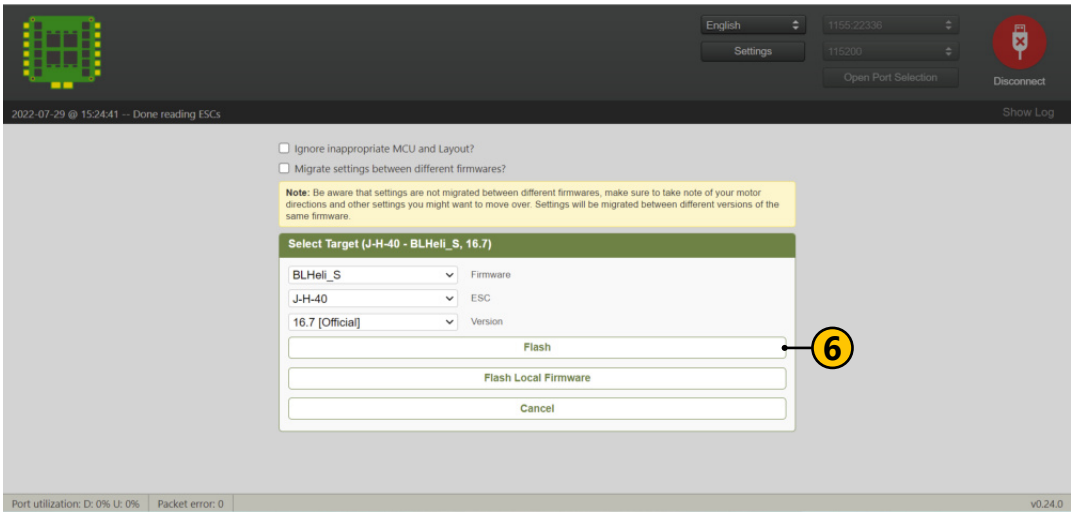





English
Settings
1155:22336
115200
Open Port Selection
Connect
3
2022-07-29 @ 15:23:54 -- Port selected
Show Log
Welcome to ESC - Configurator, a utility designed to simplify updating and configuring of your ESCs.
This tool is considered BETA.
Things might not work as expected yet - if you find any bugs please report them.
For known browser issues please check the wiki.
Changelog
Disclaimer
The web application supports ESCs running BLHeli for Atmel, BLHeli for SiLabs and BLHeli_S.
BLHeli FC passthrough is the only interface currently supported.
Should you run into any problems, make sure to use the Save Debug Log button and submit a new issue via GitHub.
Application source code can be downloaded from here.
This is an experimental web app to configure ESC firmware online.
You will always find the latest stable version here. Currently the following firmware are supported:
BLHeli_S
Bluejay
AM32
BLHeli_S
Join us on Discord!
If you have any questions or need a quick helping hand, join us on our Discord server:
86 online
For our Chinese visitors
Tell your friends behind the great firewall of China, that they
Port utilization: D: 0% U: 0%
Packet error: 0
v0.24.0


English
Settings
1155:22336
115200
Open Port Selection
Disconnect
2022-07-29 @ 15:24:27 -- Unique device ID received - 0x04300423039510c35383236
Show Log
Note: Make sure you've taken the propellers OFF before doing anything on this tab.
Note: Connect power to the ESCs.
Motor Control
Make sure your ESCs are properly set up to reflect the state of the sliders.
Eg.: When you enabled 3D mode in your flight controller, make sure the ESCs are also set up for 3D mode, otherwise the motors might go off with full power.
Also be aware that the motors will not spin if you have bi-directional Dshot enabled on the Flight-controller, but the ESC does not support it. Which might be the case when flashing from RPM enabled firmware to BLHeli_S.
Enable motor control
Battery: 2S @ 7.16V
Motor 1
1000
Master Speed
1000
Motor 2
1000
4
Save Debug Log
Clear Debug Log
Restore Default Settings
Flash All ESCs
Write Settings
Read Settings
Port utilization: D: 0% U: 0%
Packet error: 0
v0.24.0


English
Settings
1155:22336
115200
Open Port Selection
Disconnect
2022-07-29 @ 15:24:41 -- Done reading ESCs
Show Log
Note: Make sure you've taken the propellers OFF before doing anything on this tab.
Note: Connect power to the ESCs.
Common Parameters
Programming by TX
0.50
Startup Power
140 C
Temperature Protection
Low RPM Power Protection
Brake on stop
Low
Demag Compensation
Medium
Motor Timing
40
Beep Strength
ESC 1: J-H-40 - BLHeli_S, 16.7
Reversed
Motor Direction
1148 µs
PPM Min Throttle
1832 µs
PPM Max Throttle
Off
LED Configuration
Flash Firmware to this ESC
ESC 2: J-H-40 - BLHeli_S, 16.7
5
Reversed
Motor Direction
Save Debug Log
Clear Debug Log
Restore Default Settings
Flash All ESCs
Write Settings
Read Settings
Port utilization: D: 0% U: 0%
Packet error: 0
v0.24.0


English
Settings
1155:22336
115200
Open Port Selection
Disconnect
2022-07-29 @ 15:24:41 -- Done reading ESCs
Show Log
Ignore inappropriate MCU and Layout?
Migrate settings between different firmwares?
Note: Be aware that settings are not migrated between different firmwares, make sure to take note of your motor directions and other settings you might want to move over. Settings will be migrated between different versions of the same firmware.
Select Target (J-H-40 - BLHeli_S, 16.7)
BLHeli_S
Firmware
J-H-40
ESC
16.7 [Official]
Version
Flash
6
Flash Local Firmware
Cancel
Port utilization: D: 0% U: 0%
Packet error: 0
v0.24.0