User   Manual

SpeedyBee F745 35A BLS AIO

contents

SpeedyBee®

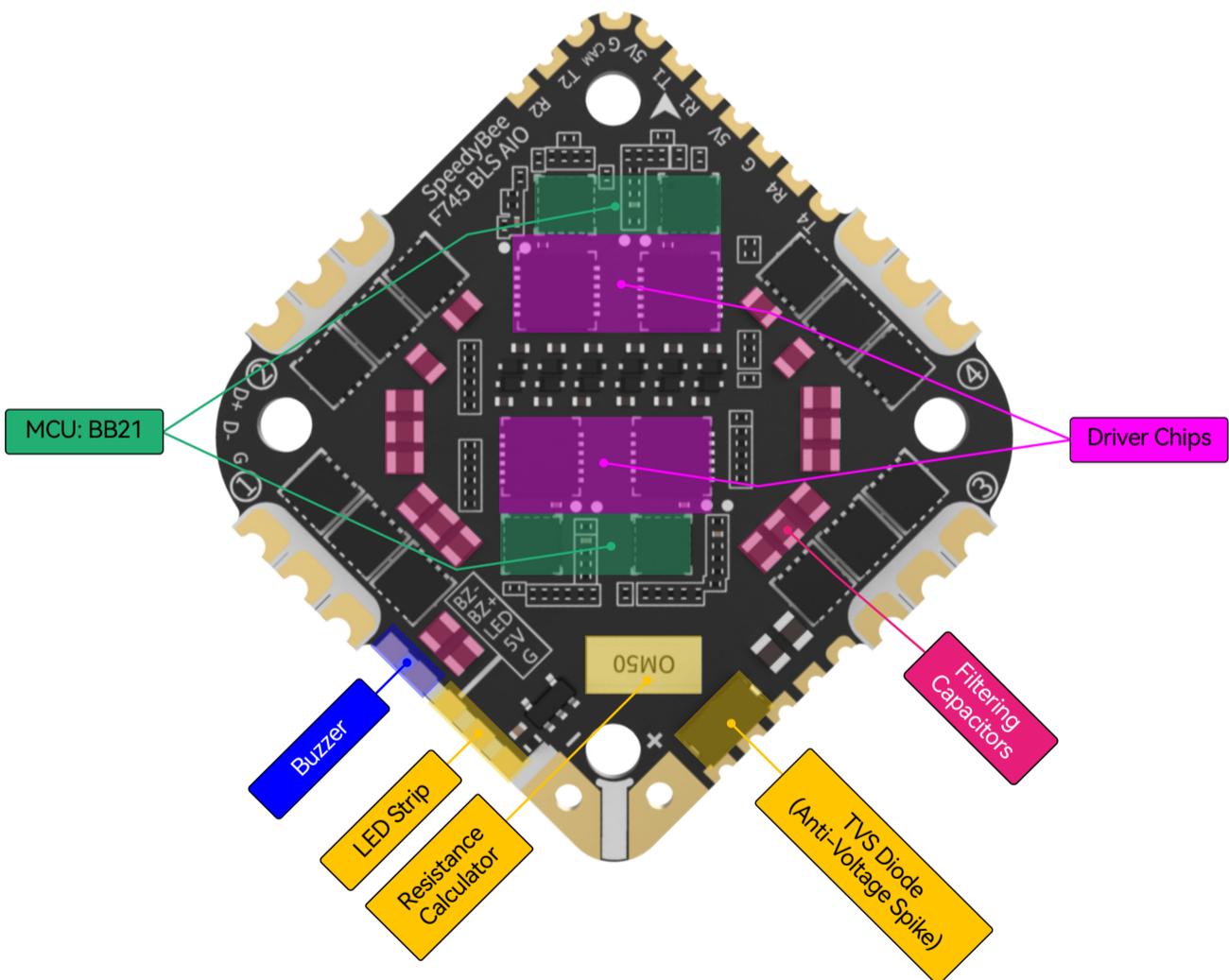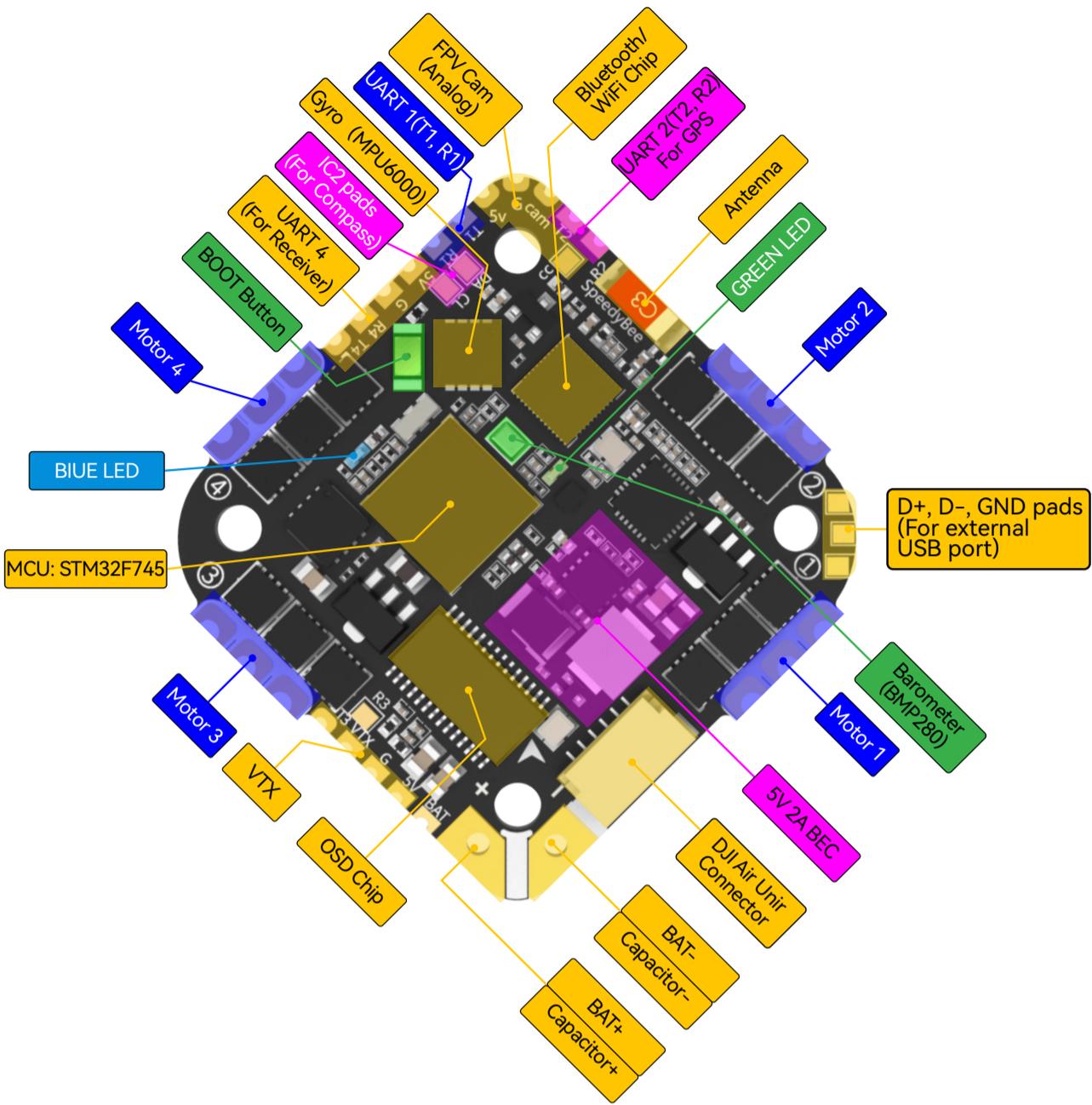| Overview	
Product Name	**SpeedyBee F745 35A BLS AIO**
Power Input	3S - 6S Lipo
Mounting	25.5 x 25.5mm, 3mm hole diameter
Dimension	36.5mm(L) x 36.5mm(W) x 7mm(H), recommended for quads at 3.5" or above
Weight	10.1g
FC	
MCU	STM32F745
IMU(Gyro)	MPU6000
USB Connection	Need to solder a USB TYPE-C module to D+,D-,GND pads.
Barometer	BMP280
OSD	Supported
BLE Bluetooth	Supported. Used for parameter configuration built-in a single 2.4 GHz Wi-Fi-and-Bluetooth combo chip
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	Not supported
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 J-H-40

1.6mm   **36.5mm**   **36.5mm**

7mm   **25.5mm**

MANUAL / APP DOWNLOAD

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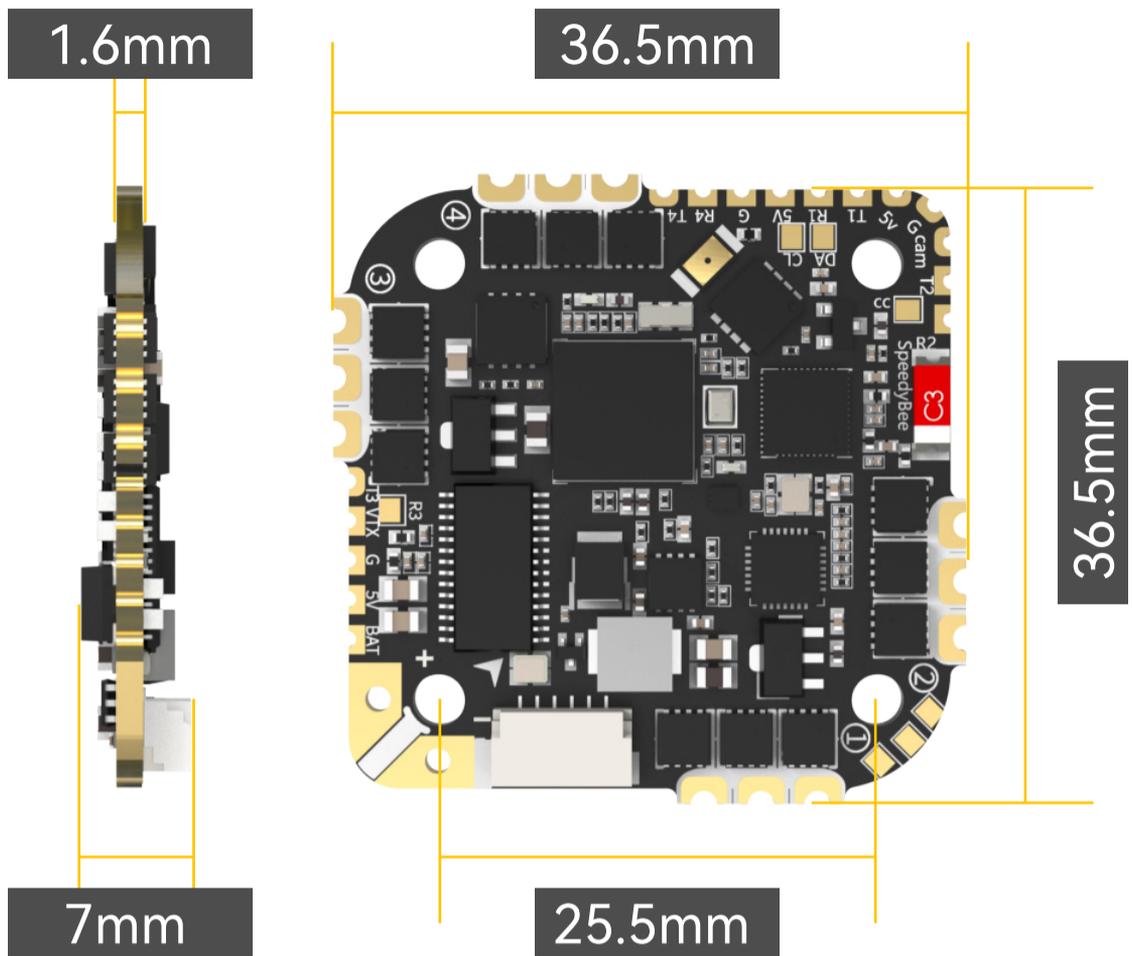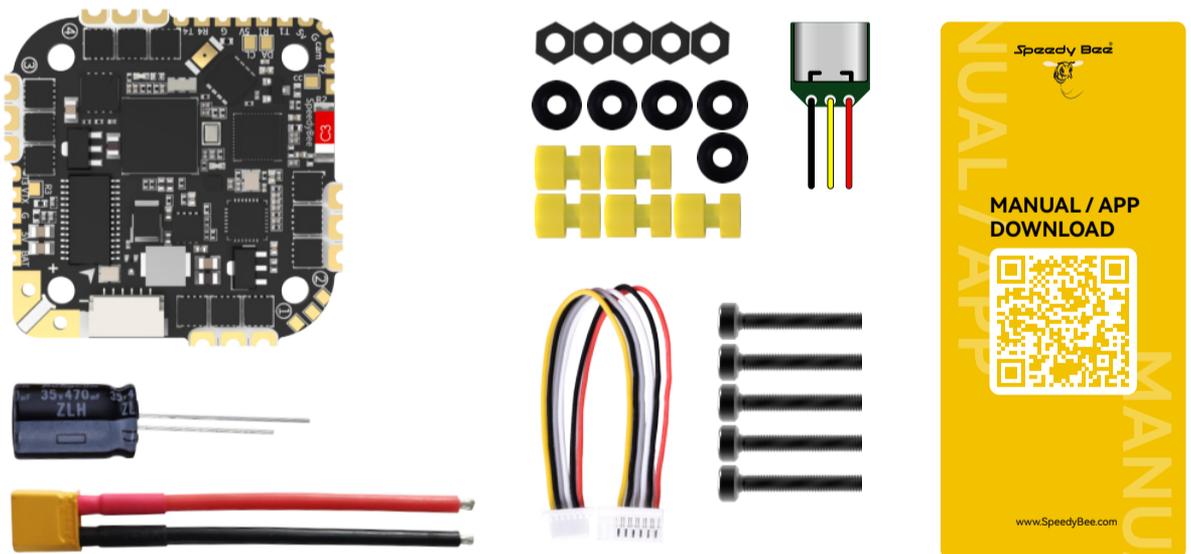
- SpeedyBee F745 35A BLS AIO x 1
- 35V 470uF Capacitor x 1
- XT30 Power Cable(Length: 7cm) x 1
- 6pin DJI Air Unit cable x 1
- External USB Port module(Wire Length: 5mm) x 1
- M2(Diameter) * 12mm(Length) Screw x 5
- M2(Hole Diameter) * 6.6mm(Height) Anti-vibration Silicone Grommets x 5
- M2 Silicone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

FPV Cam (Analog)
Bluetooth/ WiFi Chip
UART 1(T1, R1)
Gyro (MPU6000)
UART 2(T2, R2) For GPS
IC2 pads (For Compass)
Antenna
UART 4 (For Receiver)
BOOT Button
GREEN LED
Motor 4
Motor 2
BIUE LED
D+, D-, GND pads (For external USB port)
MCU: STM32F745
Barometer (BMP280)
Motor 3
Motor 1
VTX
5V 2A BEC
OSD Chip
DJI Air Unir Connector
BAT- Capacitor-
BAT+ Capacitor+

MCU: BB21
Driver Chips
Buzzer
Filtering Capacitors
LED Strip
Resistance Calculator
TVS Diode (Anti-Voltage Spike)

■ LED Indicator Definition

■ **GREEN LED** – Solid Green indicates Bluetooth is connected.
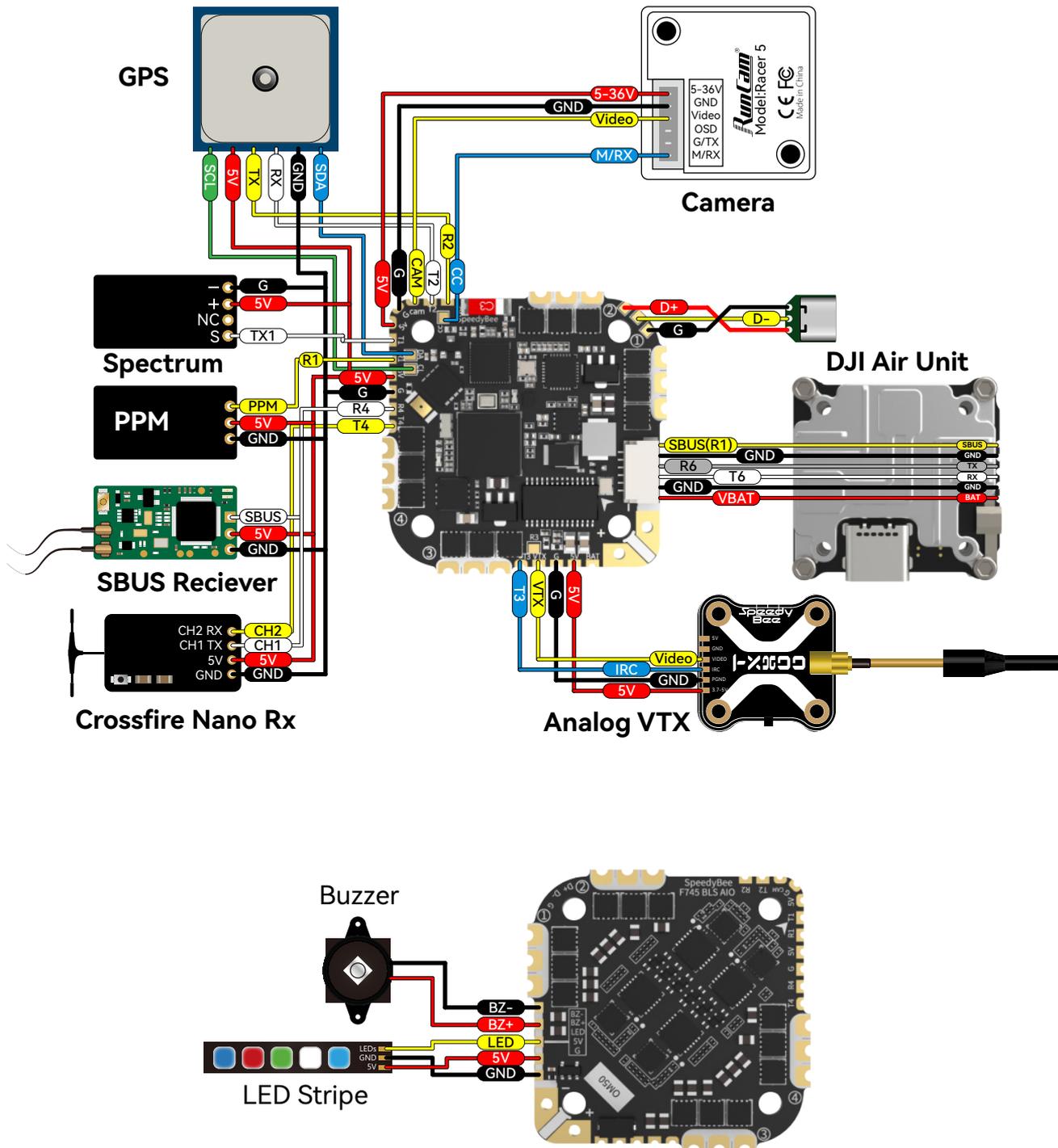■ **BLUE LED** – Flight controller status light which is controlled by the flight controller firmwa

■ 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.
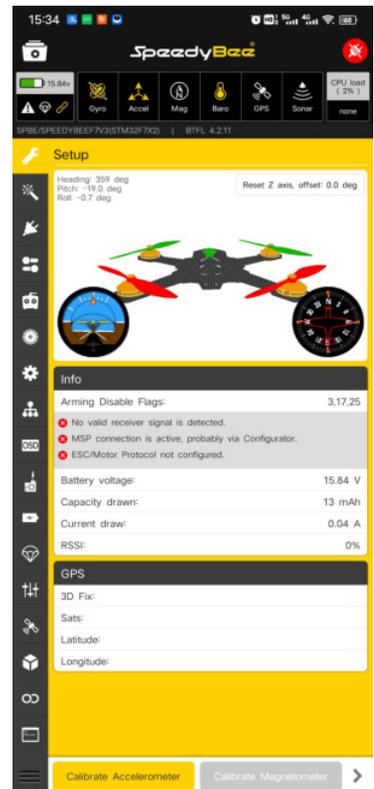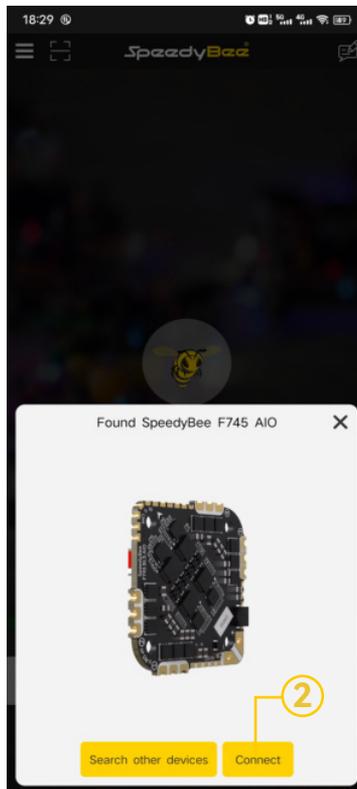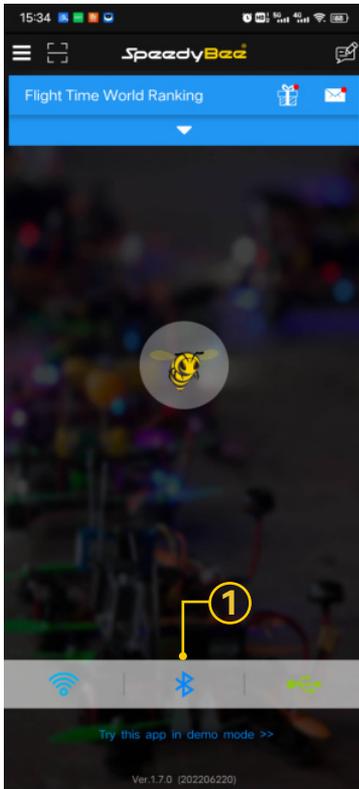
GPS

SCL 5V TX RX GND SDA

Camera

5-36V
GND
Video
M/RX

5-36V
GND
Video
OSD
G/TX
M/RX

RunCam® Model:Racer 5

G 5V CAM T2 CC R2

Spectrum

G
5V
NC
S
TX1

PPM

R1
5V
G
R4
T4
PPM
5V
GND

SBUS Reciever

SBUS
5V
GND

Crossfire Nano Rx

CH2 RX
CH1 TX
5V
GND
CH2
CH1
5V
GND

DJI Air Unit

D+
G
D-

SBUS(R1)
R6
GND
GND
T6
VBAT

SBUS
GND
TX
RX
GND
BAT

Analog VTX

T3 VTX G 5V

Video
IRC
GND
5V

SpeedyBee TX800-I

Buzzer

BZ-
BZ+
LED
5V
GND

LED Stripe

LEDs
GND
5V

SpeedyBee F745 BLS AIO

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

Screen 1 — Menu

15:50 FC Firm...

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

Choose FC firmw...

Screen 2 — Choose FC firmware type

FC Firmware Flasher

Choose FC firmware type ②

- BETAFLIGHT
- emuflight.
- INAV

Screen 3 — Step 1/3 - Load Firmware

FC Firmware Flasher

< Step 1/3 - Load Firmware

Flashing the firmware may clear the settings, please make sure to back up your data first.

- Load Firmware [Online] ③
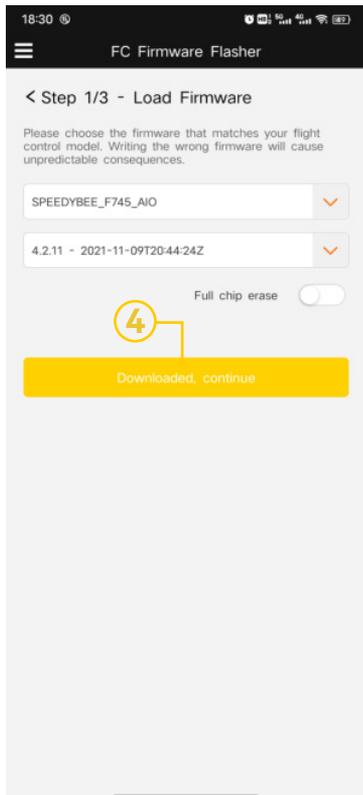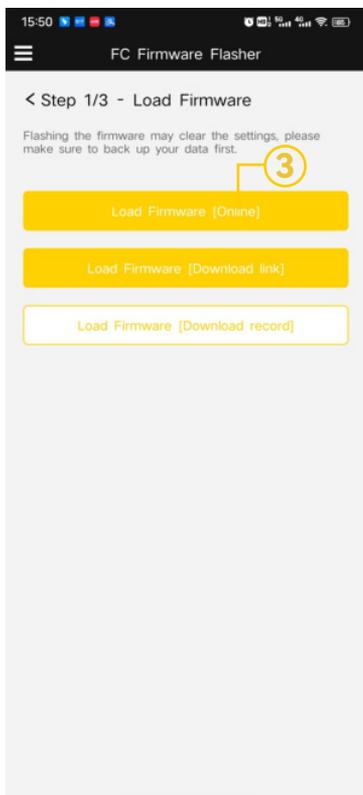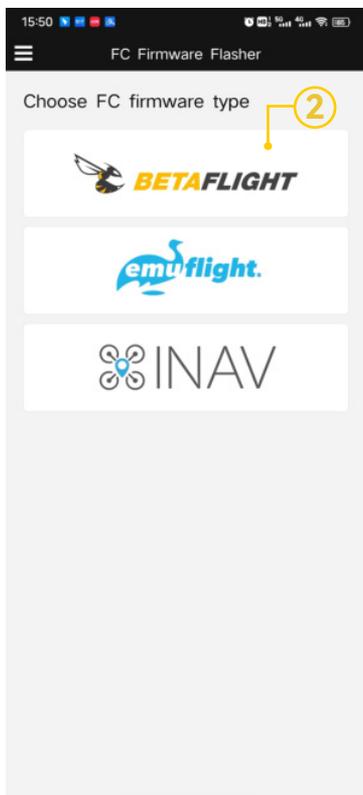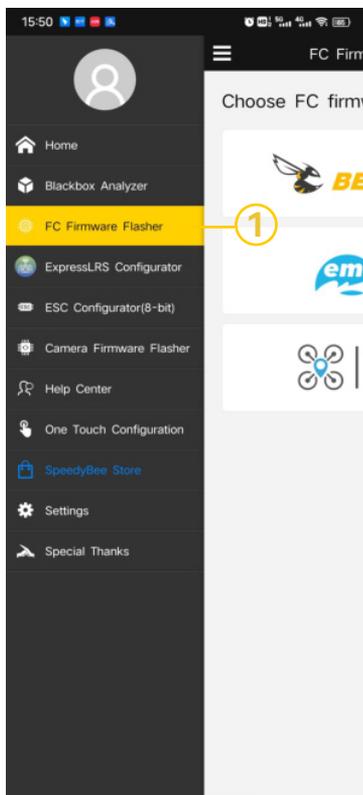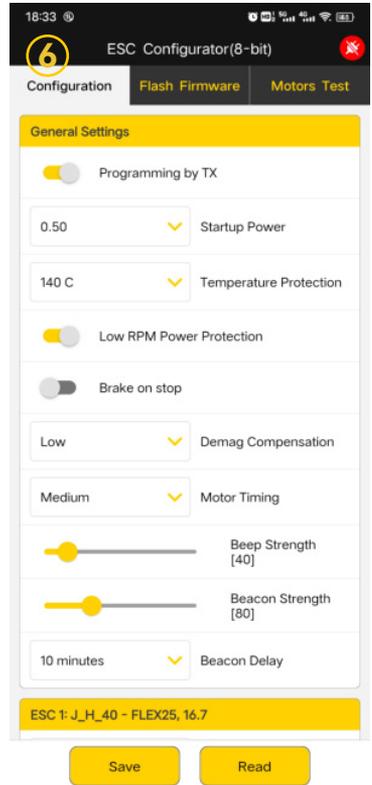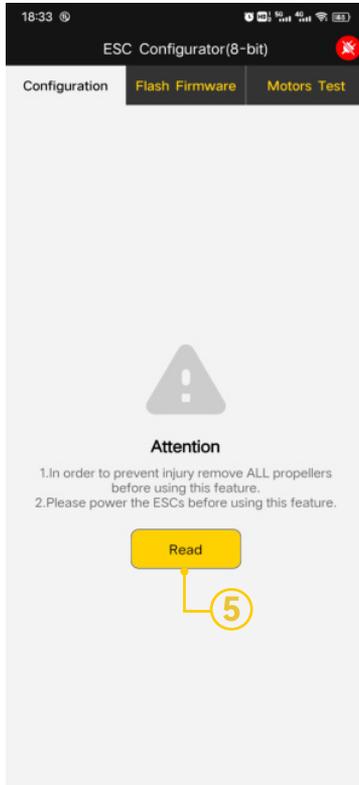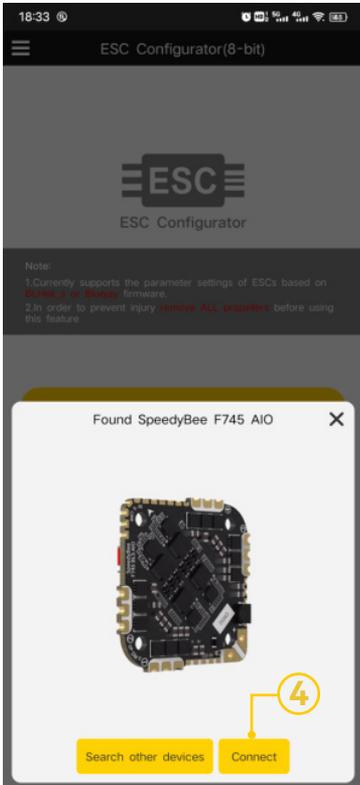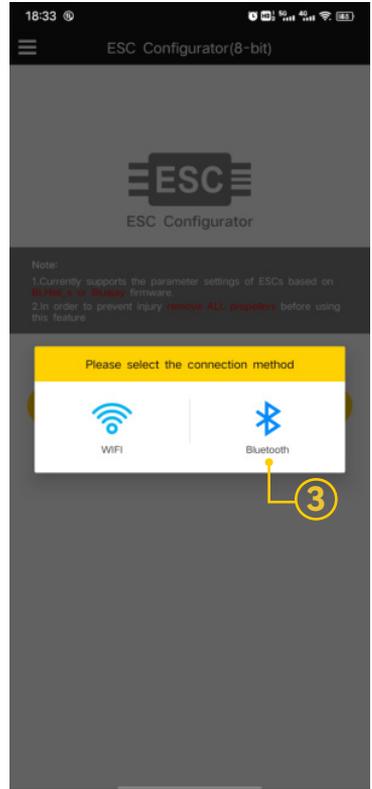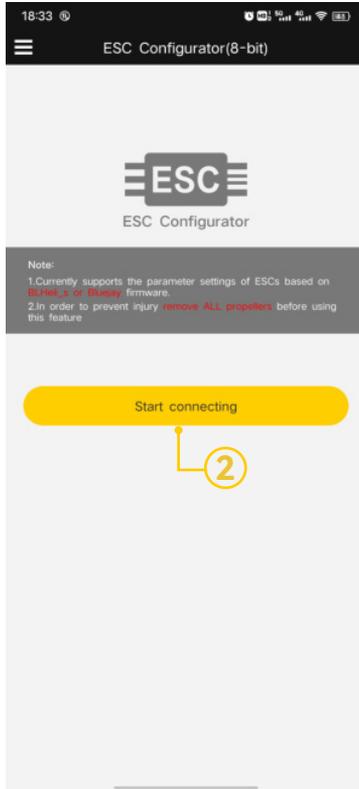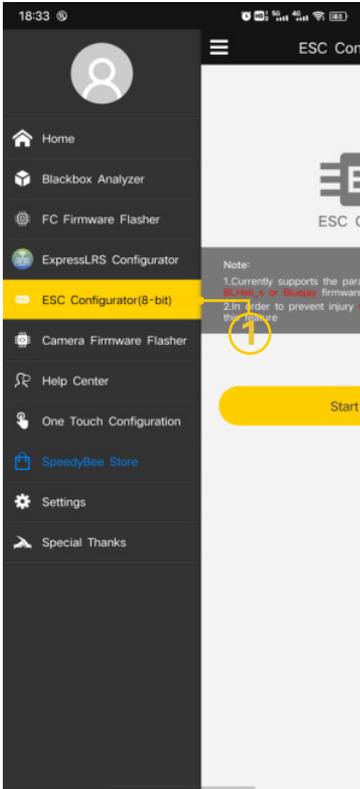- Load Firmware [Download link]
- Load Firmware [Download record]

Screen 4 — Step 1/3 - Load Firmware

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

Screen 5 — Step 2/3 - Connect Flight Controller and App

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

Screen 6 — Step 2/3 - Connect Flight Controller and App

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

Screen 7 — Step 2/3 (Found device)

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 ✕

Search other devices | Connect ⑦

Screen 8 — Step 3/3 - Flash Firmware

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%)

Screen 9 — Step 3/3 - Flash Firmware

FC Firmware Flasher

Step 3/3 - Flash Firmware

✓

Flashed successfully

Connect

Part 3 – ESC

Connection with Motors & Power Cable 9/11

Motor 4

Motor 2

Motor 3

Motor 1

Low ESR Capacitor

XT30 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.
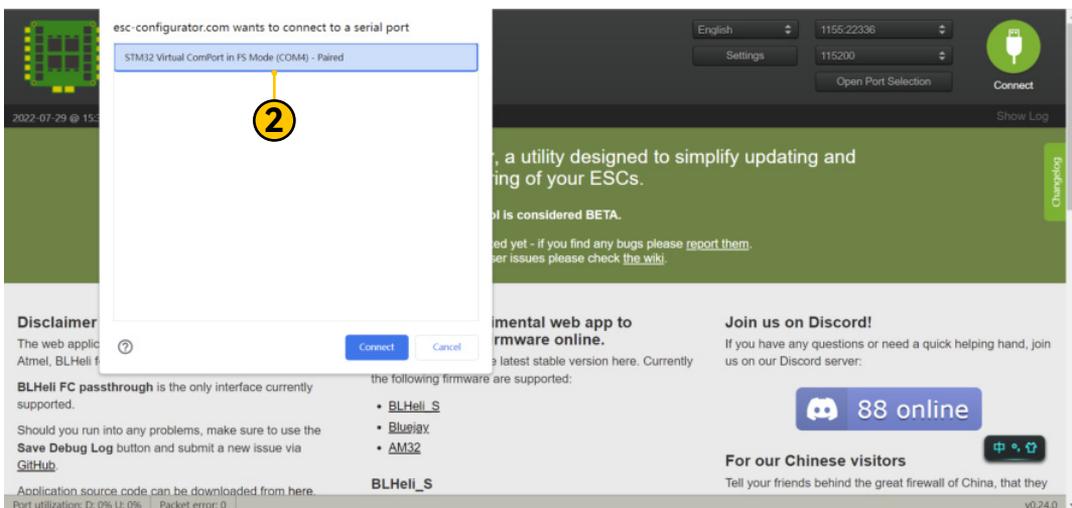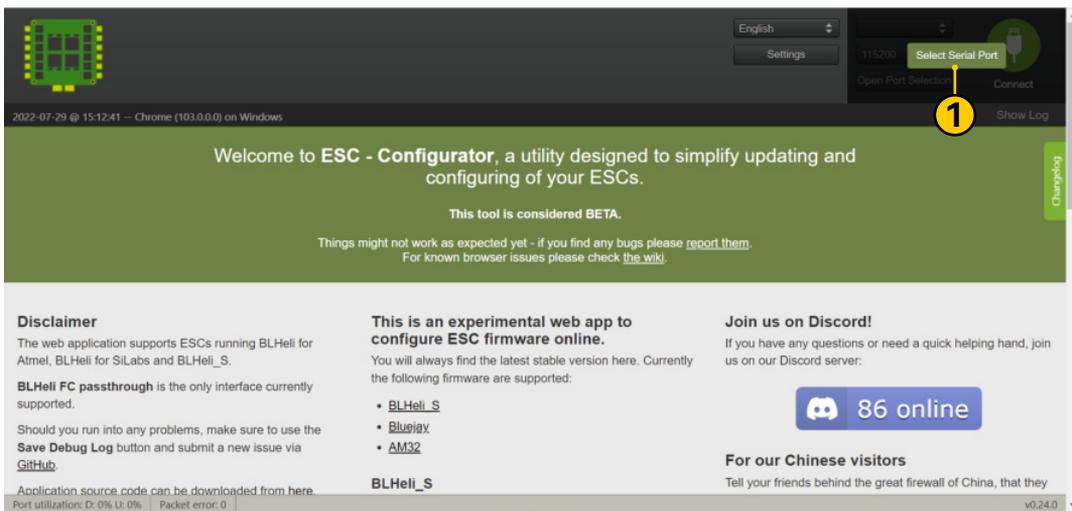
■ You could flash both **BLHeli_S** and **Blue Jay** firmware for this ESC.

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   1155:22336
Settings   115200
Open Port Selection
Connect
③
Show 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: 0   v0.24.0

English   1155:22336
Settings   115200
Open Port Selection
Disconnect
Show Log

2022-07-29 @ 15:24:27 -- Unique device ID received - 0x04300423039510c35383236

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   **Master Speed**
1000   1000

Motor 2
1000

Save Debug Log   Clear Debug Log   Restore Default Settings   Flash All ESCs   Write Settings   Read Settings ④

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

English   1155:22336
Settings   115200
Open Port Selection
Disconnect
Show 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
0.50   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   1155:22336
Settings   115200
Open Port Selection
Disconnect
Show Log

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

☐ 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