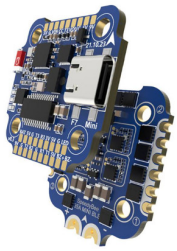

SpeedyBee F7 Mini 35A 3-6S 8-bit Flight Controller Stack User Manual

User Manual V1.0
SpeedyBee F7 35A BLS Mini Stack

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3 Part 3 – SpeedyBee 35A BLS 4-in-1 ESC
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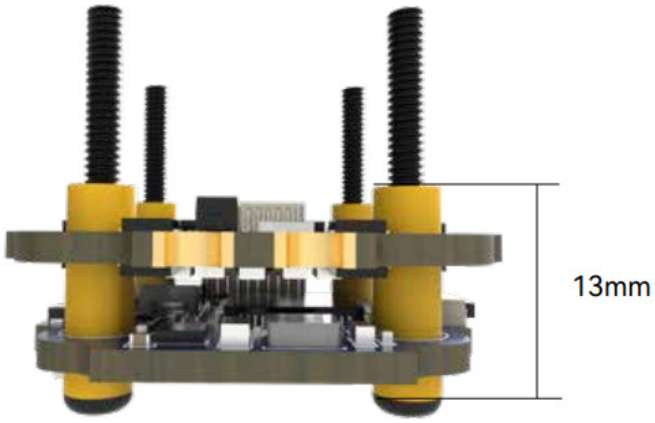
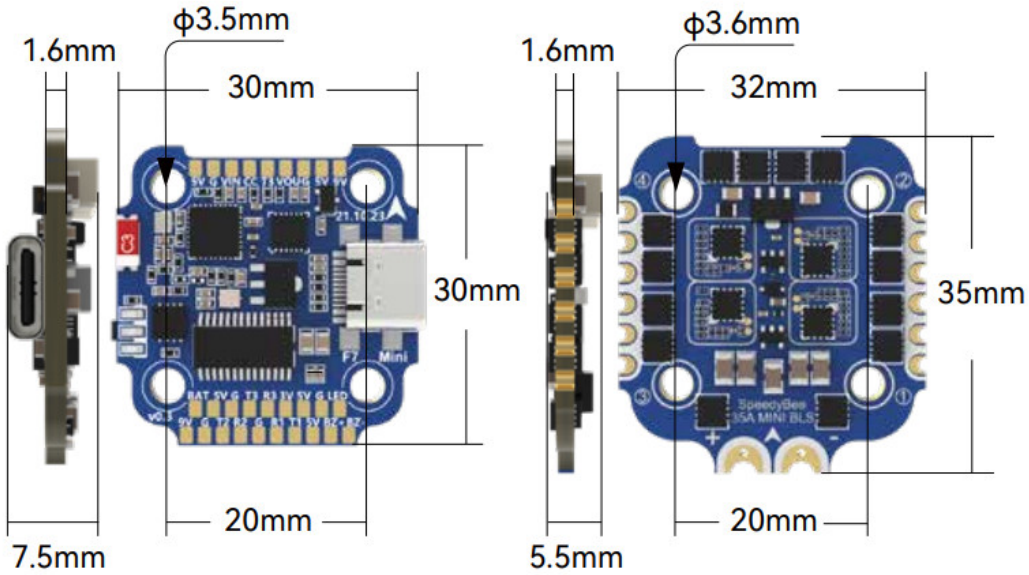
Part 1 – OverView

Specs Overview

Product Name	SpeedyBee F7 35A BLS Mini Stack
Flight Controller	SpeedyBee F7 Mini
ESC	SpeedyBee 35A BLS Mini 4-in-1 ESC
Bluetooth	Suppoked. For FC & ESC parameter setting
Wireless FC Firmware Flashing	Not suppoked
Wireless Blackbox Download	Not suppoked
Power Input	3-6S LiPo
Mounting	20 x 20mm 3.5mm hole size, Compatible with M2 and M3 screws/Silicone grommets
Dimension	32mm(L) x 35mm(W) x 13mm(H)
Weight	12.7g

Dimensions

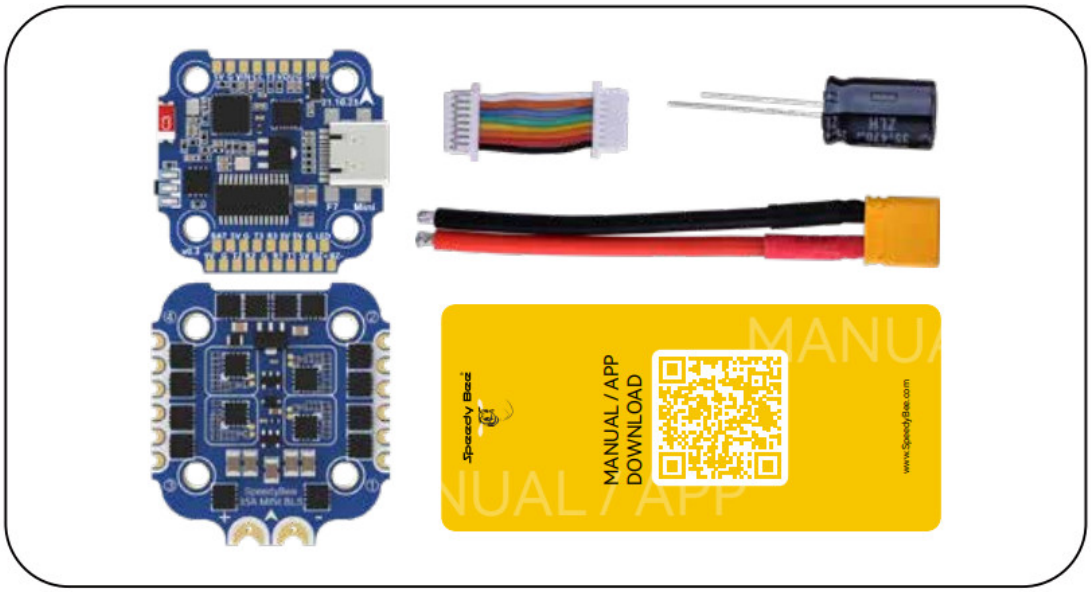


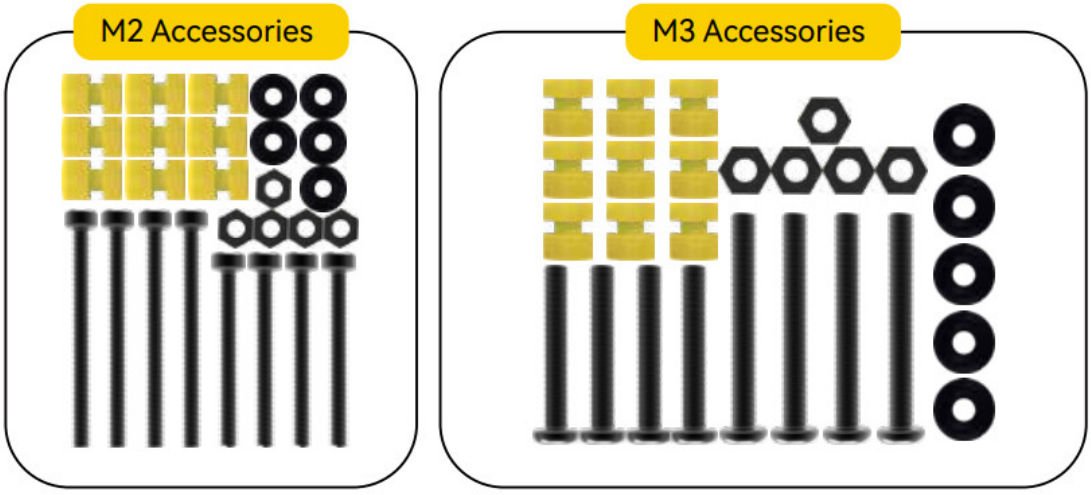


Package

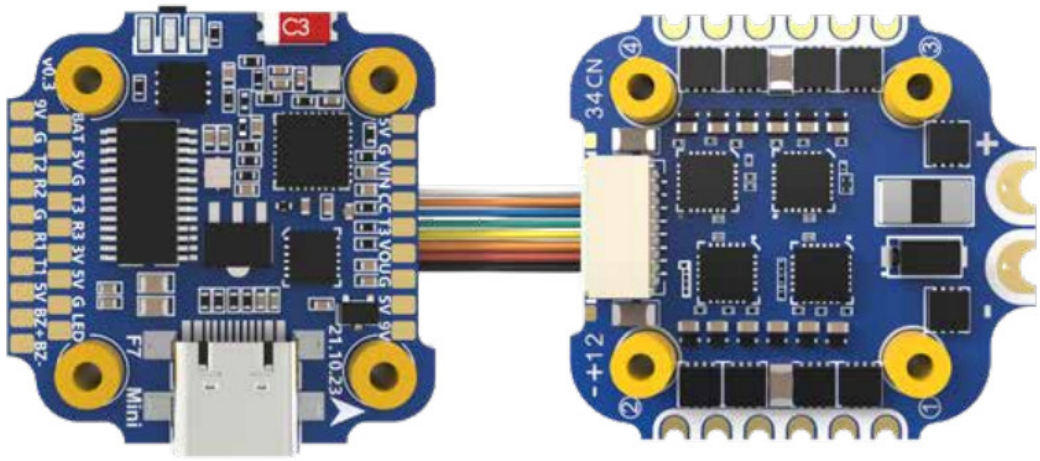
- SpeedyBee F7 Mini Flight Controller x 1
- SpeedyBee 35A BLHeli_S Mini 4-in-1 ESC x 1

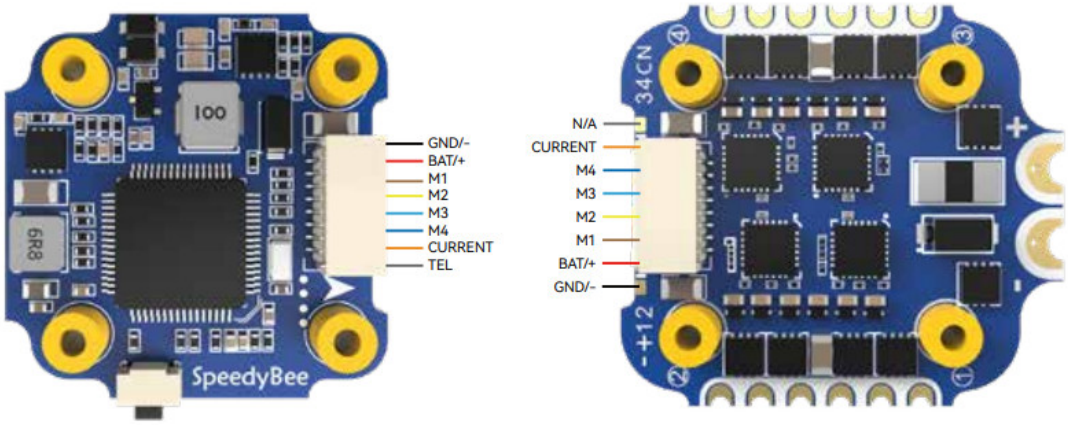
- Manual & App Download Card x 1
- XT30 Power Cable(Length: 7cm) x 1
- 8pin JST cable(For FC & ESC Connection x 1
- 35V 470uF Capacitor x 1
- M2 Accessories
    - M2(Diameter) * 20mm(Length) Screw x 4
    - M2(Diameter) * 25mm(Length) Screw x 4
    - M2(Hole Diameter) * 6.6mm(Height) Anti-vibration Silicone Grommets x 9
    - M2 Silicone O-Ring x 5
    - M2 Nylon Hex Nut x 5
- M3 Accessories
    - M3(Diameter) * 20mm(Length) Screw x 4
    - M3(Diameter) * 25mm(Length) Screw x 4
    - M3(Hole Diameter) * 6.6mm(Height) Anti-vibration Silicone Grommets x 9
    - M3 Silicone O-Ring x 5
    - M3 Nylon Hex Nut x 5





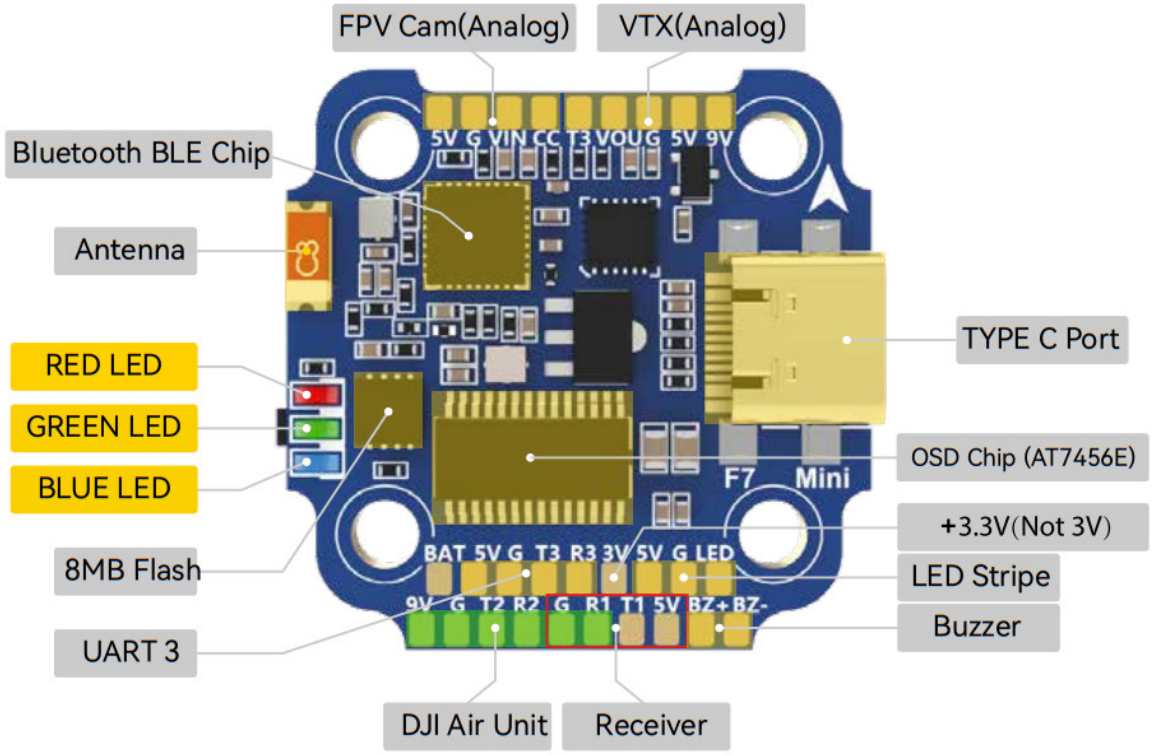
FC & ESC Connection
Use any end of the 8-pin JST cable to connect the FC to the ESC.

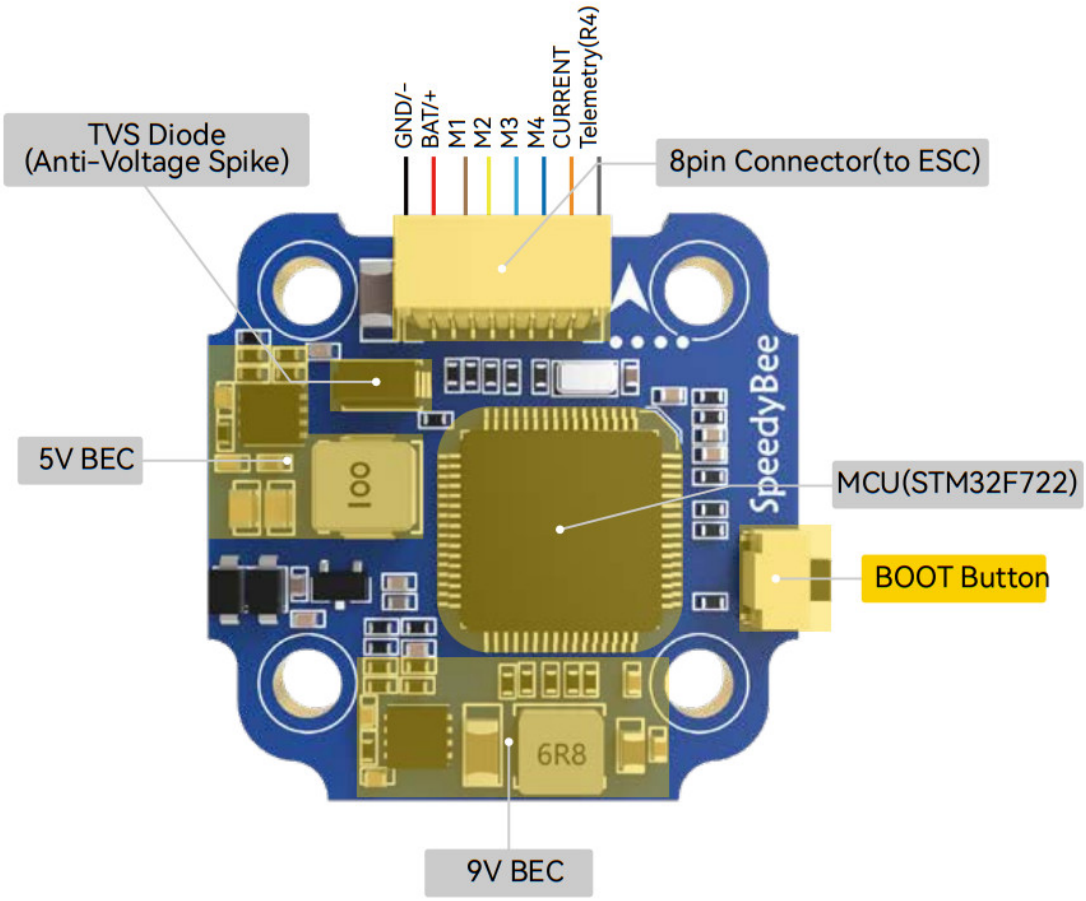




Part 2 – SpeedyBee F7 Mini Flight Controller

Layout





■ LED Indicator Definition

RED LED – Power Indicator.Solid Red after powering up.

GREEN LED – Bluetooth status light. Solid Green indicates Bluetooth is connected.

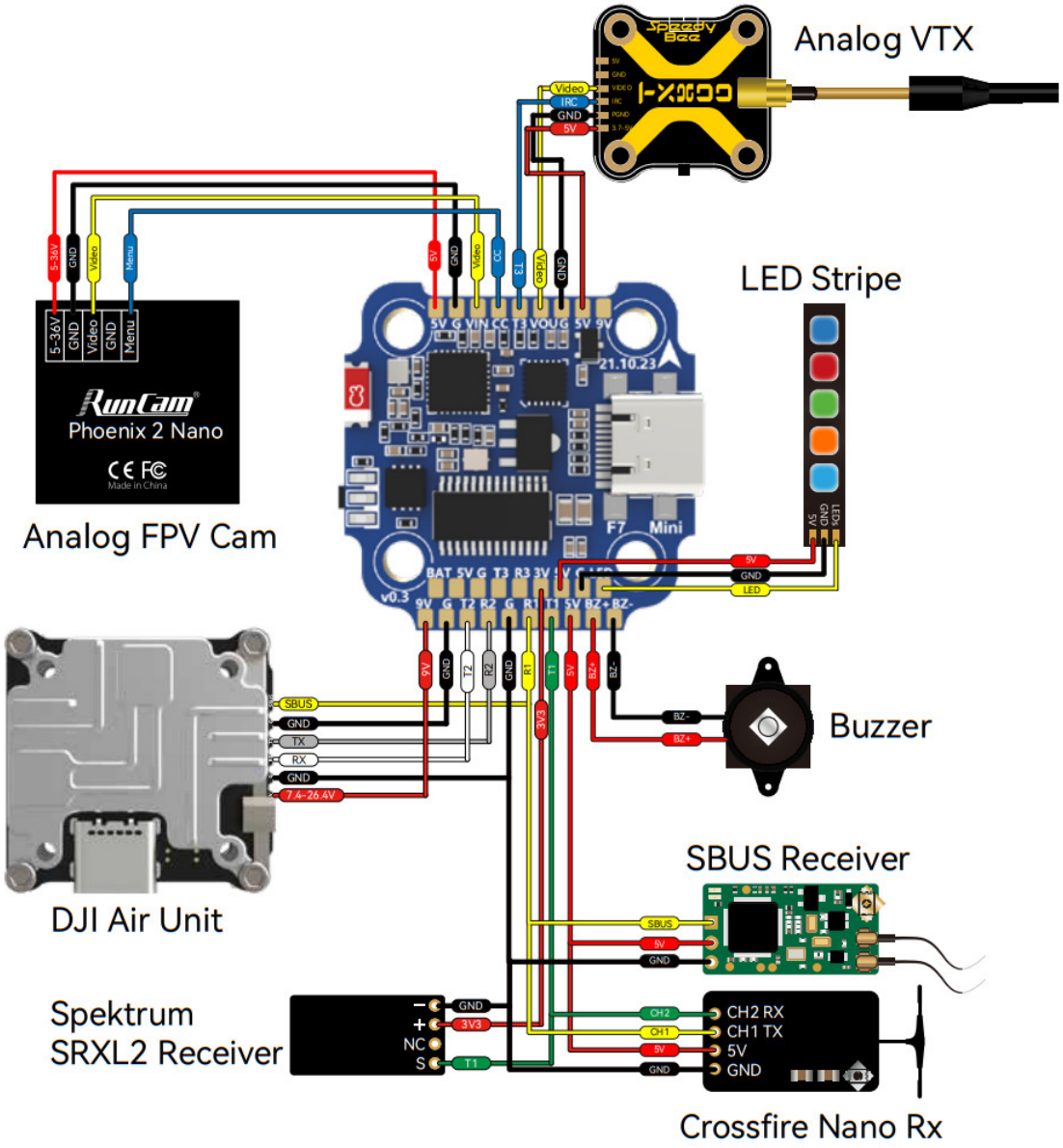
BLUE LED – Flight controller status light which is controlled by the flight controller firmware.

■ BOOT Button

Only if the flight controller gets bricked and can't power up, please follow these steps to re-flash firmware for it:

1. Insert a USB A to TYPE-C cable to your PC.
2. Press and hold the BOOT button, insert the USB cable into the flight controller, then release the BOOT button.
3. Open Betaflight configurator on the PC, go to the ‘Firmware Flashing’ page, choose the target ‘SPEEDYBEEF7MINI’ and flash.

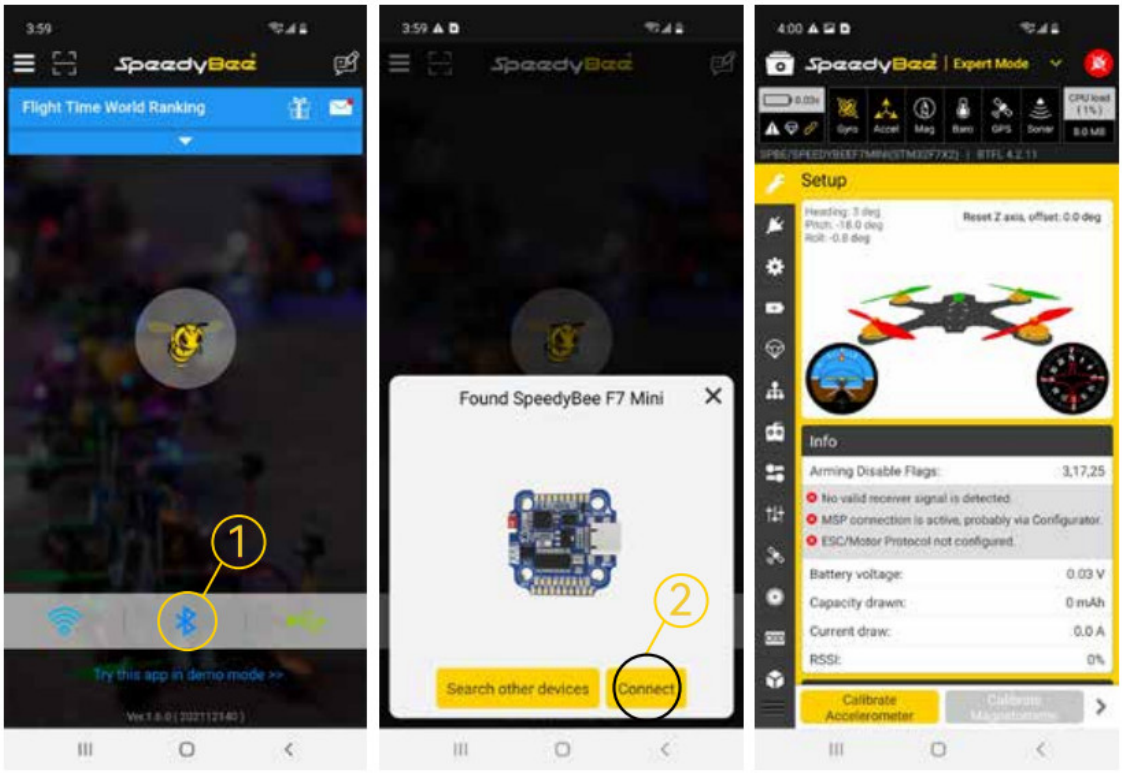
FC’s Peripheral Connection



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

■ SpeedyBee F7 Mini does not support wireless firmware flashing, so please flash firmware for it on your PC following the steps below:

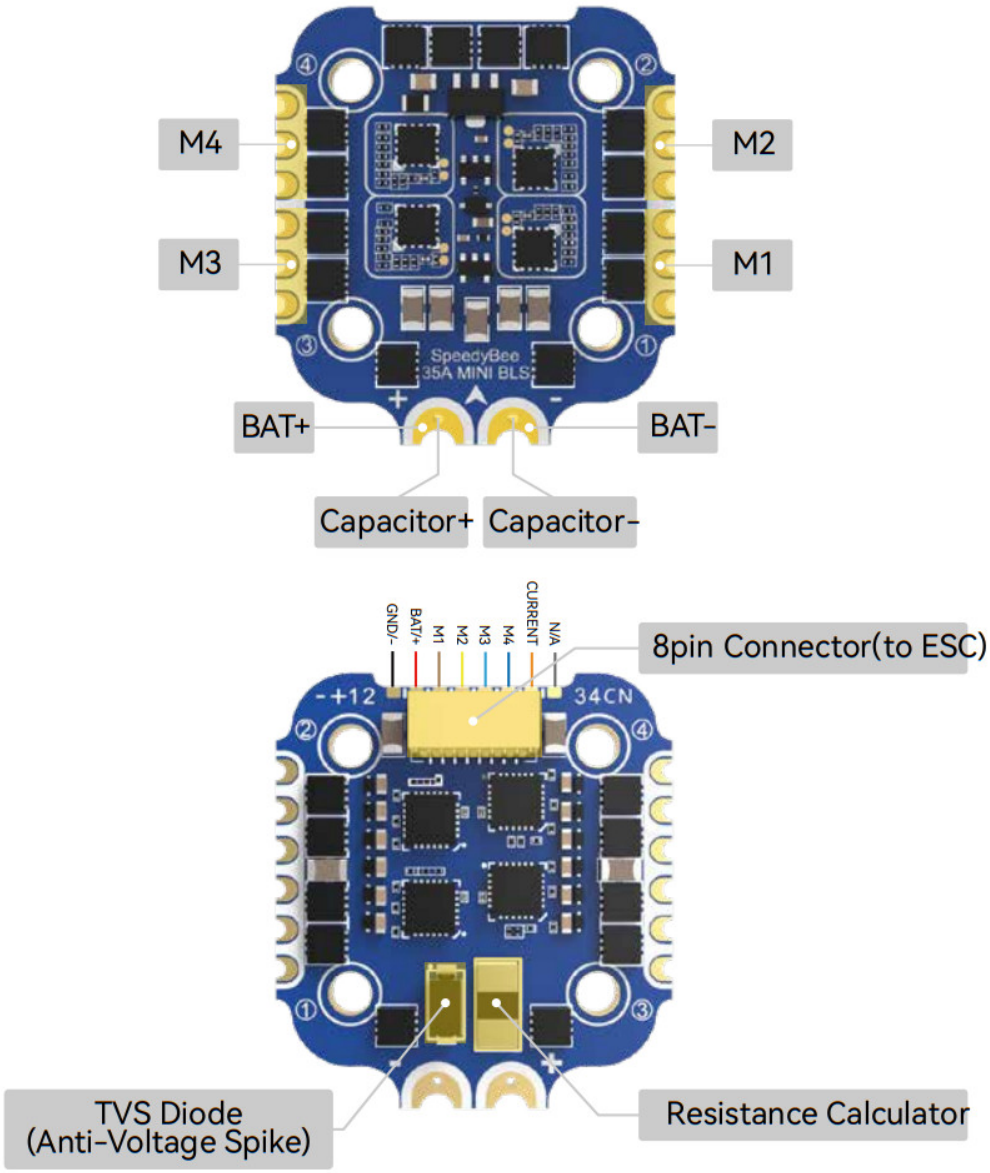
1. Connect the flight controller to the PC with a USB cable
2. Open Betafight/INAV configurator on your PC. Take Betaflight configurator as an example, go to the ‘Firmware Flashing’ page, choose the target ‘SPEEDYBEEF7MINI’ and flash.

Parameters

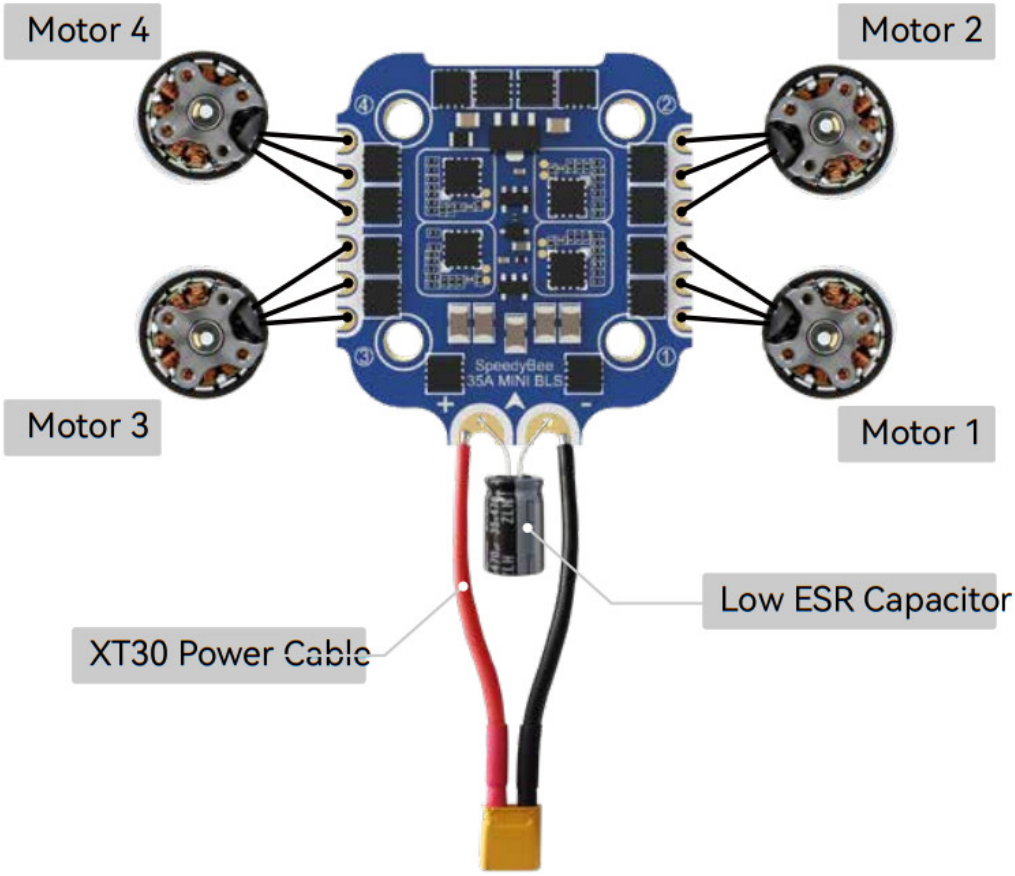
MCU	STM32F722
IMU(Gyro)	BMI270 for current batches;MPU6000 for old batches before May 2022.
USB Pok Type	Type-C
Barometer	N/A
OSD Chip	AT7456E chip
BLE Bluetooth	Suppoked. Used for Flight Controller configuration (MSP should be enabled with Baud rate 115200 on UART 6)
Flash FC Firmware Wirelessly	Not suppoked. Please update firmware for this FC on the PC
Download/Analyze Blackbox	Not suppoked. Please download and analyze Blackbox data on the PC
DJI Air Unit Soldering Pads	Suppoked
Flash(for BlackBox)	8MB
Current Sensor	Suppoked, Scale=250 Offset=-500
BetaFlight Camera Control Pad	Yes(CC pad)
Power Input	3S – 6S Lipo
5V Output	6 groups of 5V output, five +5V pads and 1 BZ+ pad(used for Buzzer). The to tal current load is 2.5A.
9V Output	2 groups of 9V output, the total current load is 2A.
3.3V Output	Suppoked. Up to 500mA current load.
ESC Signal Pads	M1 – M4
UART	Full UART * 3(UART1, UART2, UART3)
ESC Telemetry UART	R4(UART4)
I2C	Not suppoked
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 suppoked
SmakPok	Use any TX pad of UART for the SmakPok feature.
Suppoked Flight Controller Fir mware	BetaFlight(Default), INAV
Firmware Target Name	SPEEDYBEEF7 MINIV2 for current batches (Gyro: BMI270); SPEEDYBEEF7 MINI for old batches (Gyro: MPU6000) before May 2022.
Mounting	20 x 20mm, 3.5mm hole diameter
Dimension	30 x 30 x 7.5mm
Weight	5.7g

Part 3 – SpeedyBee 35A BLS 4-in-1 ESC

Layout

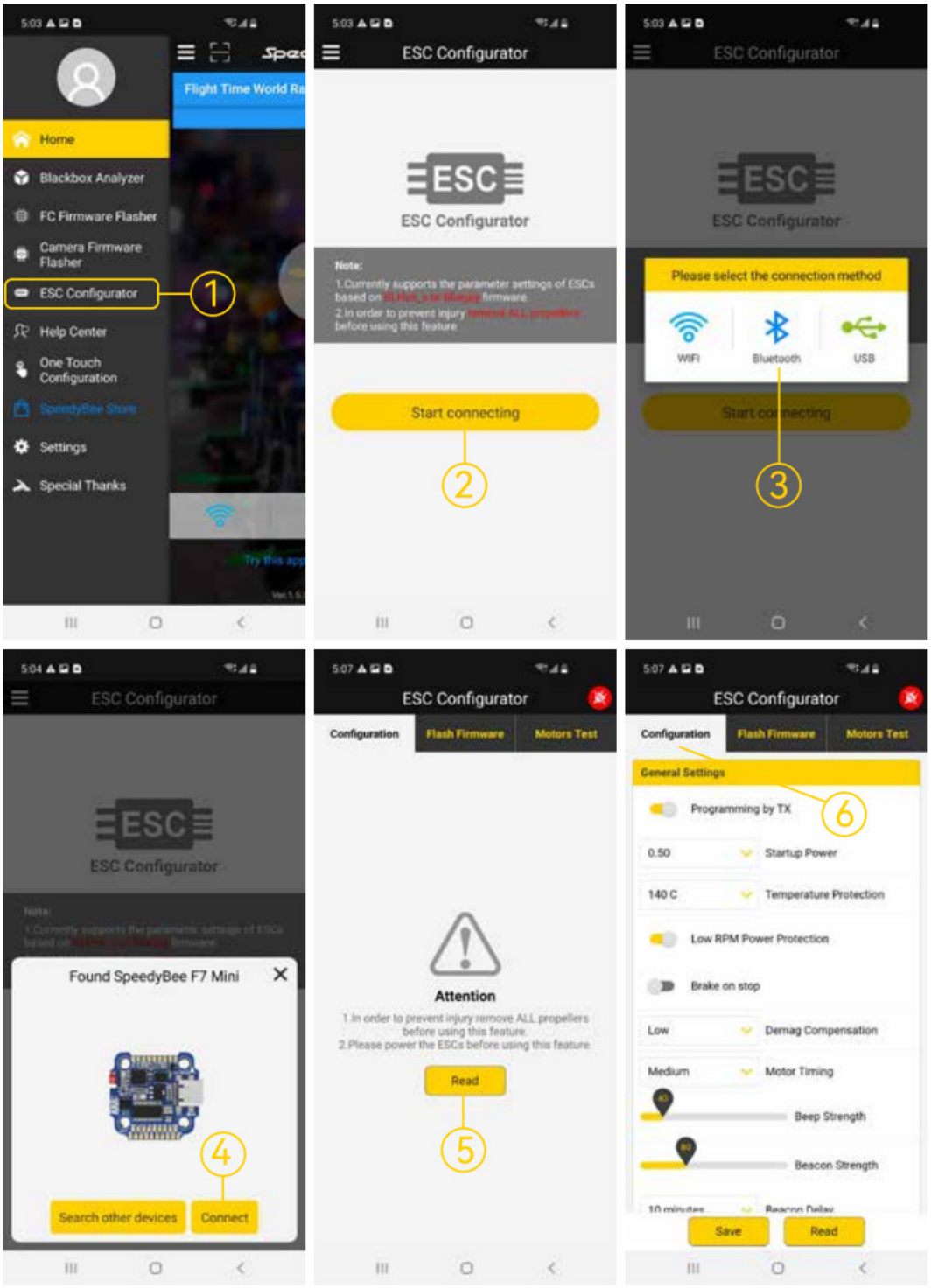


Connection with Motors & Power Cable



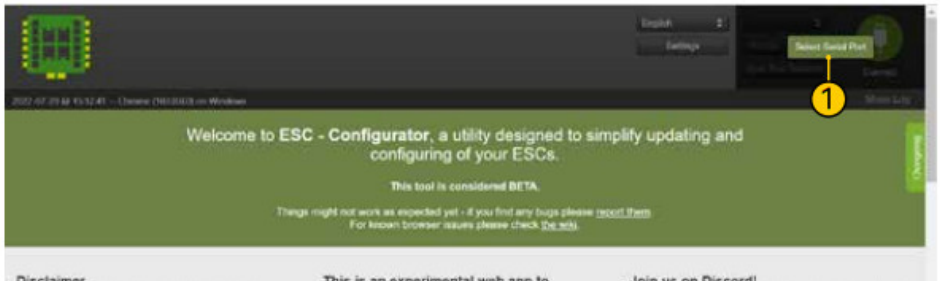
■ **Note:** In order to prevent the stack from being burnt out instantaneous voltage spikes on powering up, it is strongly recommended to use the Low ESR capacitor in the package.

ESC Configuration

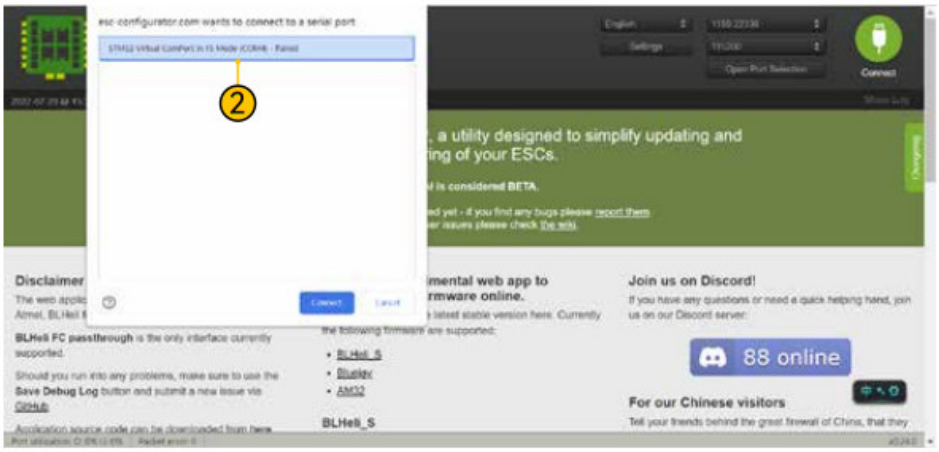


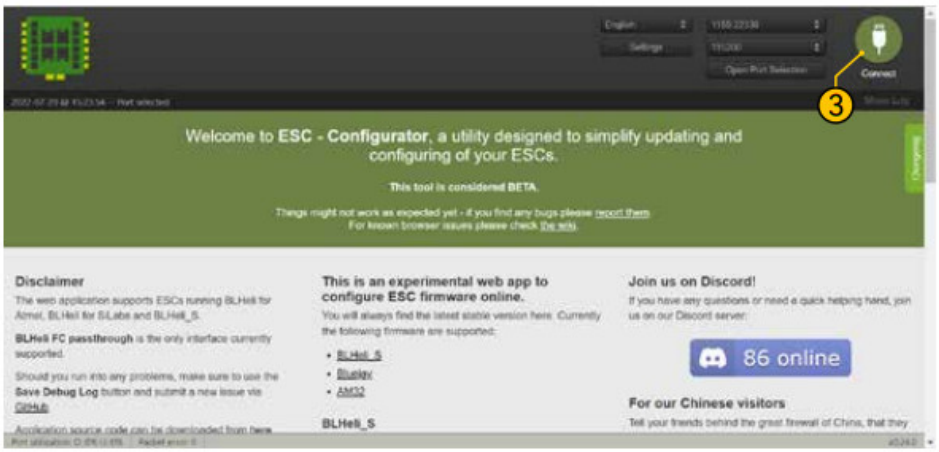
ESC Firmware Update

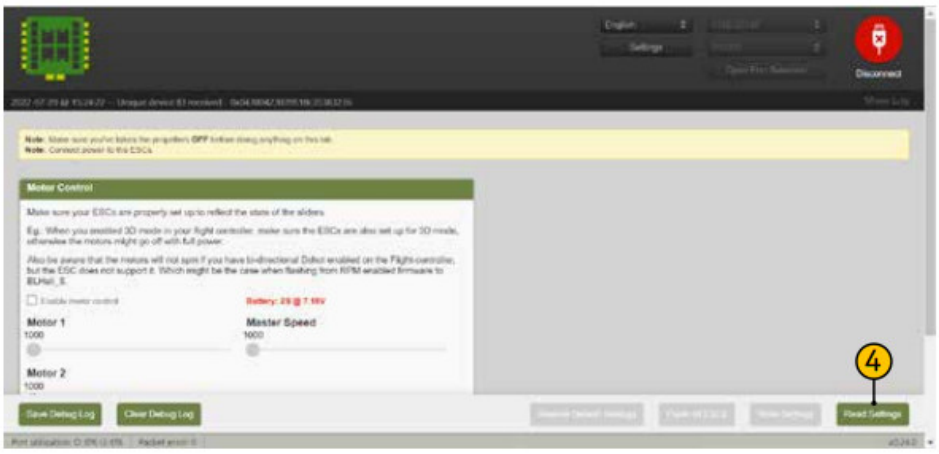
■ You could flash both BLHeli_S and Blue Jay firmware for this ESC.
You need to pulg in the battery to the Mini and then connect a USB cable between the Mini and your PC. Then flash ESC firmware (BLHeli_S or Blue Jay) in the following online configurator: https://esc-configurator.com/
Note: ESC Type should be set as ‘J-H-40’.




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


esc-configurator.com wants to connect to a serial port
2
Connect
Cancel
Connect
, a utility designed to simplify updating and
ing of your ESCs.
is considered BETA.
Disclaimer
mental web app to
rmware online.
Join us on Discord!
88 online
For our Chinese visitors


Connect
3
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
This is an experimental web app to configure ESC firmware online.
Join us on Discord!
86 online
For our Chinese visitors

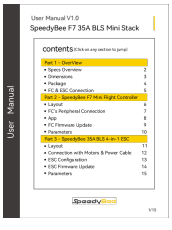

Disconnect
Motor Control
Motor 1
Master Speed
Motor 2
4
Save Debug Log
Clear Debug Log
Read Settings


Disconnect
Common Parameters
Reversed
Flash Firmware to this ESC
5
Save Debug Log
Clear Debug Log
Restore Default Settings
Flash All ESCs
Write Settings
Read Settings

Parameters

Firmware	BLHeli_S JH40
Continuous Current	35A * 4
Burst Current	45A(5S)
ESC Protocol	DSHOT300/600
Power Input	3-6S LiPo
Power Output	VBAT
ESC Telemetry	Not supported
Current Sensor	Support (Scale=250 Offset=-500)
Mounting	20 x 20mm, 3.6mm hole diameter
Dimension	32(L) * 35(W) * 5.5mm(H)
Weight	7g

Documents / Resources

	SpeedyBee F7 Mini 35A 3-6S 8-bit Flight Controller Stack [pdf] User Manual F7 Mini 35A 3-6S 8-bit Flight Controller Stack, F7 Mini, 35A 3-6S 8-bit Flight Controller Stack, 8-bit Flight Controller Stack, Flight Controller Stack, Controller Stack, Stack

References

- ESC Configurator - for Bluejay, BLHeli_S and AM32
- download
- User Manual