

# SpeedyBee F745 35A BLS AIO Flight Controller User Manual

[Home](#) » [SpeedyBee](#) » SpeedyBee F745 35A BLS AIO Flight Controller User Manual 



## User Manual SpeedyBee F745 35A BLS AIO

### Contents

- 1 Part 1 – OverView
  - 1.1 Specifications
  - 1.2 Dimensions
  - 1.3 Package
  - 1.4 Layout
- 2 Part 2 – Flight Controller
  - 2.1 Wiring Diagram
  - 2.2 App
  - 2.3 FC Firmware Update
  - 2.4 BlackBox Analyzer
- 3 Part 3 – ESC
  - 3.1 ESC Configuration
  - 3.2 ESC Firmware Update
- 4 Documents / Resources
  - 4.1 References
- 5 Related Posts

## Part 1 – OverView

### Specifications

### Overview

<b>Product Name</b>	<b>SpeedyBee F745 35A BLS AIO</b>
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

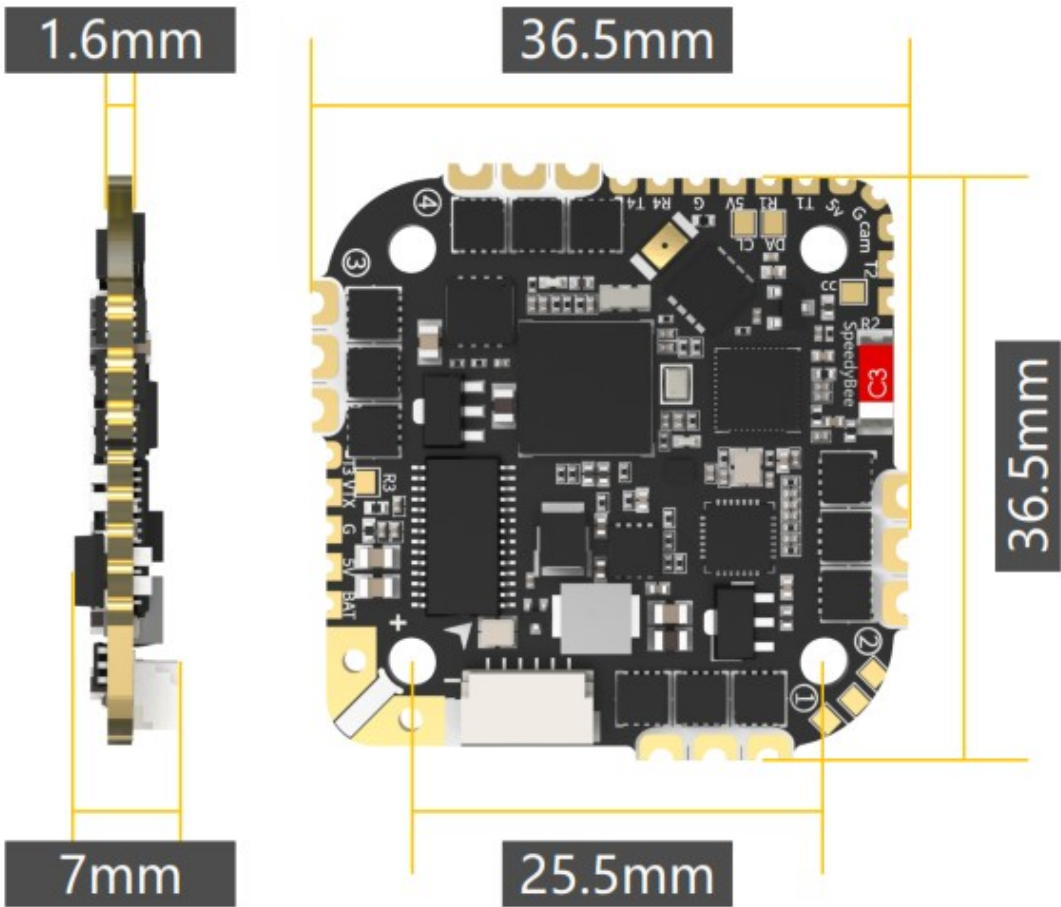
**FC**

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

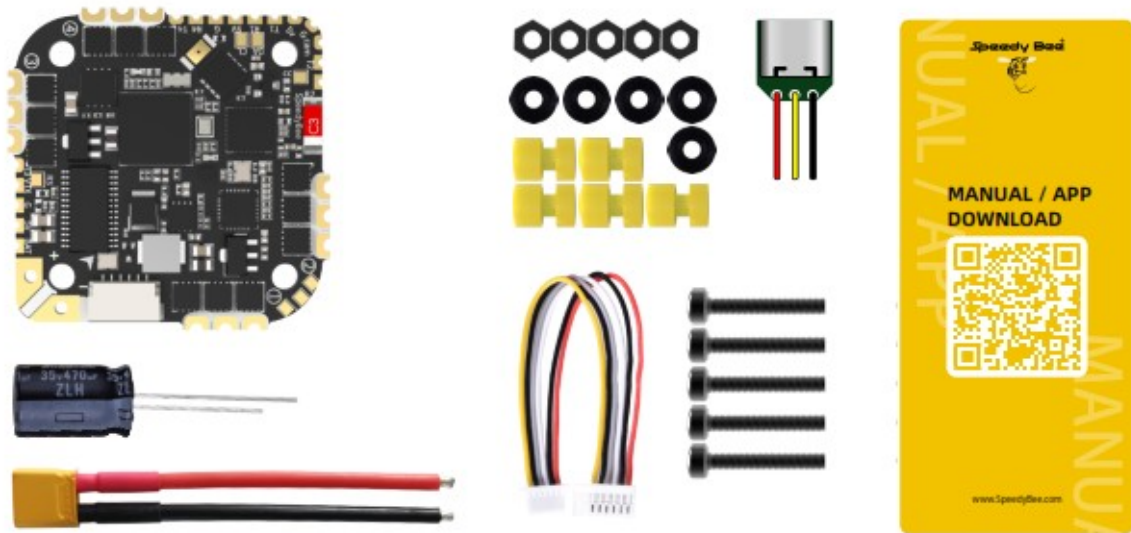
## ESC

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

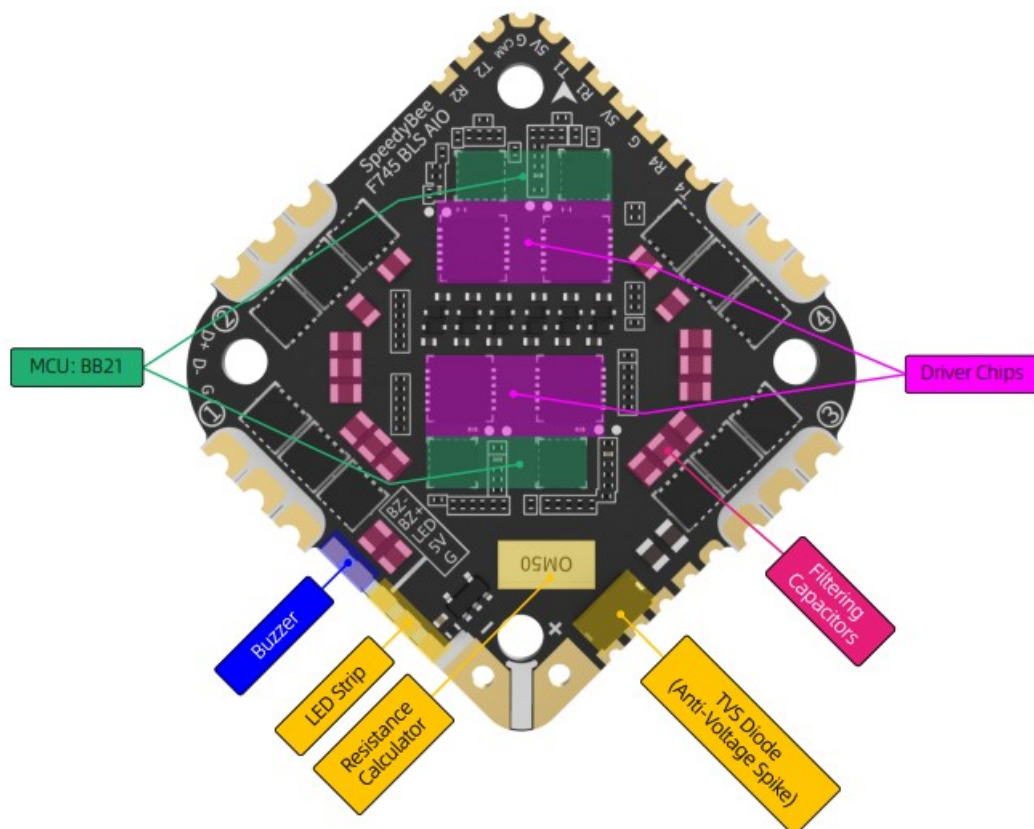
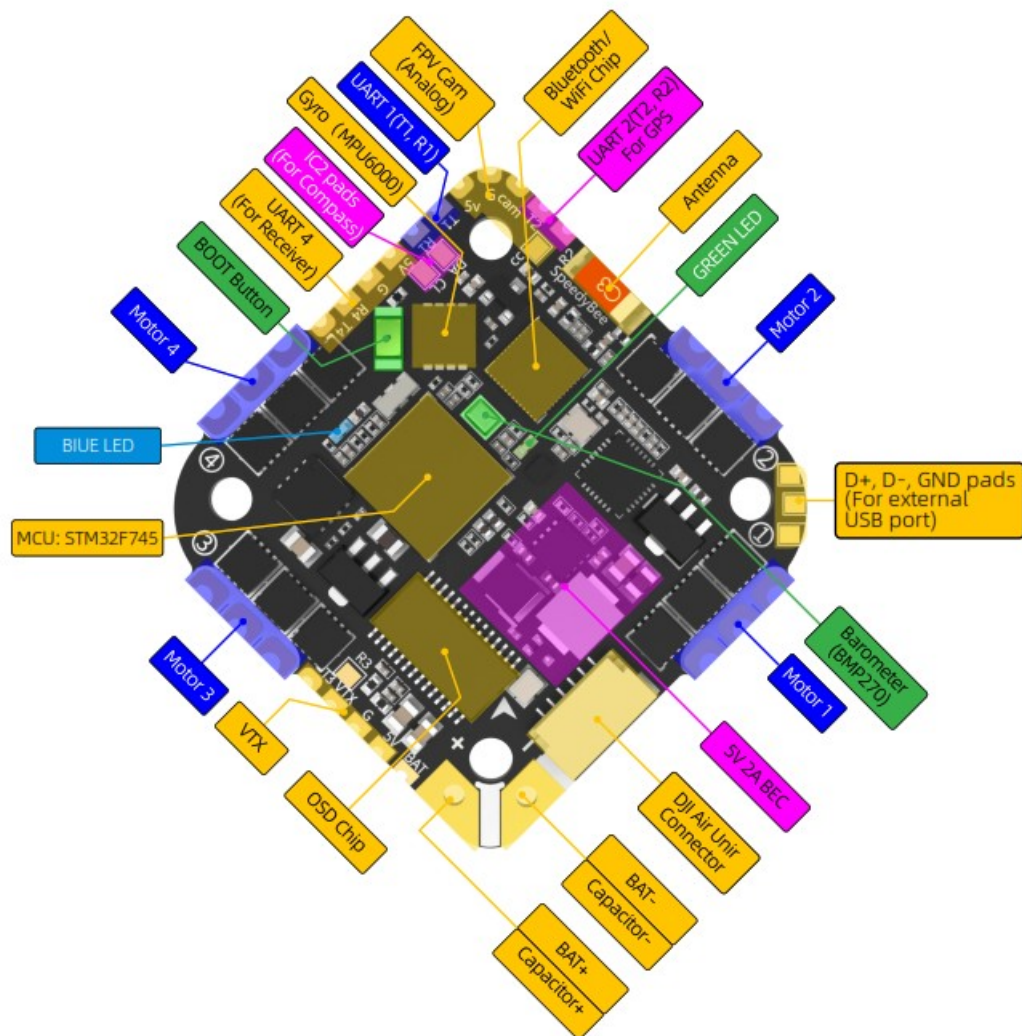


Package



- 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

## Layout



## • 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.

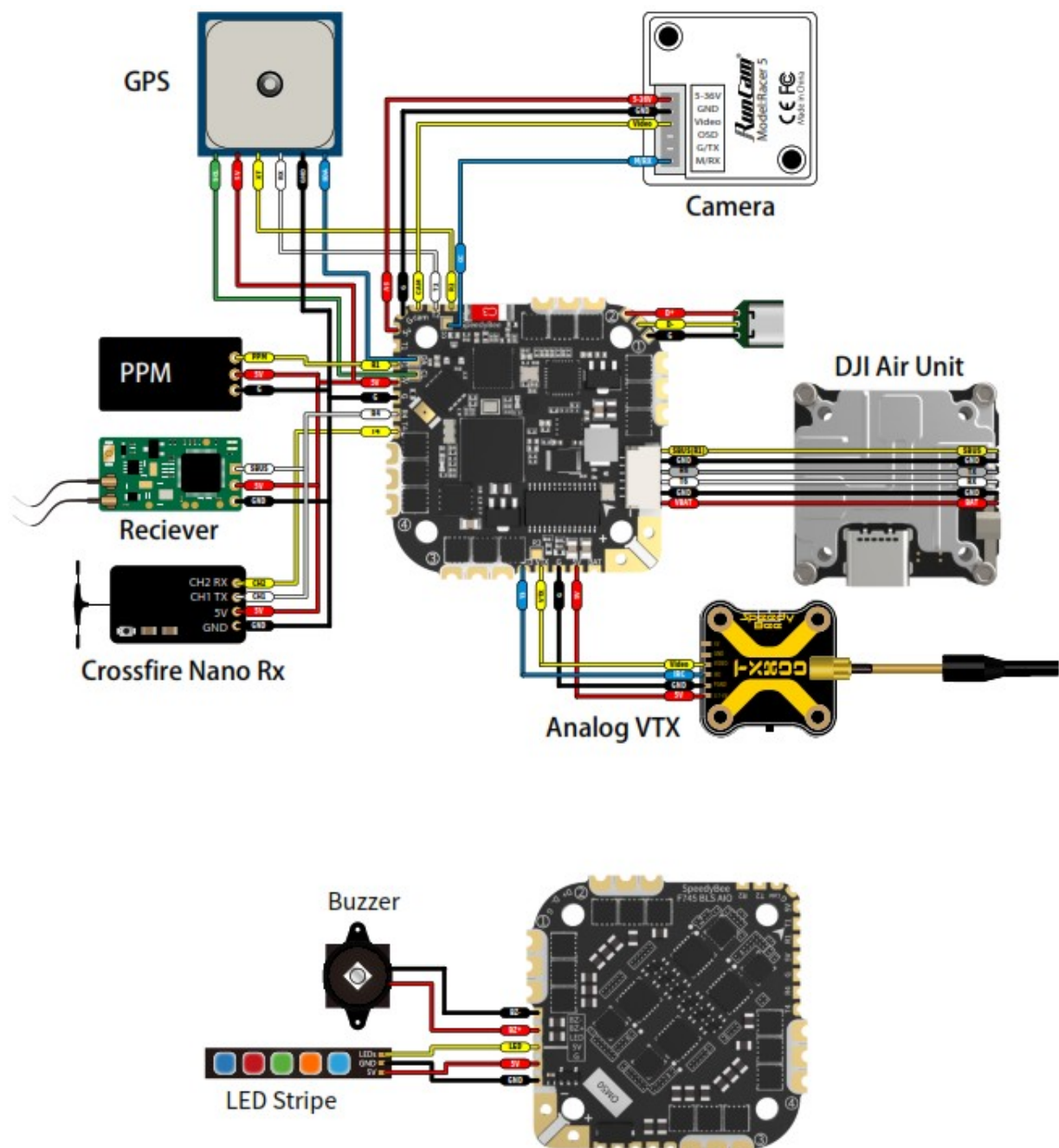
## • BOOT Button

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.

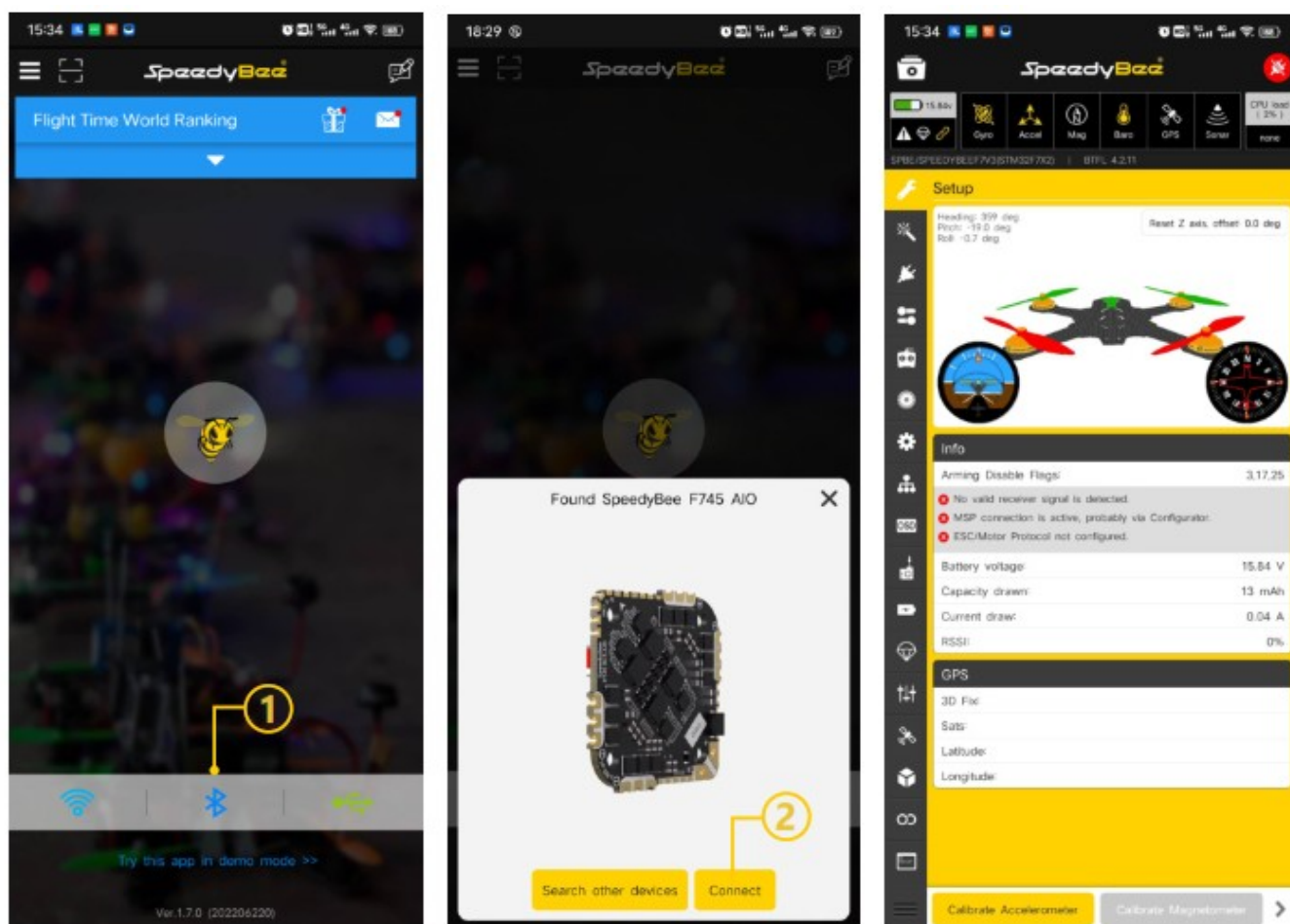
## App

- Get the SpeedyBee App

Search `SpeedyBee` on Google Play or App Store. Or download the Android .apk file on our website:

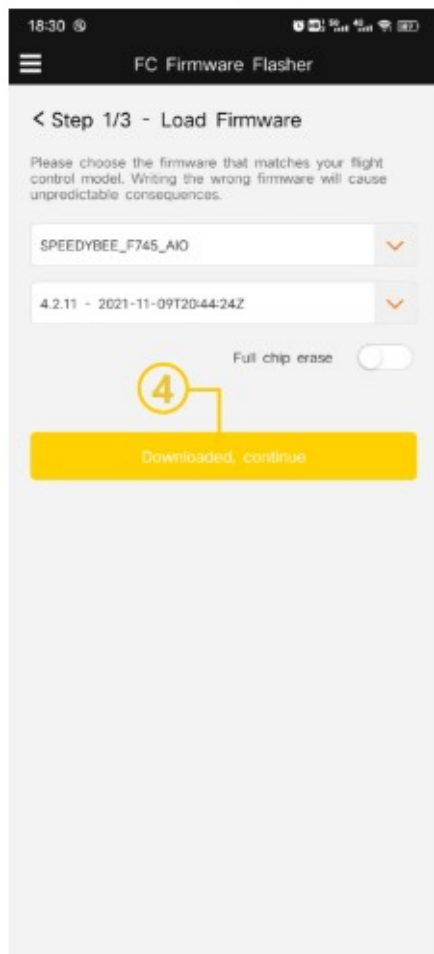
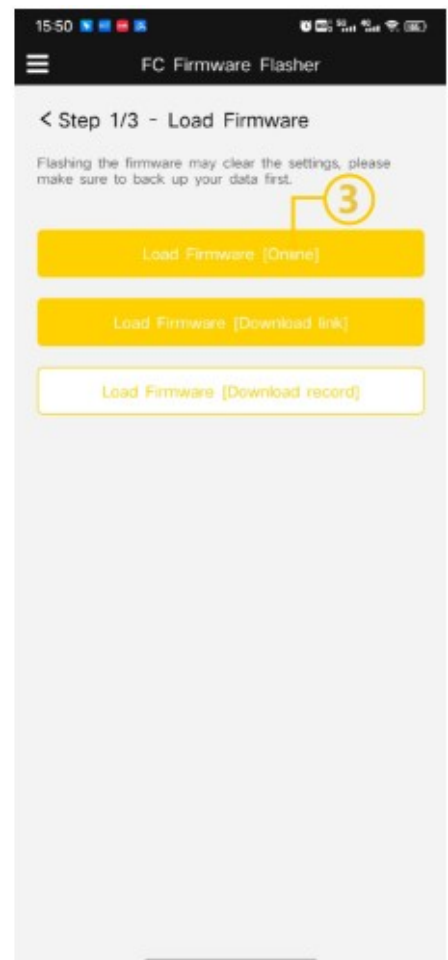
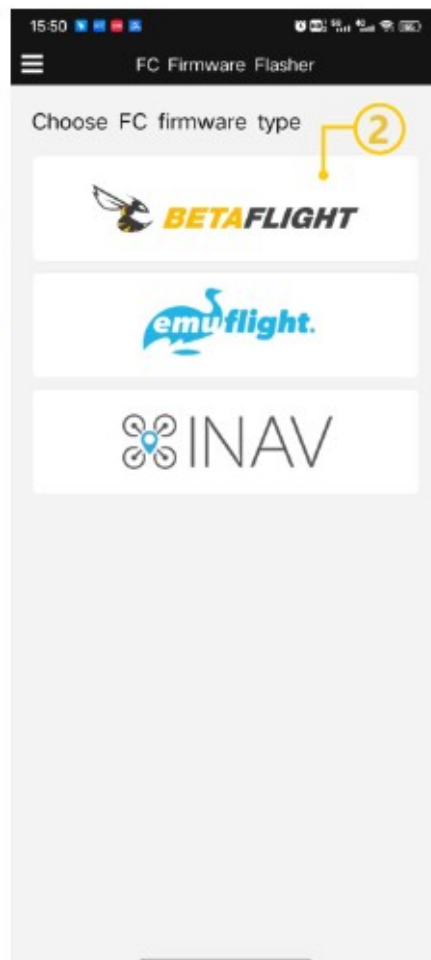
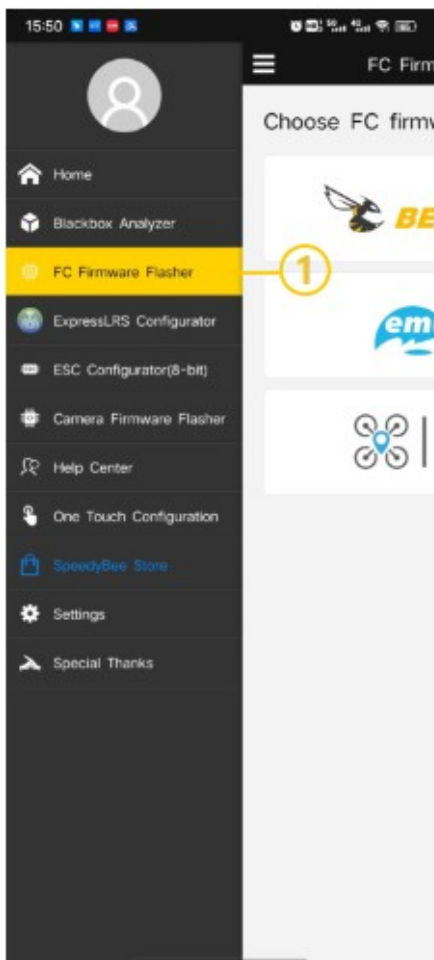
<https://www.speedybee.com/download>.

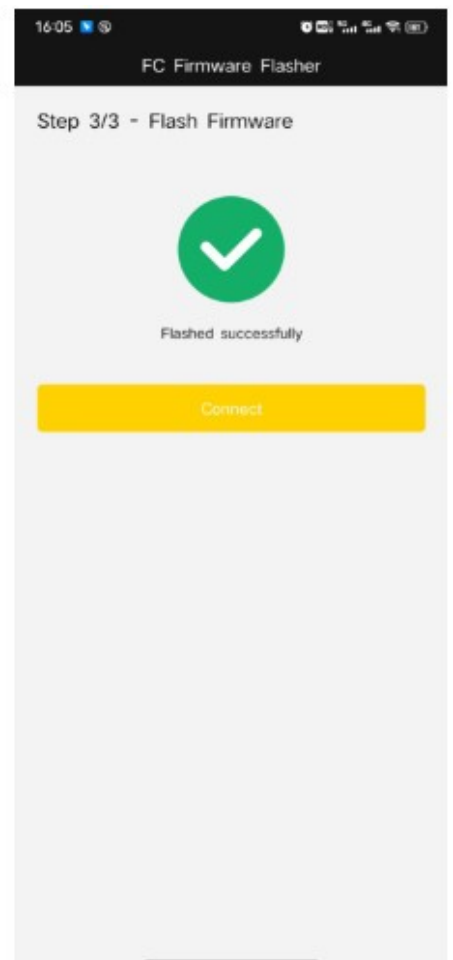
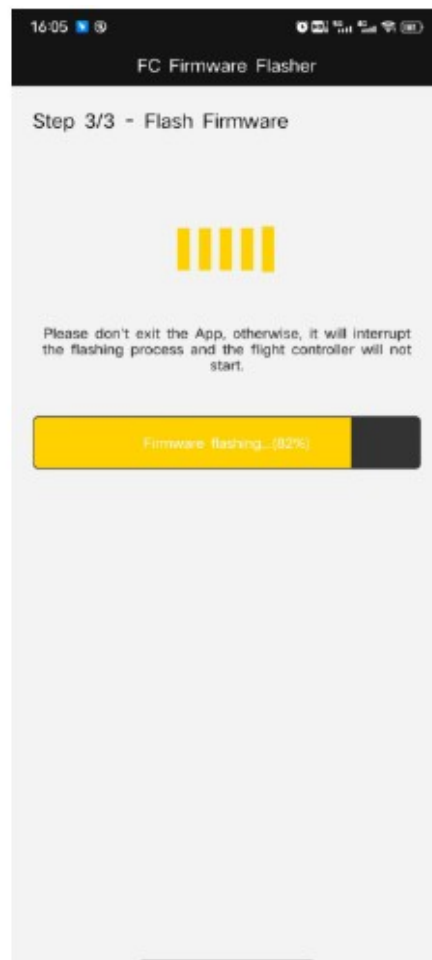
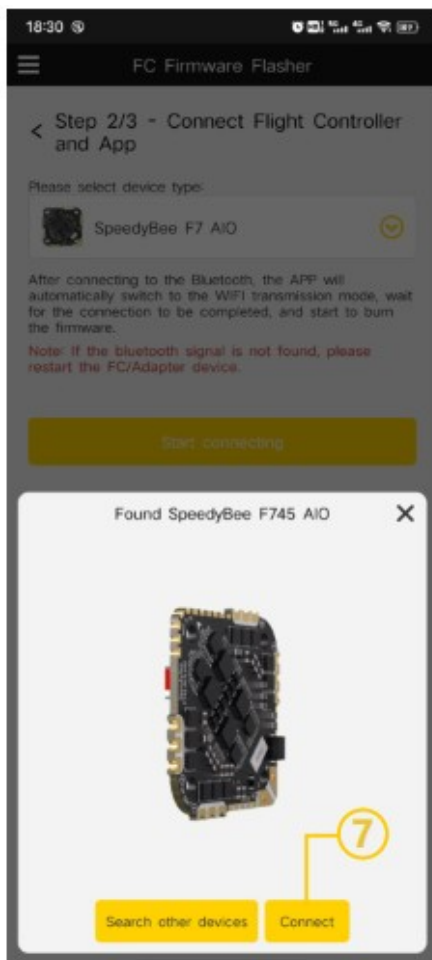
## Connect the App



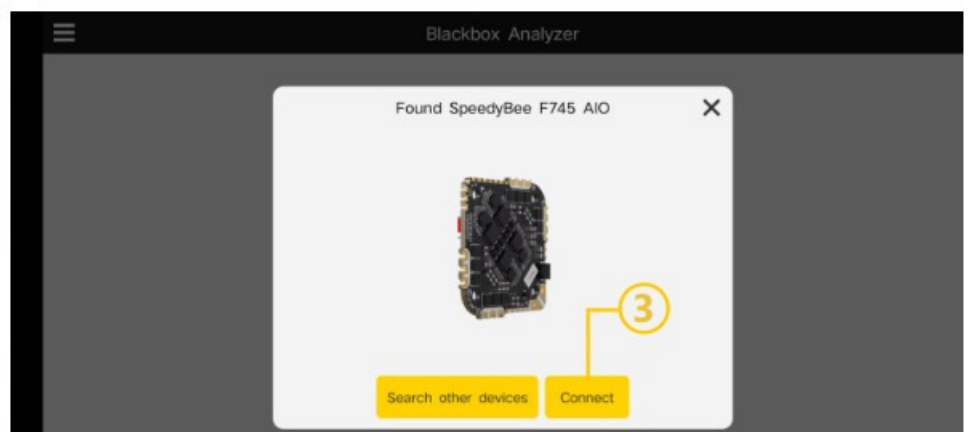
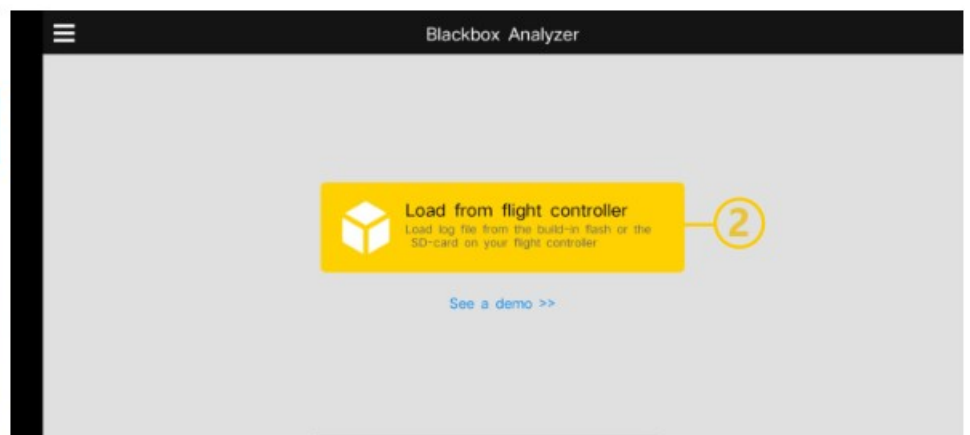
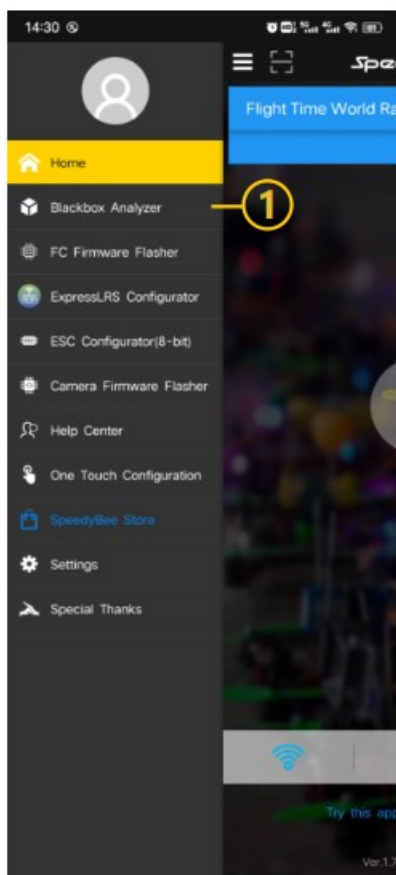
## FC Firmware Update



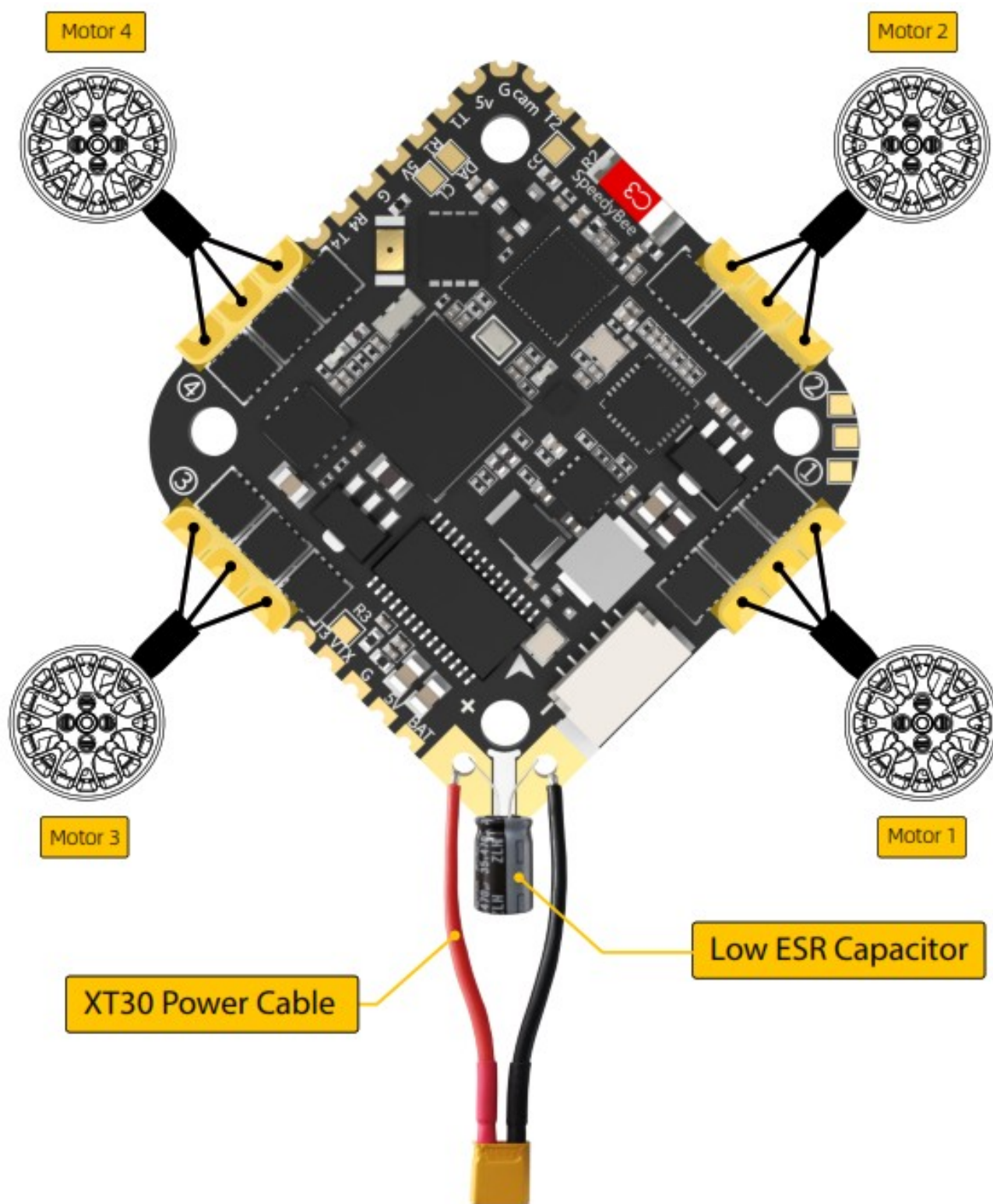




## BlackBox Analyzer

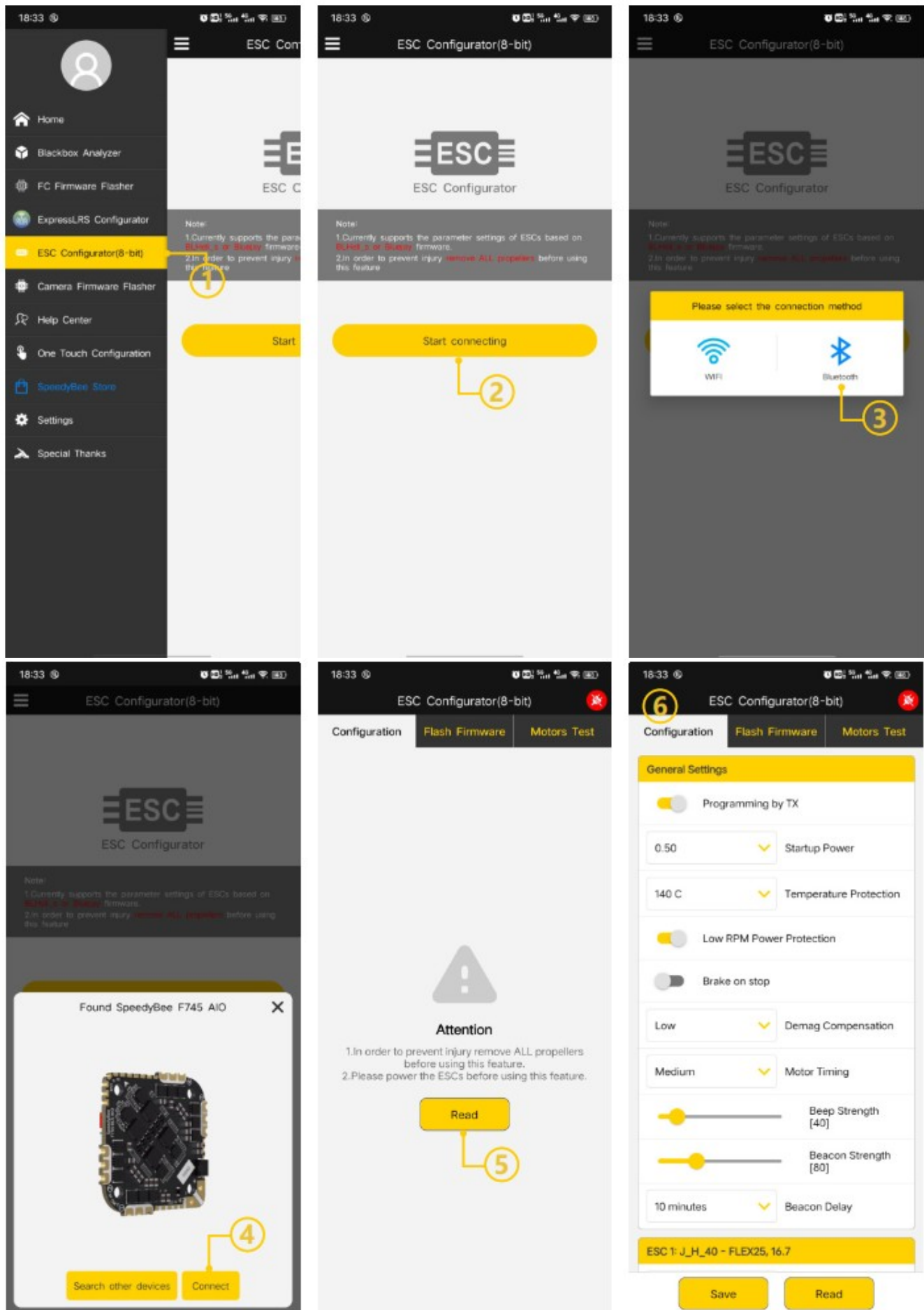


## Part 3 – ESC



**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.

#### ESC Configuration



## ESC Firmware Update

- You could flash both BLHeli\_S and Blue Jay firmware for this ESC.



You need to plug 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'.


The image consists of two screenshots of the ESC-Configurator web application. The top screenshot shows the main interface with a yellow circle and the number '1' pointing to the 'Select Serial Port' button. The bottom screenshot shows a modal dialog box with a yellow circle and the number '2' pointing to the 'Connect' button. The dialog box lists 'STM32 Virtual ComPort in FS Mode (COM6) - Paired' as the selected port.

**Top Screenshot:**

- Language: English
- Settings
- 115200
- Select Serial Port
- Open Port Selection
- Connect
- Show Log
- Charging
- 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.
- 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

**Bottom Screenshot:**

- esc-configurator.com wants to connect to a serial port
- STM32 Virtual ComPort in FS Mode (COM6) - Paired
- 2
- Connect
- Cancel
- 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.
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English1155.22336Settings115200Open Port SelectionConnectShow Log

2022-07-29 @ 15:23:54 -- Port selected

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](#).

**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: 0v0.24.0



English1155.22336Settings115200Open Port SelectionDisconnectShow Log

2022-07-29 @ 15:24:27 -- Unique device ID received - 0x04300423039516c35383236

**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: 28 @ 7.16V**


**Motor 1**  
1000

**Master Speed**  
1000

**Motor 2**  
1000

**Save Debug Log** **Clear Debug Log** **Restore Default Settings** **Flash All ESCs** **Write Settings** **Read Settings**

Port utilization: D: 0% U: 0% Packet error: 0v0.24.0



English1155.22336Settings115200Open Port SelectionDisconnectShow Log

2022-07-29 @ 15:24:41 -- Done reading ESCs

**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

0.50Startup Power ?

140 CTemperature Protection ?

☒ Low RPM Power Protection

Brake on stop ?

LowDemag Compensation ?

MediumMotor Timing ?

40Beep Strength ?

**ESC 1: J-H-40 - BLHeli\_S, 16.7**

ReversedMotor Direction ?

1148 µsPPM Min Throttle

1832 µsPPM Max Throttle

OffLED Configuration

Flash Firmware to this ESC

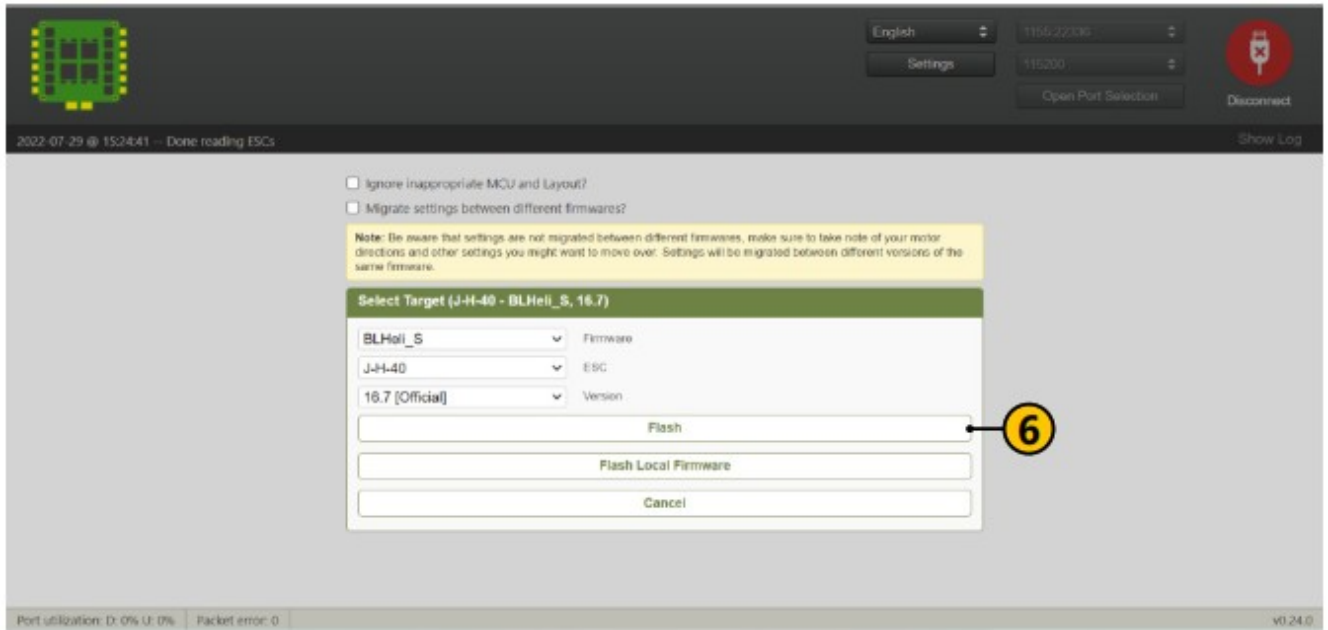
**ESC 2: J-H-40 - BLHeli\_S, 16.7**

ReversedMotor 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: 0v0.24.0





Documents / Resources

User Manual

SpeedyBee F745 35A BLS AIO

contents

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

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31

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F745 35A BLS AIO Flight Controller, F745 35A BLS AIO, Flight Controller, Controller

References

- 📄 [SpeedyBee - Simplifying FPV](#)
- 📄 [ESC Configurator - for Bluejay, BLHeli\\_S and AM32](#)
- 📄 [download](#)

Manuals+.