

# SpeedyBee F405 WING APP Fixed Wing Flight Controller User Guide

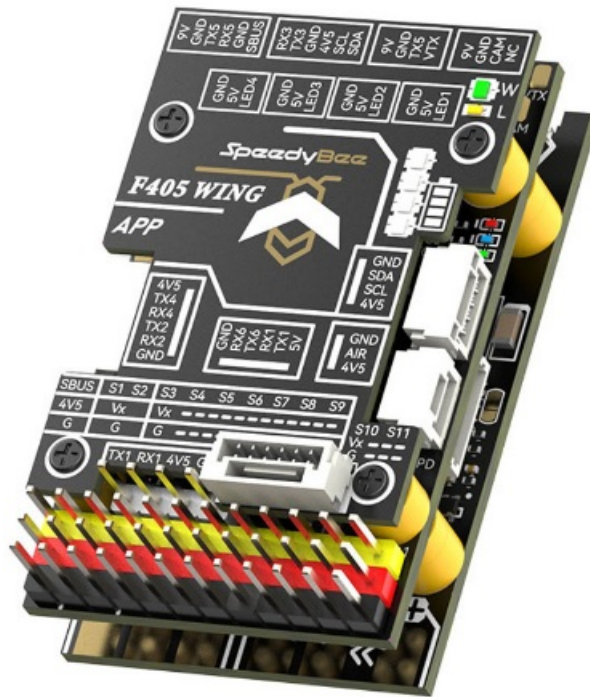
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**SpeedyBee F405 WING APP Fixed Wing Flight Controller**



## Product Information

The Quick Start Guide TOPBoard FC Board is a wireless board designed for use in drones. It includes a PDB board and a USB extender. It supports INAV / Ardupilot firmware and can be powered by a 2-6S LiPo battery with 52cL x 32cW x 19cH mm dimensions and a weight of 35g with the USB extender. The board features wireless configuration, LED strip controller, and battery level indicator. It also comes with a Speedybee APP Installation guide.

## Overview



## Speedybee APP



## Installation guide



Facebook

## Usage Instructions

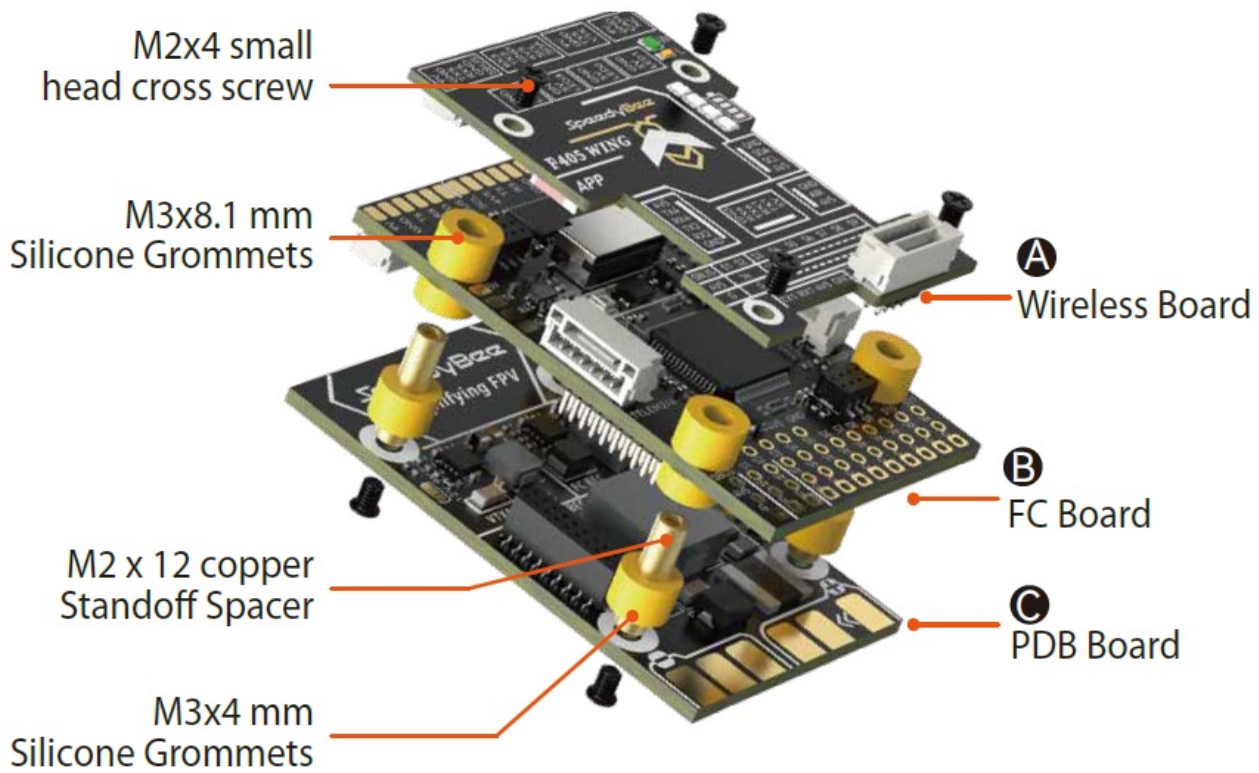
After assembling the board, connect it to your drone's power source and configure it using the Speedybee APP installation guide. The board supports INAV / Ardupilot firmware and can be used to control motors and servos with the motor and servo output pin header. The board also includes a buzzer, USB TYPE-C port, buzzer mute switch, FC RGB status indicator, and a BOOT button. Press and hold the BOOT button while powering on to enter DFU mode for firmware flashing. When the FC is powered on and in operating state, the BOOT button is also used for controlling other functions of the wireless board.

## Specification Overview

- **Product Name:** Quick Start Guide TOPBoard FC Board
- **Part 1 – Overview:** PDB Board, USB extender, Wireless configuration, LED strip controller, Battery level indicator
- **Part 2 – Hardware Description:** Digital VTX solder pads, MicroSD card slot, Telemetry module solder pads, SBUS input pin header, GPS module solder pads, Analog VTX connector, Analog camera connector, Airspeed sensor solder pads, ELRS receiver pin header, UART6 solder pads, Motor and servo output pin header
- **Supported Firmware:** INAV / Ardupilot
- **Power Input:** 2-6S LiPo
- **Dimension:** 52cL x 32cW x 19cH mm
- **Weight:** 35g with USB extender
- **Wireless Configuration:** Supported
- **LED Strip Controller:** Supported
- **Battery Level Indicator:** Supported

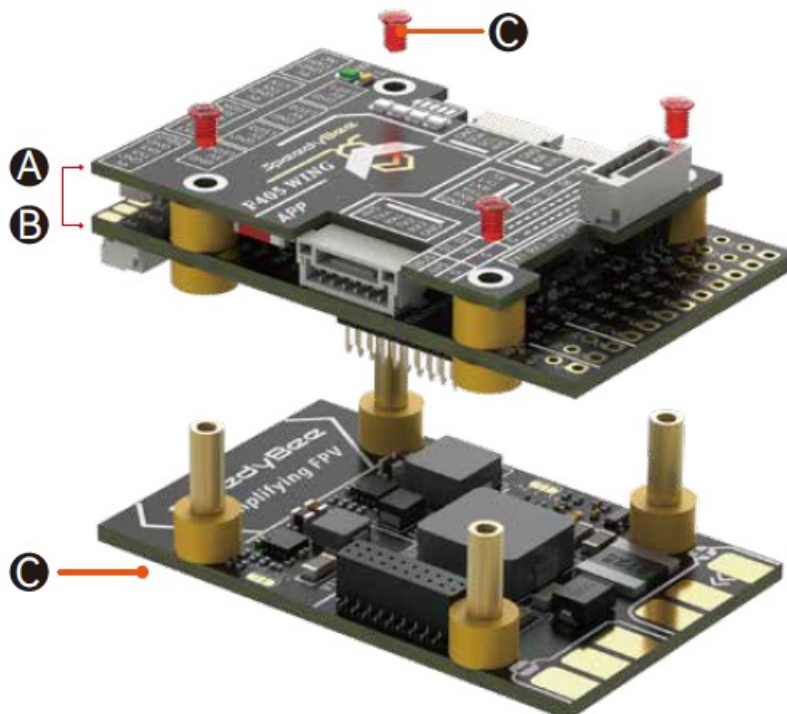
Product Name	SpeedyBee F405 WING APP
TOP Board	SpeedyBee F405 WING Wireless Board
FC Board	SpeedyBee F405 WING FC Board
PDB Board	SpeedyBee F405 WING PDB Board
USB extender	SpeedyBee F405 WING USB extender
Wireless configuration	Supported
LED strip controller	Supported
Battery level indicator	Supported
FC Firmware	INAV / Ardupilot
Power Input	2-6S LiPo
Dimension	52 L x 32 W x 19 H mm
Weight	35g with USB extender

## Assembly Instructions



#### Assembly order

1. Align the pin headers between boards A and B then press the two boards together tightly.
2. Install both boards A and B onto board C, and tighten the screws.



Refer to the diagram for assembly order:

#### Hardware description

##### FC Board Front

## Layout

### Digital VTX solder pads

### MicroSD card slot

### Telemetry module solder pads

R4 and T4 signals are the same as the Telemetry module connector

### Telemetry module connector

### RSSI solder pads

Analog RSSI signal input, supports up to 3.3V

### SBUS input pin header

With inversion circuit, connected to RX2

### GPS module solder pads

### Analog VTX solder pads

The default power supply is 9V. If the VTX can only be powered by 5V, please change the PDB board's VTX BEC to output 5V.

### Analog camera solder pads

The default power supply is 9V. If the camera can only be powered by 5V, please connect the power supply to the 5V solder pad.

### Digital airspeed sensor connector

### Analog airspeed sensor connector

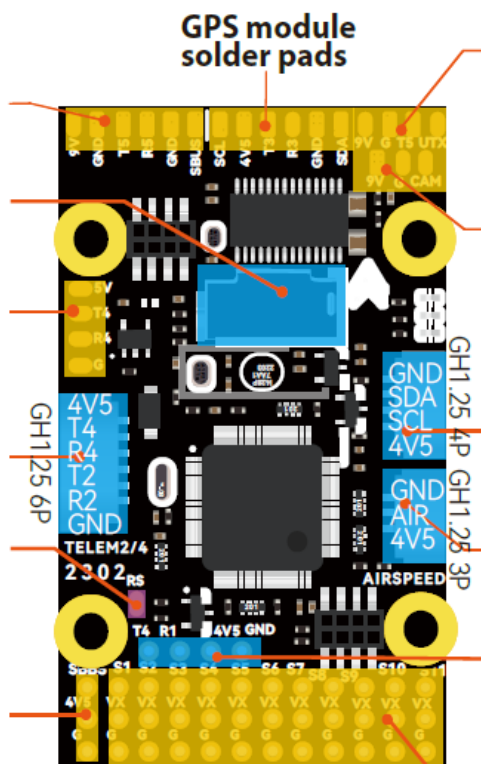
Built-in voltage divider circuit, supports up to 6.6V.

### ELRS receiver pin header

Use this pin header to connect the ELRS/TBS receiver.

### Motor and servo output pin header

PWM1-11



## FC Board Back








## PDB board Front

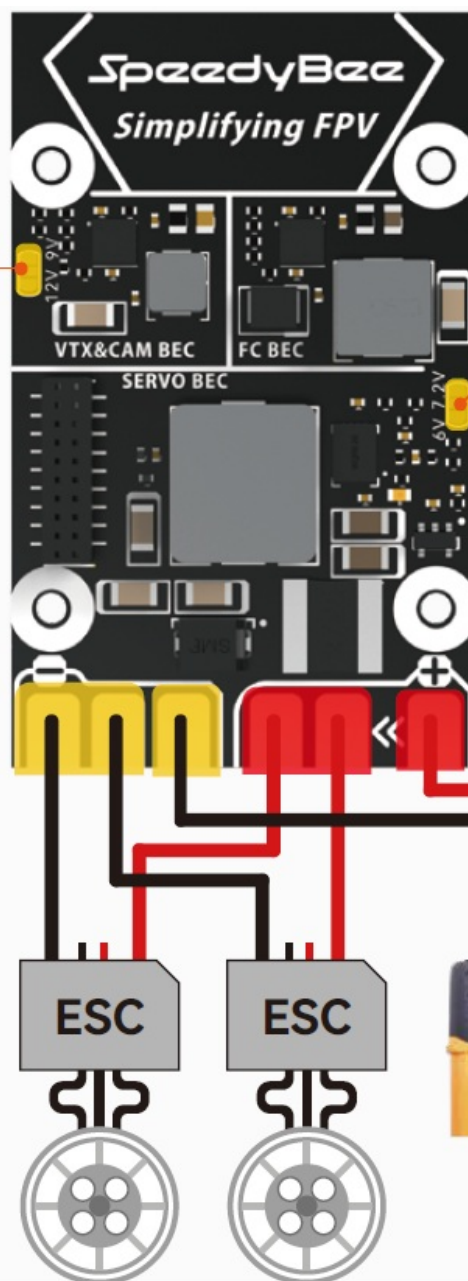
### PDB board Front

#### VTX BEC voltage selection jumper




-  Default 9V output
-  12V output
-  5V output

Note: TX800 requires 5V power supply.

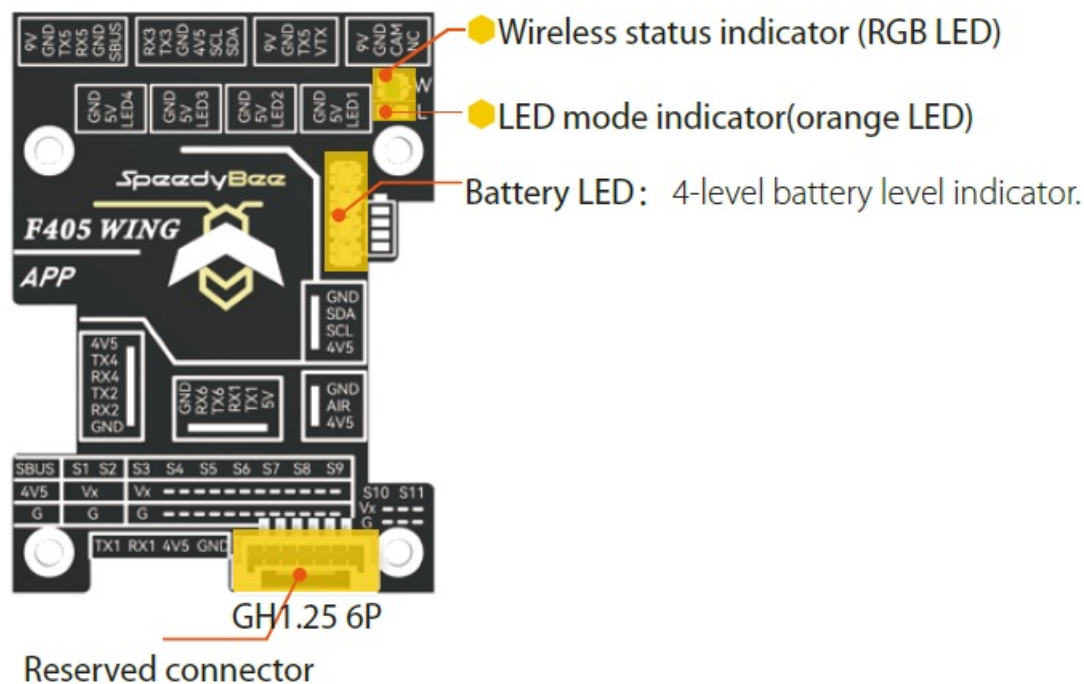
Connect as shown in the diagram



#### Servo BEC voltage selection jumper

-  Default 5V output
-  7.2V output
-  6V output

## Wireless board Front



Note: disconnect the UART6 jumper on the back of the wireless board to use TX6 RX6. TX1 RX1 shares the same signal as the ELRS/TBS receiver pin header.

#### • Wireless status indicator (RGB LED)

The wireless board has built-in telemetry function, which includes 4 RF modes: Bluetooth BLE, Wi-Fi, classic Bluetooth SPP, and wireless off mode.

- **Green:** low power Bluetooth BLE mode.
- **White:** Wi-Fi mode.
- **Blue:** classic Bluetooth mode.
- **The RGB LED is off:** wireless off mode

Press and hold the BOOT button for 3 seconds to switch between the 4 wireless modes. A quick flashing yellow LED indicates a successful mode switch.

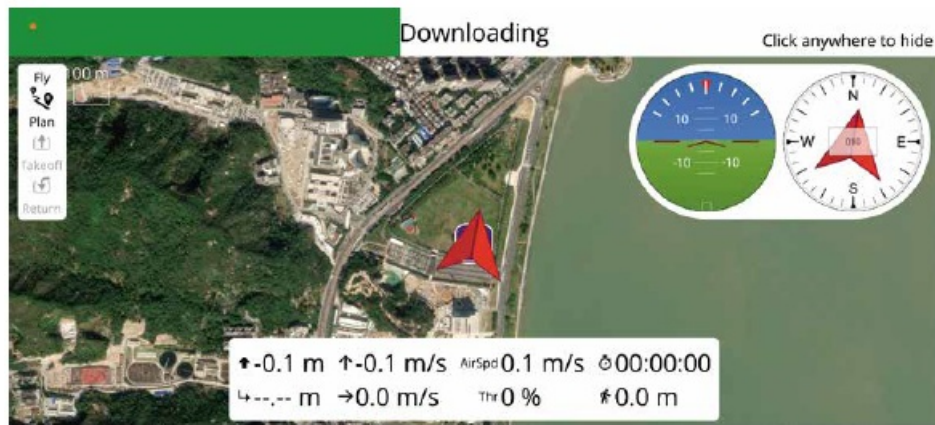
#### • LED mode indicator (orange LED):

- **Orange light always on:** Solid orange LED means the 4 sets of LED strips are in SB\_LED mode, controlled by the wireless chip. A short press of the
- BOOT button cycles through different display effects when the FC is operating normally.
- **Orange light is off –** Off orange LED indicates FC\_LED mode, where the FC controls the 4 sets of LED strips directly. Press and hold the BOOT button for 2 seconds to switch between FC\_LED mode and SB\_LED mode





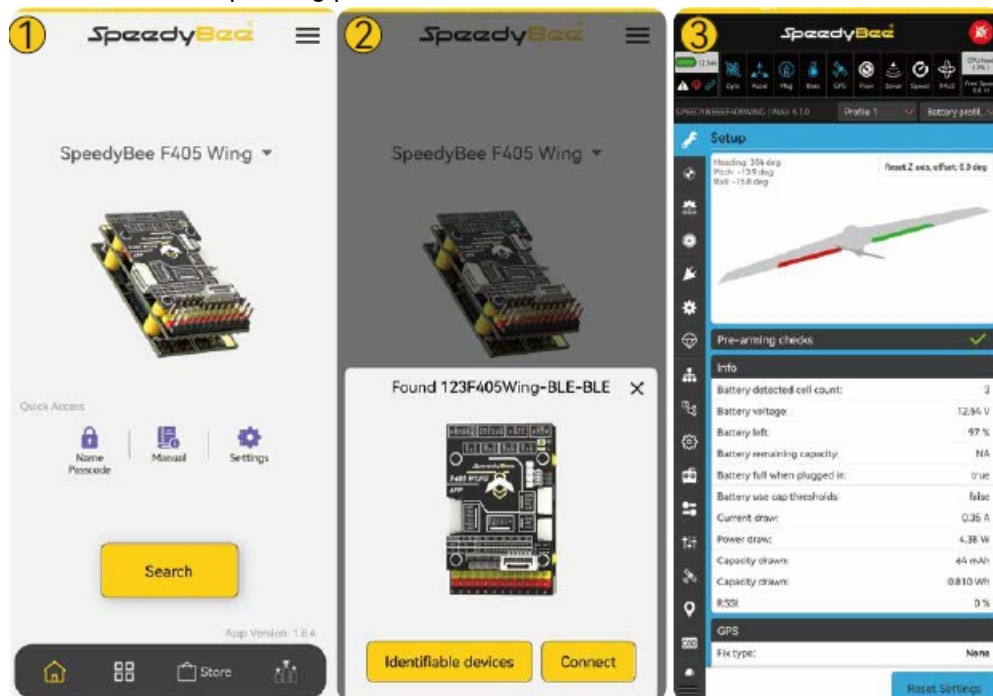




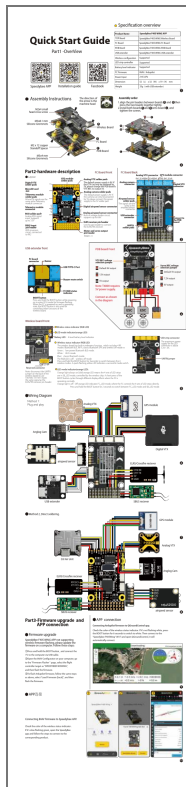
## APP

Connecting INAV Firmware to Speedybee APP.

Check the color of the wireless status indicator . If it's slow flashing green, open the SpeedyBee app and follow the steps to connect to the corresponding product.



## Documents / Resources



[SpeedyBee F405 WING APP Fixed Wing Flight Controller](#) [pdf] User Guide  
F405 WING APP Fixed Wing Flight Controller, F405 WING APP, Fixed Wing Flight Controller,  
Wing Flight Controller, Flight Controller, Controller