Speedy Bee F405 V3 BLS 60A 30x30 BLS 60A 30x30

Contents (Click on any section to jump)

Part 1 – OverView	
Specs Overview	1
Dimensions	2
Package	3
■ FC & ESC Connection	4
Part 2 - SpeedyBee F405 V3 Flight Controller	
Layout	5
FC's Peripheral Connection	6
App & FC Configuration	7
FC Firmware Update	8
Specifications	9
Part 3 - SpeedyBee BLS 60A 4-in-1 ESC	
Layout	10
Connection with Motors & Power Cable	11
ESC Configuration	12
ESC Firmware Update	13
Specifications	14



F405 V3 BLS 60A 30x30 Stack

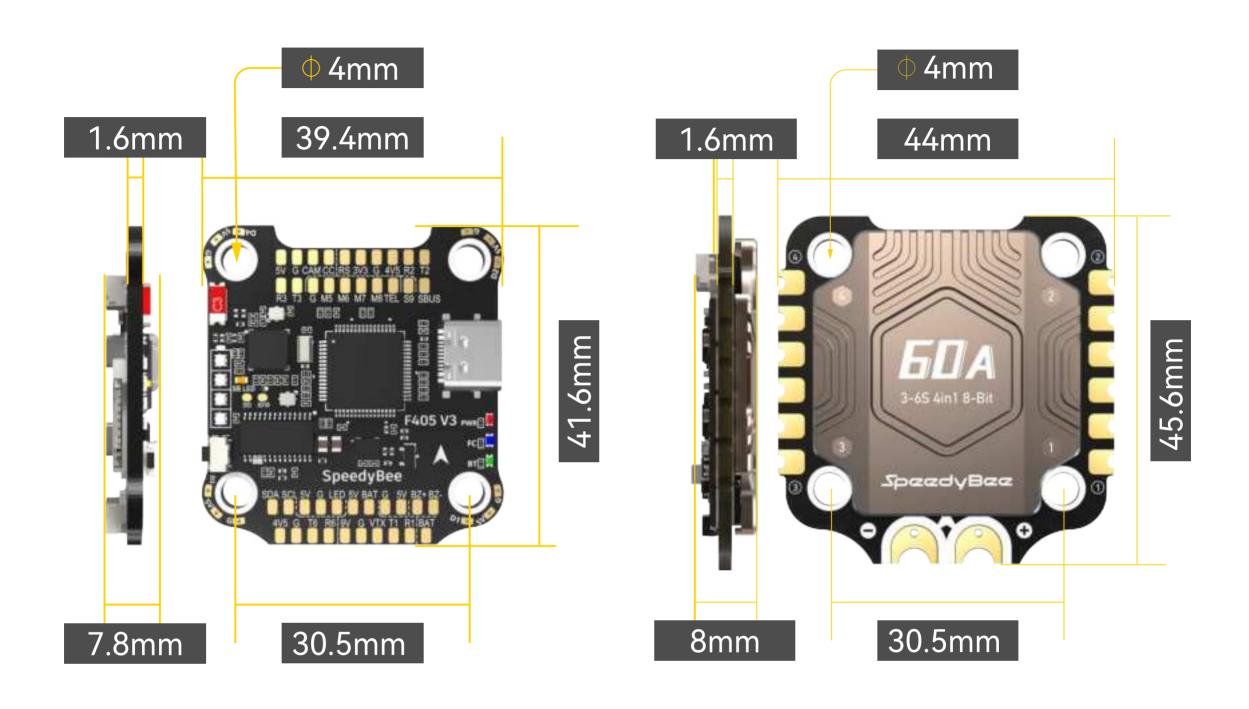
User Manual V1.0

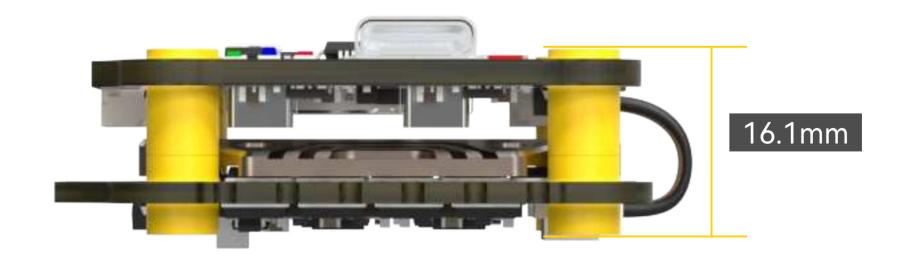
Part 1 - OverView

Specs Overview

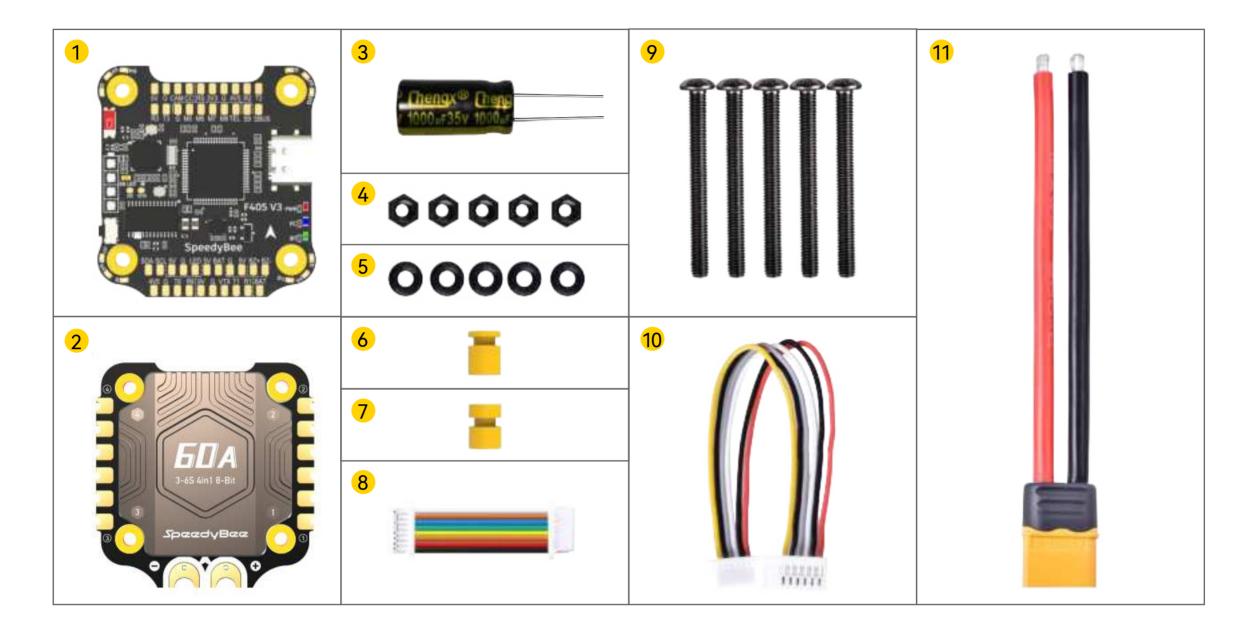
1/14

Product Name	SpeedyBee F405 V3 BLS 60A 30x30 Stack
Flight Controller	SpeedyBee F405 V3 Flight Controller
ESC	SpeedyBee BLS 60A 4-in-1 ESC
Bluetooth	Supported. For FC & ESC parameter settings
Wireless FC Firmware Flashing	NOT Supported
Wireless Blackbox Dwonload & Analysis	NOT Supported
Power Input	3-6S LiPo
Mounting	30.5 x 30.5mm (4mm hole size)
Dimension	45.6mm(L) x 44mm(W) x 18.3mm(H)
Weight	23.4g





SpeedyBee F405 V3 60A 30x30 Stack

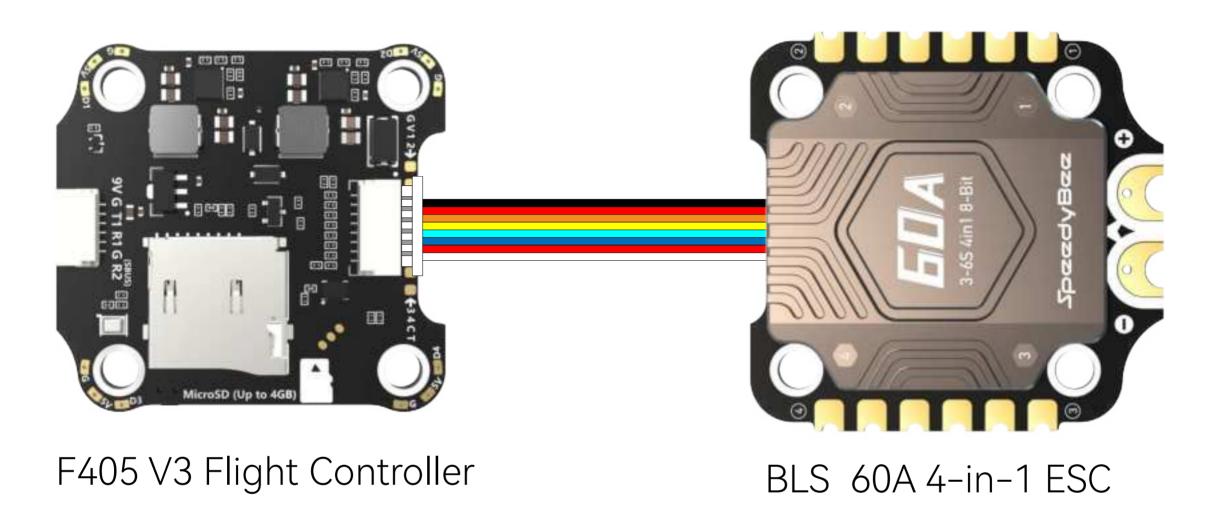


- 1 SpeedyBee F405 V3 Flight Controller x 1
- 2 SpeedyBee BLS 60A 4-in-1 ESC x 1
- 3 35V 1000uF Low ESR Capacitor x 1
- 4 M3 Nylon Nut x 5
- M3 silicone O Ring x 5
- 6 M3*8mm Silicone Grommets(for FC) x 1
- 7 M3*8.1mm Silicone Grommets(for ESC) x 1
- 8 SH 1.0mm 25mm-length 8pin Cable(for FC-ESC connection) x 1
- 9 M3*30mm Iner-hexagon Screws x 5
- 10 DJI 6pin Cable(80mm) x 1
- 11 XT60 Power Cable(100mm) x 1

Use the 8-pin cable in the package to connect the FC and the ESC. Or solder 8 wires directly to the 8 pads on each end.

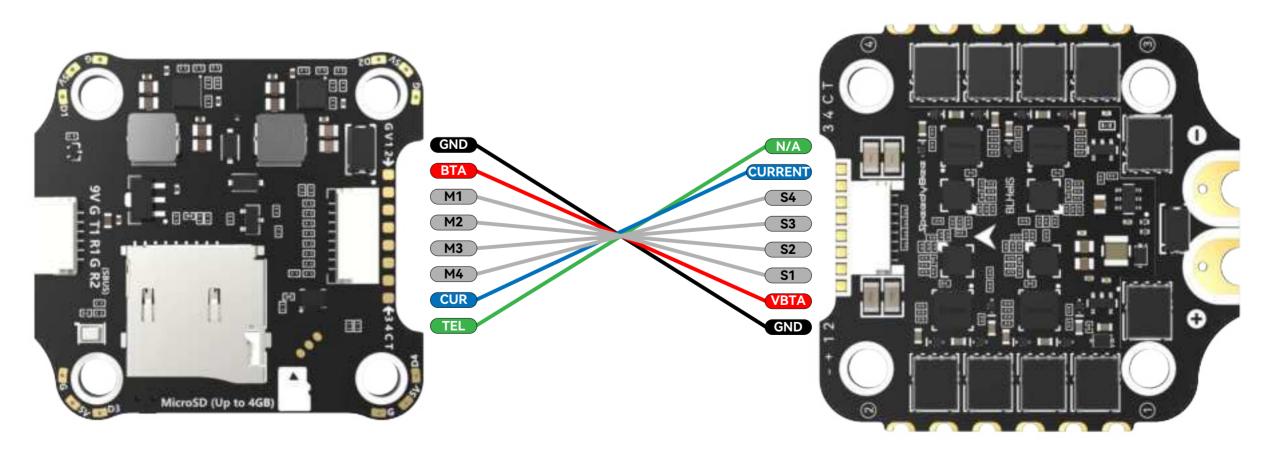
Method 1 - Using 8-pin cable

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



Method 2 - Direct soldering

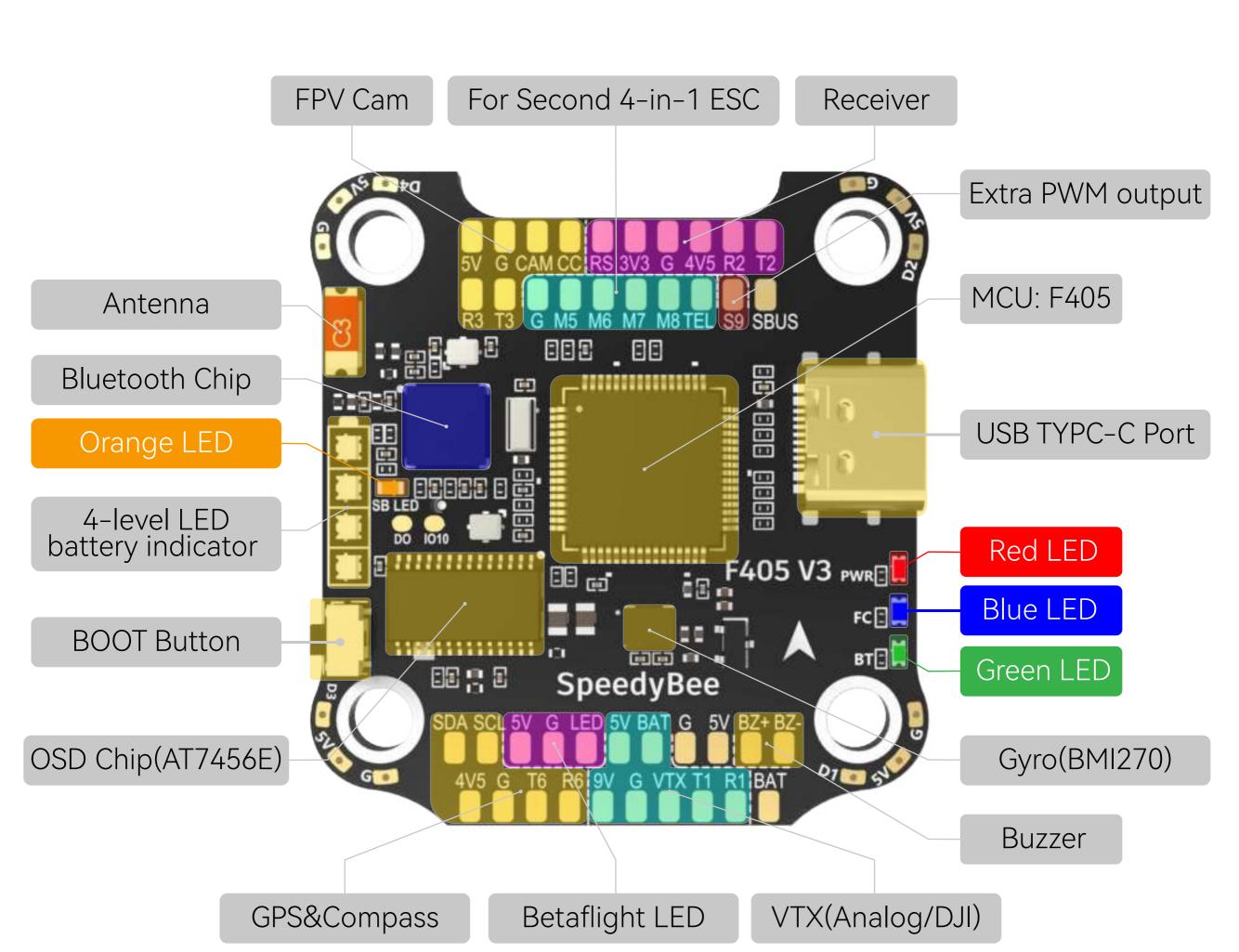
Solder 8 wires to the 8 pads on each end referring to the pad definition below.

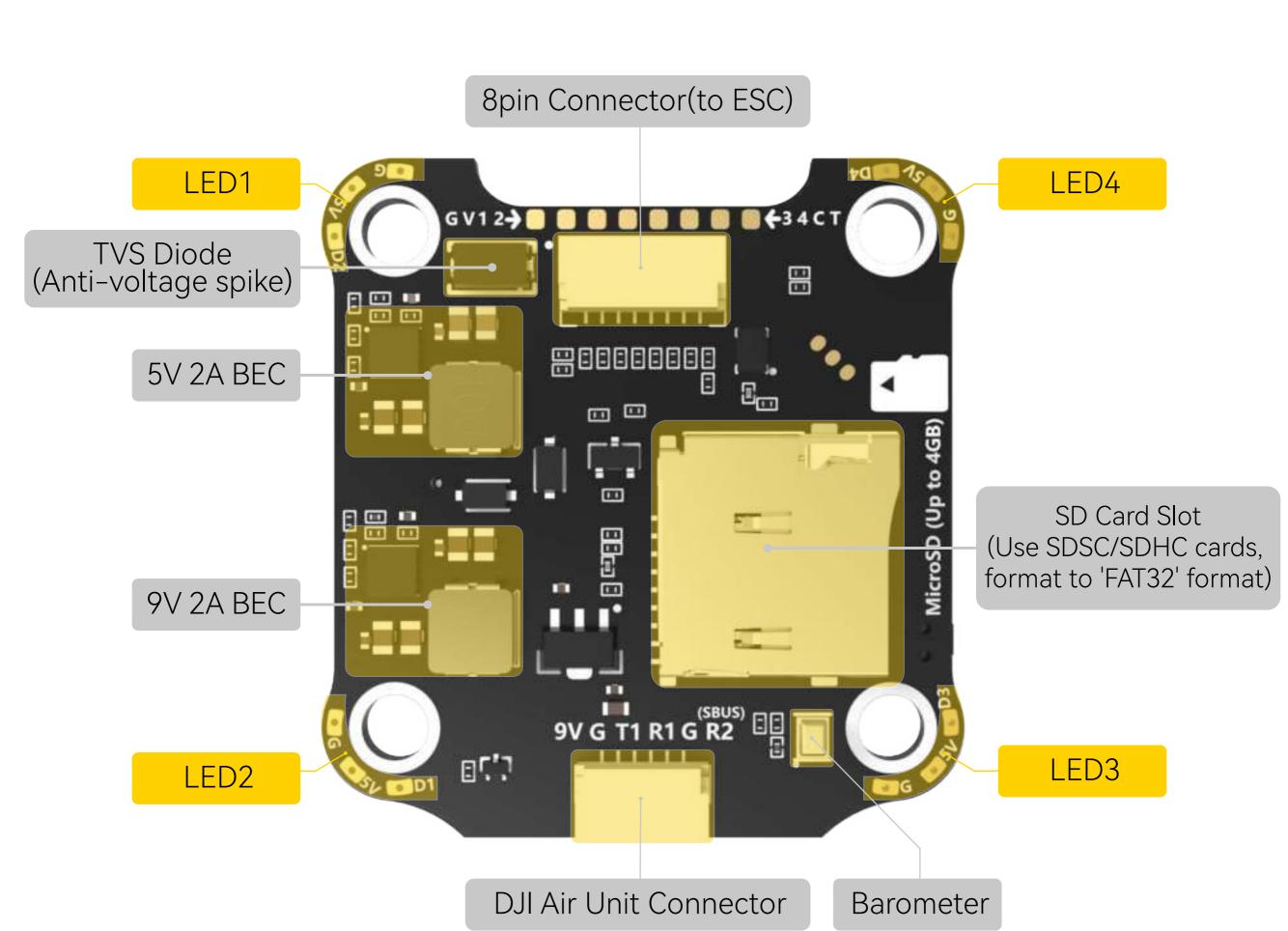


F405 V3 Flight Controller

BLS 60A 4-in-1 ESC

Layout 5/14





LED Indicator Definition

- RED LED Power Indicator.Solid Red after powering up.
- GREEN LED Bluetooth status light. Solid Green indicates Bluetooth is connected.
- Orange LED LED Control Mode Indicator. It indicates the 4 sets of LED strips connected to LED1-LED4 pads on the corners of the flight controller are controlled by Betaflight

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

firmware(BF_LED mode) or the Bluetooth chip(SB_LED mode). **Solid Orange**: tindicates the 4 x LEDs are in SB_LED mode. In this mode, when the FC is powered on and in standby mode, press the BOOT button to cycle the display modes

OFF: indicates the 4 x LEDs are controlled by Betaflight firmware.

Long press the button for 3 seconds to switch the control modes between BF_LED mode and SB_LED mode.

BOOT Button

of the LEDs.

[A]Only if the flight controller gets bricked and can't power up, please follow these

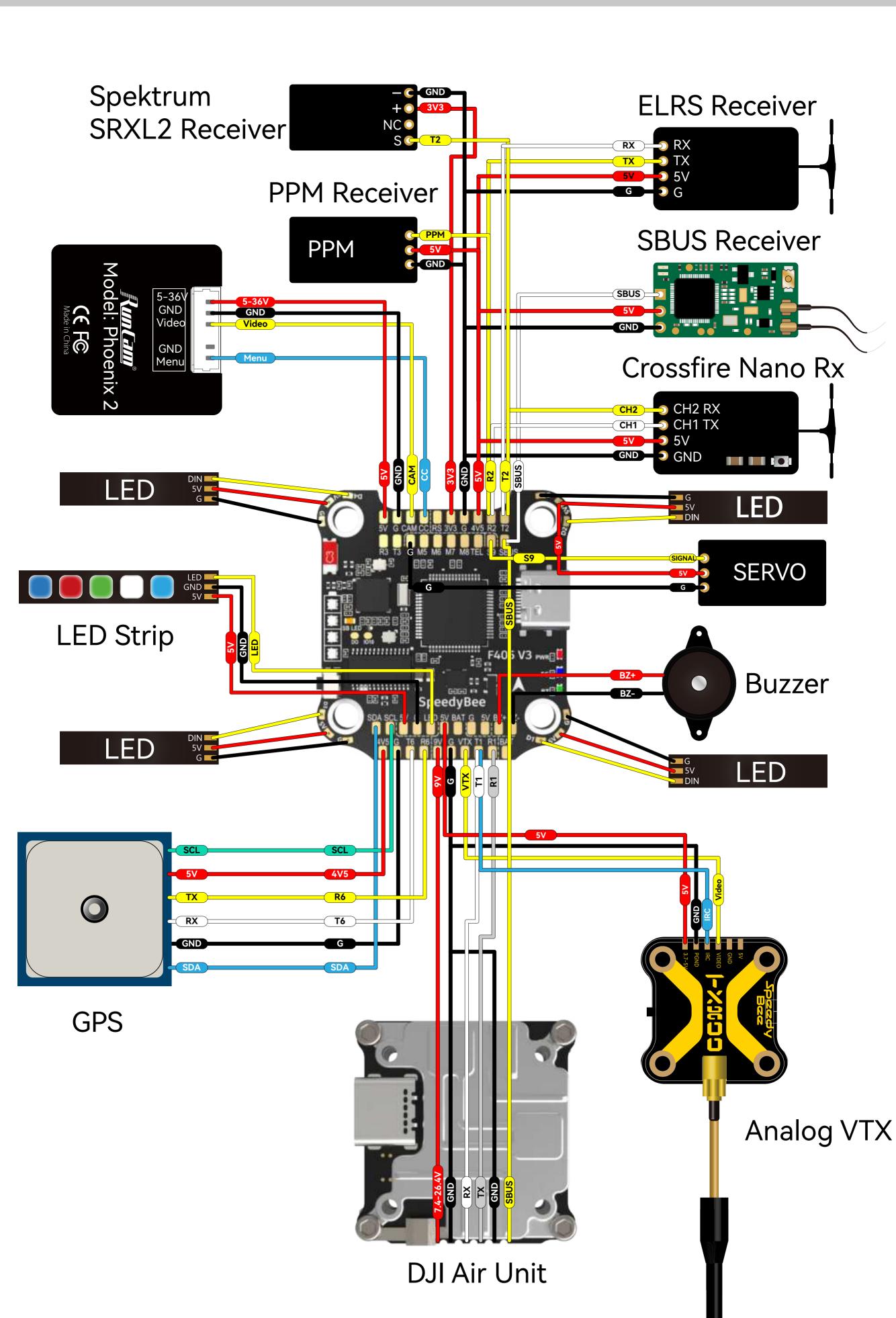
Insert a USB A to TYPE-C cable to your PC.

steps to re-flash firmware for it:

- Press and hold the BOOT button, insert the USB cable into the flight controller, then release the BOOT button.
- Open Betaflight/INAV configurator on the PC, go to the 'Firmware Flashing' 3 page, choose the target 'SPEEDYBEEF405V3' and flash.

[B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 pads on the corners. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode.

Under BF-LED mode, all the LED1-LED4 strips will be controlled by the Betaflight firmware.



When using an SBUS receiver, the SBUS signal wire of the receiver

Importance notice for SBUS receiver

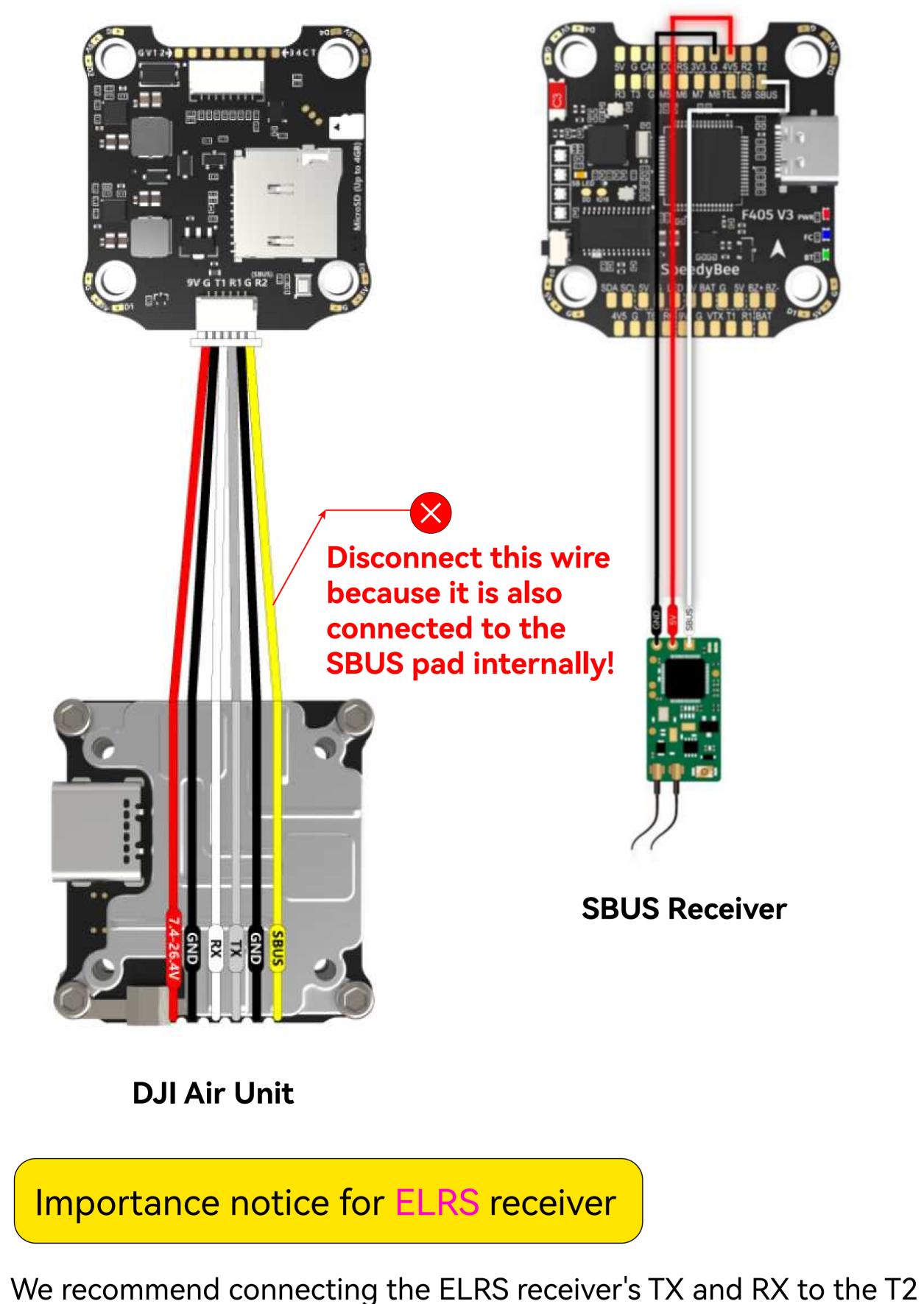
must be connected to the SBUS pad on the front side of the flight controller (this pad internally uses UART2).

If you are also using the DJI Air Unit and have connected it to the

flight controller through the dedicated 6-pin harness on the back, you will need to disconnect the SBUS signal wire from the Air Unit harness. Failure to do so will prevent the SBUS receiver from being properly recognized by the flight controller. You can use tweezers to pick out the SBUS wire from the 6-pin harness connector (or directly cut this wire) and insulate the exposed part of the wire carefully.

F405 V3 Bottom Side

F405 V3 Front Side



Unit simultaneously, some ELRS receivers may not be recognized properly by the flight controller. If you encounter this issue, you

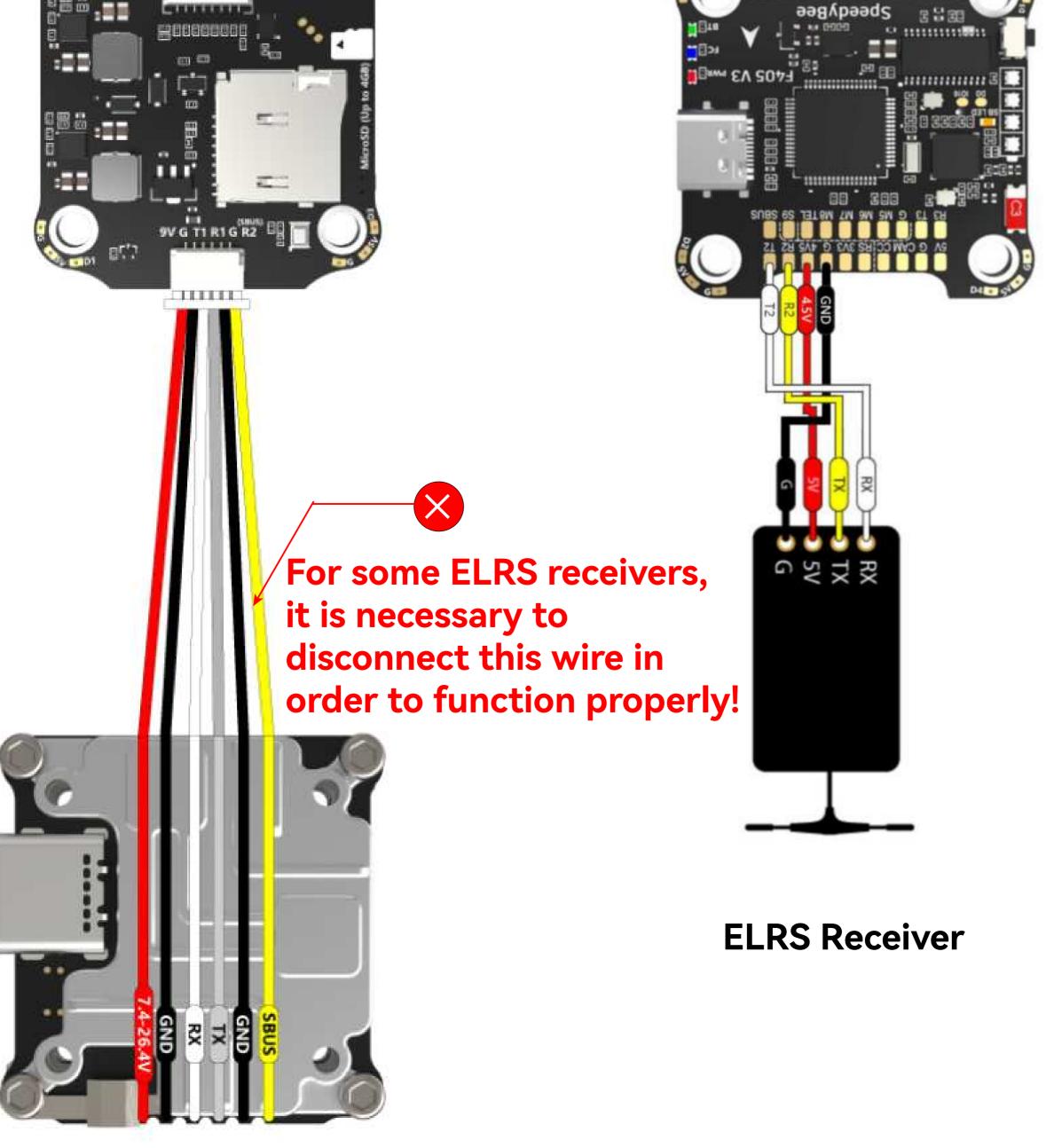
You can use tweezers to pick out the SBUS wire from the 6-pin harness connector (or directly cut this wire) and insulate the exposed part of the wire carefully.

F405 V3 Bottom Side

F405 V3 Front Side

and R2 pads on the flight controller. However, when using the DJI Air

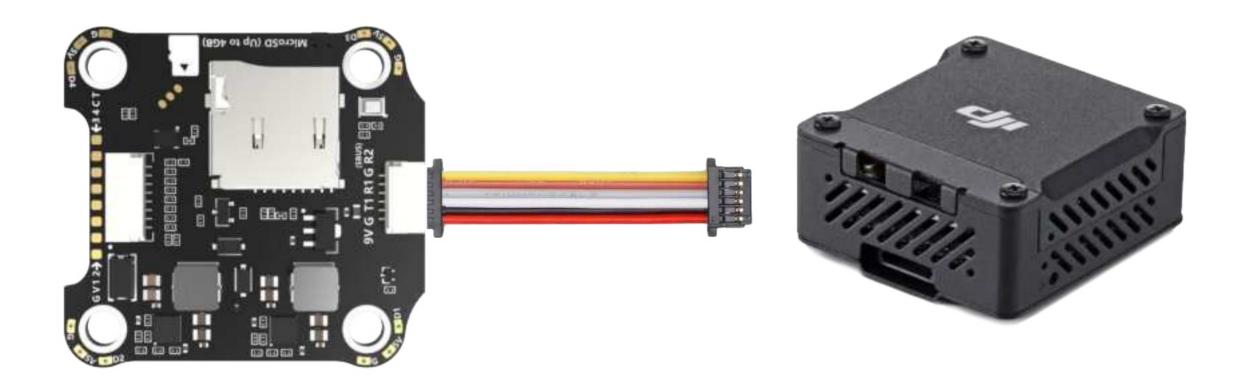
need to disconnect the SBUS signal wire from the Air Unit harness.



DJI Air Unit

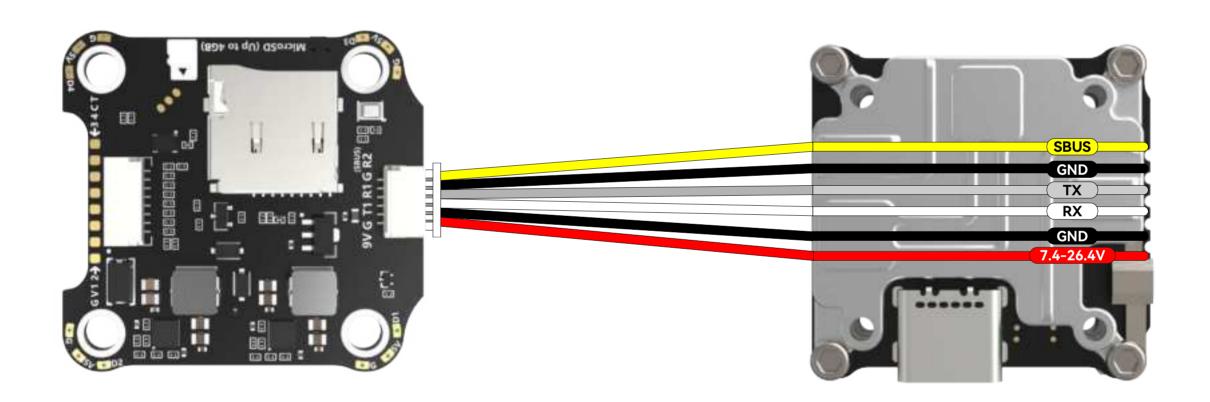
Cable Connection vs DJI O3 Air Unit

Use 6-pin cable comes with the O3 Air Unit



Cable Connection vs RunCam Link/ Caddx Vista Air Unit

Use 6-pin cable comes with the F405 V3 stack (See the accessory No.10 in the package section)



Cable Connection Vs DJI Air Unit V1

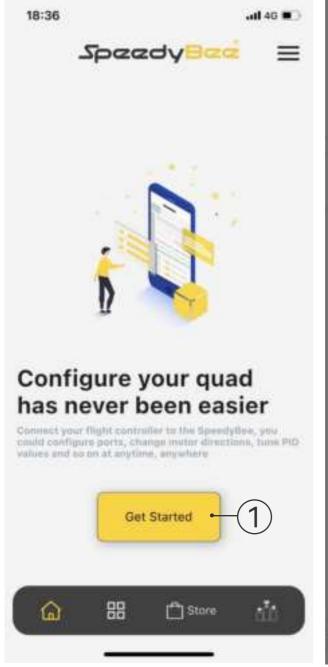
Use 6-pin cable comes with the F405 V3 stack (See the accessory No.10 in the package section)



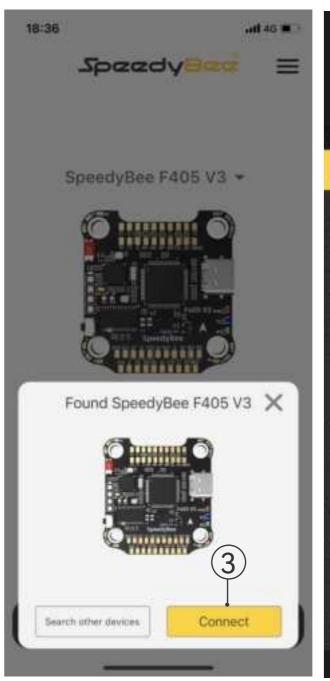
Get the SpeedyBee App

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

FC Configuration





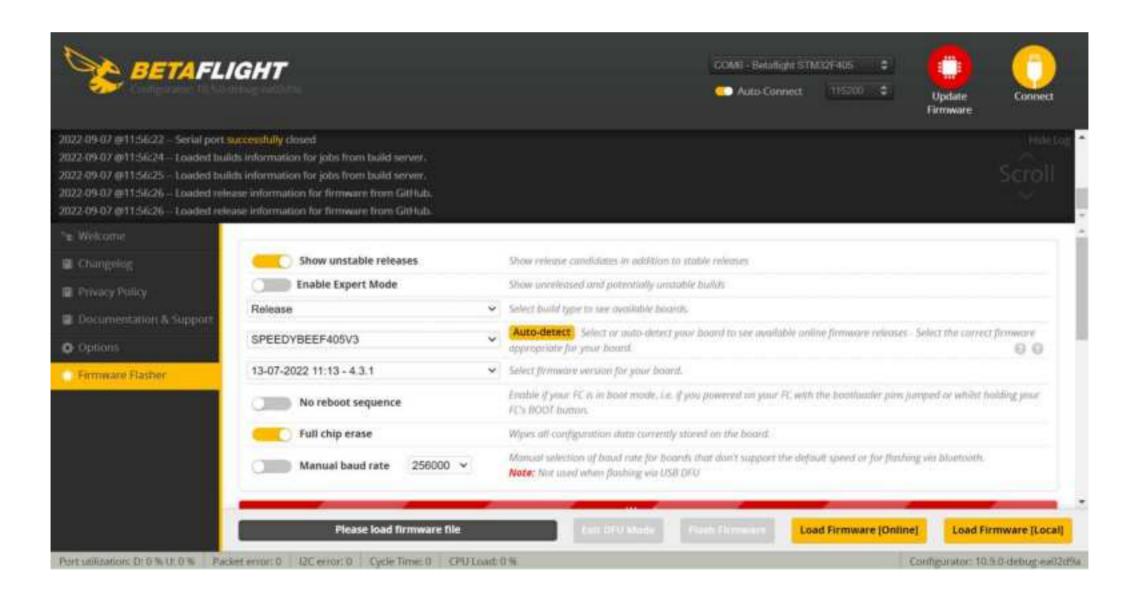




FC Firmware Update

SpeedyBee F405 V3 flight controller 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 'SPEEDYBEEF405V3' and flash.

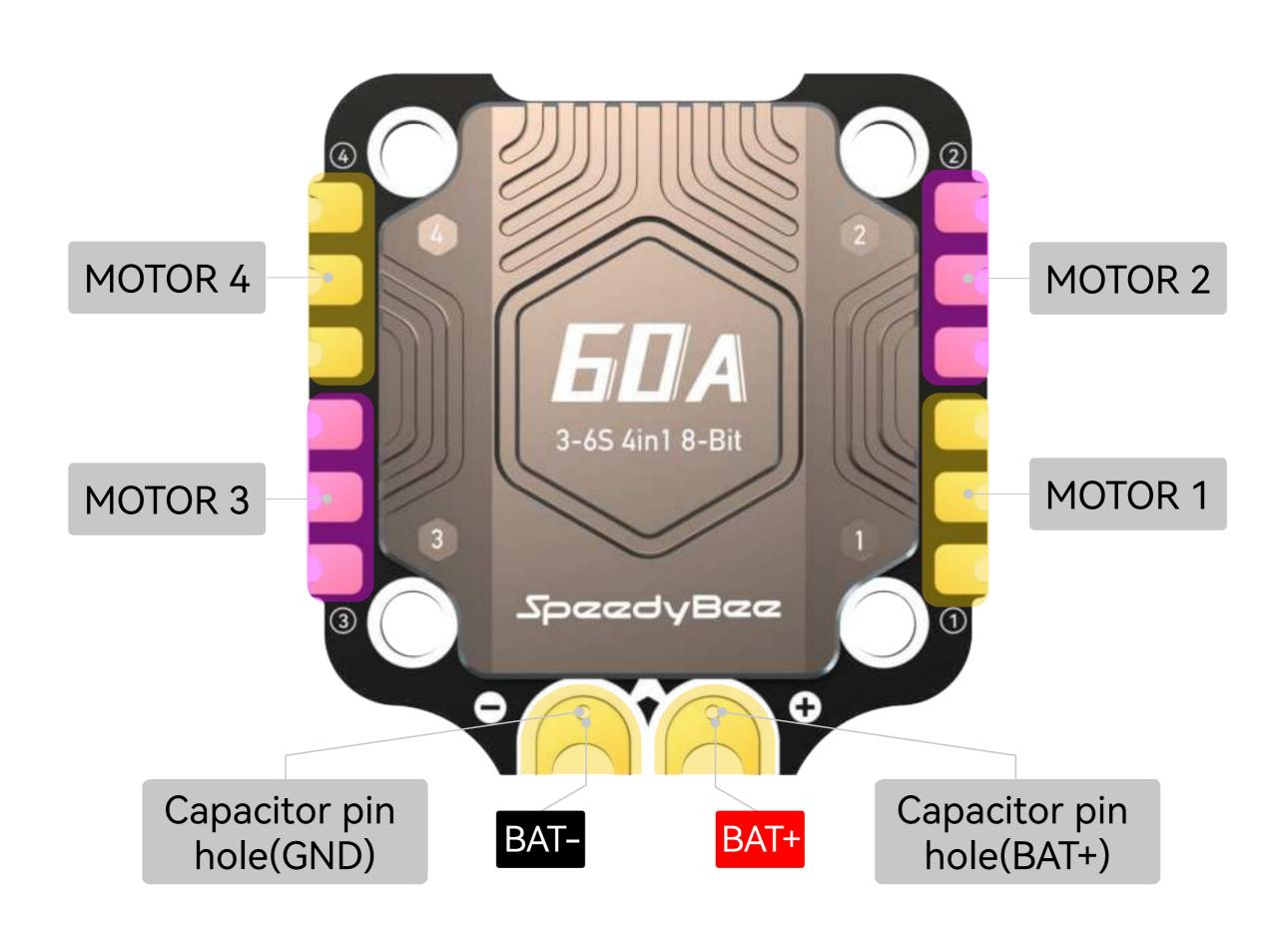


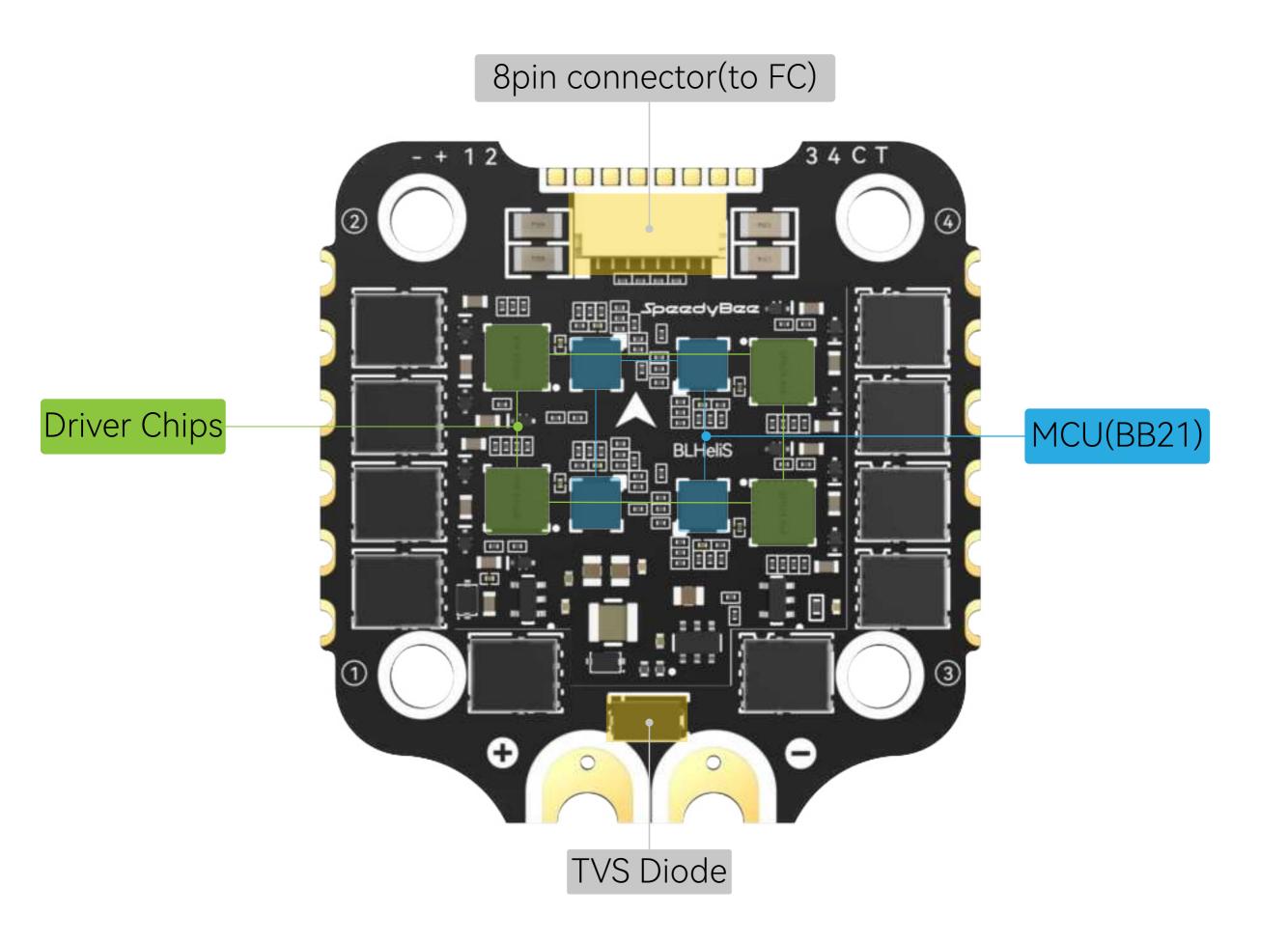
Specifications

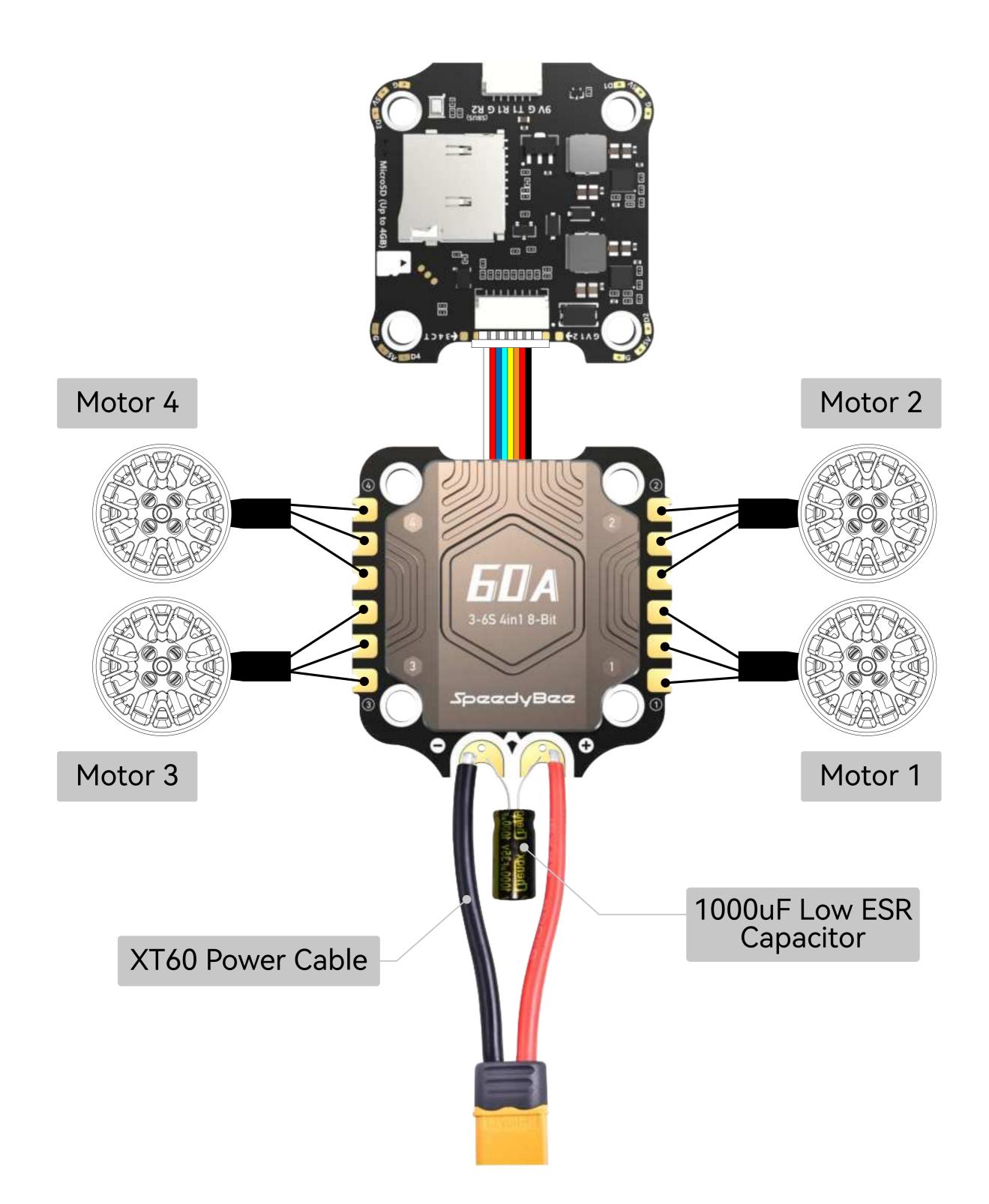
MOU STMOSE MONTY DE M	Product Name	SpeedyBee F405 V3 30x30 Flight Controller
IUSB Port Type Barometer Buttleth OSD Chip ATT466E chip Supported Used to connect with the SpeectyBee App for light controller and ESC parameter configuration. Please makes use the MSP switch on LIART is to turned on and set to a baud make the first of 113200, or hierarch to 11200, or high capacity (SDC) or high capacity cards (SDC) are not supported highly inputs of the microSD card to be either Standard (SDSC) or high capacity (SDSC) are not supported highly high paged 31 cards are SDXC). Also the card NUST be formatised with the FAT16 or FAT32 or ecommended (Bisystems, So. you cold use any SDXC) are not supported highly speed 31 cards are SDXC). Also the card NUST be formatised with the FAT16 or FAT32 or ecommended (Bisystems, So. you cold use any SDXC) are not supported highly recognize 4GB maximum. We suggest you use this 3rd party formatising tool and cannot vice or host the format time format your card, has check out highly for the recommended SD cards or buy the tisseld capacity formatising tool and choose "Overwhite format time format your card, has check out highly for the recommended SD cards or buy the tisseld capacity formatising tool and choose "Overwhite format time format survival your card, has check out highly formatising tool and choose "Overwhite format time" formatise form our store. Current Sensor Input Supported For Speedylikee BLS SBA ESC, please set scale = 400 and Offset = 0. 24 Supported For Speedylikee BLS SBA ESC, please and state of the Spirit controller on the Spirit controller. Spirit controller is powered through the G, viewes of the Spirit controller. Spirit controller is powered through the G, viewes of the Spirit controller. Sp	MCU	STM32F405
Barrometer OSD Chip ATASSE chip Supported. Used to connect with the SpeedyBee App for flight controller and ESC parameter configuration. Please makes sure be MSP switch on UART 4 is turned on and set to a baud crack. WIFI Not supported. Used to connect with the SpeedyBee App for flight controller and ESC parameter configuration. Please makes sure be MSP switch on UART 4 is turned on and set to a baud crack. WIFI Not supported. WIFI Not supported. Two ways supported. Sepin connector or direct soldering. Supported. Completely compatible with Dul O3/RunCam Link/Caddx VislarDul Air Unit V1. no wire is necessful to be changed. Betaflight firmwere requires the type of the microSD card to be either Standard (SDSC) or High capacity (SDHC), so extended capacity cards (SDXC) are not supported. Properly Speed US cards are SDXC). Also the card MLST be formatised with he formatise with reformating tool and choose Overwite format then format upon use this 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling tool and choose Overwite format then format upon used his 3d pulp vibratiling to a supported. Perspective St.	IMU(Gyro)	BMI270
ATT-458E chip BILE Blustooth Supported. Used to connect with the SpeedyBee App for flight controller and ESC parameter configuration. Please multice suite the MSP switch on UART 4 is found on and set to a based rate of 16200, otherwise Blustoothfunctionality will not be available. WIFI Not supported. Plant of 16200, otherwise Blustoothfunctionality will not be available. WiFI Not supported. Completely compatible with DIL OS/Rundam Link/Caddx VislarDILAir Unit V1, no wire is needed to be changed. Beadility firmware requires the type of the microSD cards to be either Standard (SDSC) or Helph capacity (SDHC), so stunded capacity cards (SDXC) are not supported/Many high-speed US cards are SDXC). As of the card AUST be formatted with the FATTs or FATS2 (recommended SD cards or boy the legislate cards from our store. Current Sensor Input Supported. For SpeedyBee BLS 80A ESC, please sol scale = 400 and Offset = 0. 3-65 LTP. The flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. 3-70 Curput Supported. Designed for receiver and GPS module even when the FC is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. 3-70 Curput Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1 A current load is 2A. 3-70 Curput Supported. Designed for creceiver and GPS module even when the FC is powered through the USB port. Up to 1 A current load. Supported. Designed for ESC telemetry, UARTS ESC Telemetry UART S 2-70 Cuput Supported. Designed for ESC telemetry, UARTS LUART S 2-70 Cuput Supported. Designed for ESC telemetry, UARTS LUART S 2-70 Cuput Supported. Designed for For ecceiver and GPS module even when the FC is powered through the USB port. Up to 1 A current load. Supported. Supported. SUP As SC pads on front side. Used for magnetometer, sonar, etc. Supported. Supported. Supported for ESC telemetry, UARTS 1-70 Cuput Sup	USB Port Type	Type-C
BLE Bluetooth Supported. Used to connect with the SpeedyBee App for flight controller and ESC parameter configuration. Please make sure he MSP sevent on UART 4 is furned on and set to a baud rate of 115020, otherwise Bluedooth incloherality will not be available. WIFI Not supported. DJI Air Unit Connection Way Two ways supported: 6-pin connector or direct soldering. Supported. Completely compatible with DJI O3/RunCam Link/Caddx Vislar/DJI Air Unit V1, no wire is neceded to be changed. Supported. Completely compatible with DJI O3/RunCam Link/Caddx Vislar/DJI Air Unit V1, no wire is neceded to be changed. Blackbox MicroSD Card Slot Selection of the selection	Barometer	Built-in
BLE Bluehoth configuration. Piesse make sure the MSP switch on UART 4 is turned on and set to a baud rate of 115000, chemisties Bluehothinuctionality will not be available. WIFI Not supported. Not supported. Completely compatible with DJI O3/RunCam Link/Caddx Vistar/DJI Air Unit V1. no wire is needed to be changed. Supported. Completely compatible with DJI O3/RunCam Link/Caddx Vistar/DJI Air Unit V1. no wire is needed to be changed. Identifiable from white provided the microSD pard to be either Standard (SDSC) or High capacity (SDHC), so extended capacity cards (SDXC) are not supported/Many high-speed US cards are SDXC). Also the card MUST be formated with the FATT for FATS2 (recommended) Besystems. So, you could use any SD card lass than 32CB, but the Betaffight can only recognize 4GB maximum. We suggest you use this 3rd party promating tool and choose Overwrite format then format your card. Also check out beer for the recommended SD cards or buy the select cards from use to be considered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. By V pads and 1 BZ+ pad (used for Buzzer) on front side, and 4x LED SV pads. The total current load is 2A. By Output Supported. Designed for 33-V-input receivers. Up to 500mA current load. Supported. Designed for a 33-V-input receivers. Up to 500mA current load. ESC Signal M1-M4 on bottom side and M5-M8 on front side. M1-M4 on bottom side and M5-M8 on front side. Because and by Battlight LED Pad. M1-M4 on bottom side and M5-M8 on front side. Because and by Battlight LED Pad. By Supported. SV, G and LED pads on bottom of the front side. Used for Ws2812 LED controlled by Battlight Immare. BUZER BOT Button BUZER BY Aran BZ- pad used for SV Buzzer Supported. SV and BZ- pad used for SV Buzzer Supported. Named as RS on the front side. Smut PD-LD strips will be controlled by Battlight Immare. BOT LED st	OSD Chip	AT7456E chip
DJI Air Unit Connection Way Two ways supported. 6-pin connector or direct soldering. Supported. Completely compatible with DJI G3/RunCarn Link/Caddx Vista/DJI Air Unit V1, no wire is needed to be changed. Behalf bit mwater requires the type of the microSD card to be either Standard (SDSC) or High capacity (SDHC), so extended capacity cards (SDXC) are not supported(Mary high-speed U3 cards are SDXC). Also the card MUST be formatted with the FAT16 or FAT32 (recommended) fliesystams. So, you could use any SD card less than 32GB, but the Betallight can only recognize 4GB maximum. Wis suggest you use this 3rd party formatting tool and choose Voverwite format their format your card. Also check out base for the recommended SD cards or buy the lessel cards from our store. Current Sensor Input Supported. For SpeedyBee BLS 60A ESC, please set scale = 400 and Offset = 0. 3-SS LIPo. The flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. SV Output Supported. For SpeedyBee BLS 60A ESC, please set scale = 400 and Offset = 0. 3-SV LIPO SV pads. The total current load is 2A. Supported. Designed for 3-Virgous receiver and GPS module even when the FC is powered through the LIPO SV pads. The total current load is 2A. Supported. Designed for 3-Virgous receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. Supported. Designed for 3-Virgous receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. Set Stignal M1 - M4 on bottom side and M5-M8 on front side. Set Stignal M1 - M4 on bottom side and M5-M8 on front side. Set Stignal M1 - M4 on bottom side and M5-M8 on front side. Set Stignal M2- M4 ress and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets broked. BUXER BOOT Button BOOT Button BUXER Supported. Signal side for St Buzzer Supported. Signal side for St Buzze	BLE Bluetooth	configuration. Please make sure the MSP switch on UART 4 is turned on and set to a baud
Supported. Completely compatible with DJI O3/RunCarn Link/Caddx Visita/DJI Air Unit V1, no wire is needed to be changed. Betallight firmware requires the type of the microSD card to be either Standard (SDSC) or High capacity (SDHC), so extended capacity cards (SDXC) are not supported (Many high-speed U3 cards are SDXC). Also the card MUST be formatted with the FAT for FAT32 (recommended) filesystems. So, you cutoff use any SD card less than 32CB, but the Betaltight can only recognize 4GB maximum. We suggest you use this 3rd party formating tool and choose. Youvernite finamet them format your card. Also check out here for the recommended SD cards or buy the fusible cards from our storo. Current Sensor Input Supported. For SpeedyBee BLS 60A ESC, please set scale = 400 and Offset = 0. 3-6S LIPo. The flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. 5V Output 9 groups of 5V output, four +5V pads and 1 BZ- pad(used for Buzzer) on front side, and 4x LED 5V pads. The total current load is 2A. 9V Output 2 groups of 5V output, four +5V pads of mort side and other included in a connector on bottom side. The total current load is 2A. 3V Output Supported. Designed for a 3V-input receivers. Up to 500mA current load. Supported. Designed for receiver and GPS module even when the FC is powered through the U3B part. Up to 1A current load. Supported. Supported. Designed for receiver and GPS module even when the FC is powered through the U3B part. Up to 1A current load. UART Supported. Supported. Supported. Supported. Designed for receiver and GPS module even when the FC is powered through the U3B part. Up to 1A current load. UART Supported. Support	WIFI	Not supported
wire is needed to be changed. **Betaltight firmware requires the type of the microSD card to be either Standard (SDSC) or High changel (SDRC) as each each clapacity cards (SDXC) are not supported(Many high-speed US cards are SDXC). Also the card MUST be formatted with the FAT16 or FAT32 (recommended) filesystems. So, you could use any SD card use the betaltight can only recognize 4GB maximum. We suggest you use this 3rd party formatting tool and choose "Overwrite format" then format your card. Also check out beta for the recommended SD cards on by the filested parts from our store. **Current Sensor Input** Supported. For SpeedyBee BLS 60A ESC, please set scale = 400 and Offset = 0. **3-6S LIPo. The flight controller is powered through the G, V wires of the 8pin cable or G. V pads from the betaltight can be beta flight card from the betaltight of the file of the standard of the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the betalting the standard of the spin cable or G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of the spin cable of G. V pads from the standard of G. V pads from the spin cable of G. V pads from the spin cab	DJI Air Unit Connection Way	Two ways supported: 6-pin connector or direct soldering.
Blackbox MicroSD Card Slot Corromended Jilesystems. 50, you could use any SD card less than 32CB, but the Betallight can only recognize 4CB maximum. We suggest you use this 3rd party formatting lool and choose Voerwrite format free from 1900 card. Also check out tens for the recommended SD cards or buy the tested cards from our store. Current Sensor Input Supported. For SpeedyBee BLS 80A ESC, please set scale = 400 and Offset = 0. 3-65 LiPo. The flieight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. 9 groups of 5V output, four +5V pads and 1 BZ+ pad(used for Buzzer) on front side, and 4x LED 5V pads. The total current load is 2A. 3.3V Output Supported. Designed for 3.3V-input receivers. Up to 500mA current load. Supported. Designed for 3.3V-input receivers. Up to 500mA current load. Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1 A current load. BEC Telemetry UART G sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)). UART5(Dedicated for ESC telemetry), UART6 BUZZER BUZZER BUZZER BZ+ and BZ- pad used for 5V Buzzer BUDOT Button BUZZER BZ+ and BZ- pad used for 5V Buzzer BUDOT Button Supported. Supported. Supported so for the forth side. Used for WS2812 LED controlled by Betaflight firmware. BUZZER BUZZER BZ+ and BZ- pad used for 5V Buzzer BUDOT Button Supported. Supported. Supported so notion of the front side. Used for WS2812 LED controlled by Betaflight Firmware. BUZZER BZ+ and BZ- pad used for 5V Buzzer BUDOT Button Supported. Supported. Supported so note that DS button and be-LED mode. Under BF-LED mode, all the LED+LED4 strips will be controlled by Betaflight firmware. BUZZER Supported. Supported. Supported so note that DS button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBea	6-pin DJI Air Unit Plug	
Power Input 3-SS LiPo. The flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller. 5V Output 9 groups of 5V output, four +5V pads and 1 BZ+ pad(used for Buzzer) on front side, and 4x LED 5V pads. The total current load is 2A. 9V Output 2 groups of 9V output, one +9V pad on front side and other included in a connector on bottom side. The total current load is 2A. 3.3V Output Supported. Designed for 3.3V-input receivers. Up to 500mA current load. 4.5V Output Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. G sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART6(Dedicated for ESC telemetry), UART6 ESC Telemetry UART R5 12C Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad By Betaflight timware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. (A). Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. (B). When the FC is powered on and in standby mode, the BOOT button controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode, Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. Supported. Named as RS on the front side. Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEFAJOSV3 Mounting 1-3-SS LiPod	Blackbox MicroSD Card Slot	High capacity (SDHC), so extended capacity cards (SDXC) are not supported (Many high-speed U3 cards are SDXC). Also the card MUST be formatted with the FAT16 or FAT32 (recommended) filesystems. So, you could use any SD card less than 32GB, but the Betaflight can only recognize 4GB maximum. We suggest you use this 3rd party formatting tool and choose 'Overwrite format' then format your card. Also check out here for the recommended SD
Fower Input from the bottom side of the flight controller. 9 groups of 5V output, four +5V pads and 1 BZ+ pad(used for Buzzer) on front side, and 4X LED 5V pads. The total current load is 2A. 9V Output 2 groups of 9V output, one +9V pad on front side and other included in a connector on bottom side. The total current load is 2A. 3.3V Output Supported. Designed for 3.3V-input receivers. Up to 500mA current load. 4.5V Output Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. 6 sets (UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART5(Dedicated for ESC telemetry), UART6 ESC Telemetry UART R5 IZC Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. SV, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. BZ+ and BZ- pad used for 5V Buzzer BZ+ and BZ- pad used for 5V Buzzer BOOT Button A[A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware lashing when the FC gets bricked. B[B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED deconnectors on the bottom side. By default, short-press the BOOT button to gold the LED deconnectors on the bottom side. By default, short-press the BOOT button to gold the Deconnectors on the bottom side. By default, short-press the BOOT button to gold the LED deconnectors on the bottom side. By default, short-press the BOOT button to gold the LED deconnectors on the bottom side. By default, short-press the BOOT button to gold the LED deconnectors on the bottom side. By default, short-press the BOOT button to gold the LED deconnectors on the bottom side. By default, short-press th	Current Sensor Input	Supported. For SpeedyBee BLS 60A ESC, please set scale = 400 and Offset = 0.
LED 5V pads. The total current load is 2A. 9V Output 2 groups of 9V output, one +9V pad on front side and other included in a connector on bottom side. The total current load is 2A. 3.3V Output 3 Supported. Designed for 3.3V-input receivers. Up to 500mA current load. 4.5V Output 2 Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. UART 6 Sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART5(Dedicated for ESC telemetry), UART6 ESC Telemetry UART 8 IZC 5 Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betafflight LED Pad 5 Supported. SV, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betafflight firmware. Buzzer 6 BZ+ and BZ- pad used for 5V Buzzer BOOT Button 6 Supported. SDA & SCL pads on front side and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B] When the FC is powered on and in standby mode, the Bot button and be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware Petas the Side Supported. Side Side Side Side Side Side Side Side	Power Input	3-6S LiPo. The flight controller is powered through the G, V wires of the 8pin cable or G, V pads from the bottom side of the flight controller.
side. The total current load is 2A. 3.3V Output Supported. Designed for 3.3V-input receivers. Up to 500mA current load. 4.5V Output Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. UART 6 sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART6(Dedicated for ESC telemetry), UART6 ESC Telemetry UART 8 I2C Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. SV, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By defaut, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode, Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDyBEEF405V3 Mounting 30.5 x 30.5mm (4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	5V Output	
Supported. Designed for receiver and GPS module even when the FC is powered through the USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. UART 6 sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART5(Dedicated for ESC telemetry), UART6 ESC Telemetry UART 8 ESC Telemetry UART 8 IZC Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. 5V, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. BZ+ and BZ- pad used for 5V Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm (4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	9V Output	
USB port. Up to 1A current load. ESC Signal M1 - M4 on bottom side and M5-M8 on front side. UART 6 sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART5(Dedicated for ESC telemetry), UART6 ESC Telemetry UART 8 IZC Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Supported. SV, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight ED Pad by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LeD mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShort125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	3.3V Output	Supported. Designed for 3.3V-input receivers. Up to 500mA current load.
UART 6 sets(UART1, UART2, UART3, UART4(Dedicated for Bluetooth connection)), UART6(Dedicated for ESC telemetry), UART6 ESC Telemetry UART 6 ESC Telemetry UART 8 I2C Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. 5V, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	4.5V Output	
UART 5(Dedicated for ESC telemetry), UART 6 ESC Telemetry UART R5 IZC Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. 5V, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	ESC Signal	M1 - M4 on bottom side and M5-M8 on front side.
Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc. Traditional Betaflight LED Pad Supported. 5V, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	UART	
Traditional Betaflight LED Pad Supported. 5V, G and LED pads on bottom of the front side. Used for WS2812 LED controlled by Betaflight firmware. Buzzer BZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	ESC Telemetry	UART R5
by Betaflight LED Pad by Betaflight firmware. Buzzer BUZ+ and BZ- pad used for 5V Buzzer Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	I2C	Supported. SDA & SCL pads on front side. Used for magnetometer, sonar, etc.
Supported. [A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	Traditional Betaflight LED Pad	
[A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the LED1-LED4 strips will be controlled by Betaflight firmware. RSSI Input Supported. Named as RS on the front side. Smart Port / F.Port Not supported BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) 41.6(L) x 39.4(W) x 7.8(H)mm	Buzzer	BZ+ and BZ- pad used for 5V Buzzer
Smart Port / F.Port Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	BOOT Button	[A]. Press and hold BOOT button and power the FC on at the same time will force the FC to enter DFU mode, this is for firmware flashing when the FC gets bricked. [B]. When the FC is powered on and in standby mode, the BOOT button can be used to controller the LED strips connected to LED1-LED4 connectors on the bottom side. By default, short-press the BOOT button to cycle the LED displaying mode. Long-press the BOOT button to switch between SpeedyBee-LED mode and BF-LED mode. Under BF-LED mode, all the
Supported Flight Controller Firmware BetaFlight(Default), INAV (INAV firmware can only use Multishot (recommended) and OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	RSSI Input	Supported. Named as RS on the front side.
Supported Flight Controller Firmware OneShot125. Please note that DShot is not supported.) Firmware Target Name SPEEDYBEEF405V3 Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	Smart Port / F.Port	Not supported
Mounting 30.5 x 30.5mm(4mm hole diameter) Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	Supported Flight Controller Firmware	
Dimension 41.6(L) x 39.4(W) x 7.8(H)mm	Firmware Target Name	SPEEDYBEEF405V3
	Mounting	30.5 x 30.5mm(4mm hole diameter)
Weight 9.6g	Dimension	41.6(L) x 39.4(W) x 7.8(H)mm
	Weight	9.6g

Part 3 - SpeedyBee BLS 60A 4-in-1 ESC

Layout 10/14

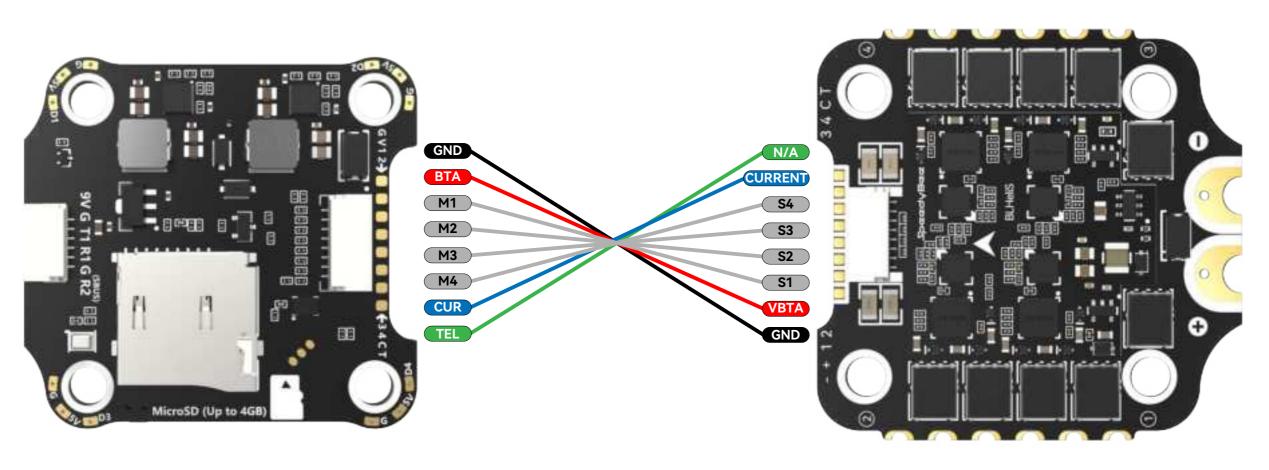






Note1: In order to prevent the stack from being burnt out by voltage spikes on powering up, it is strongly recommended to use the Low ESR capacitor in the package.

Note2: The FC and ESC can also connected via direct soldering. Soldering pads definition is as follows.

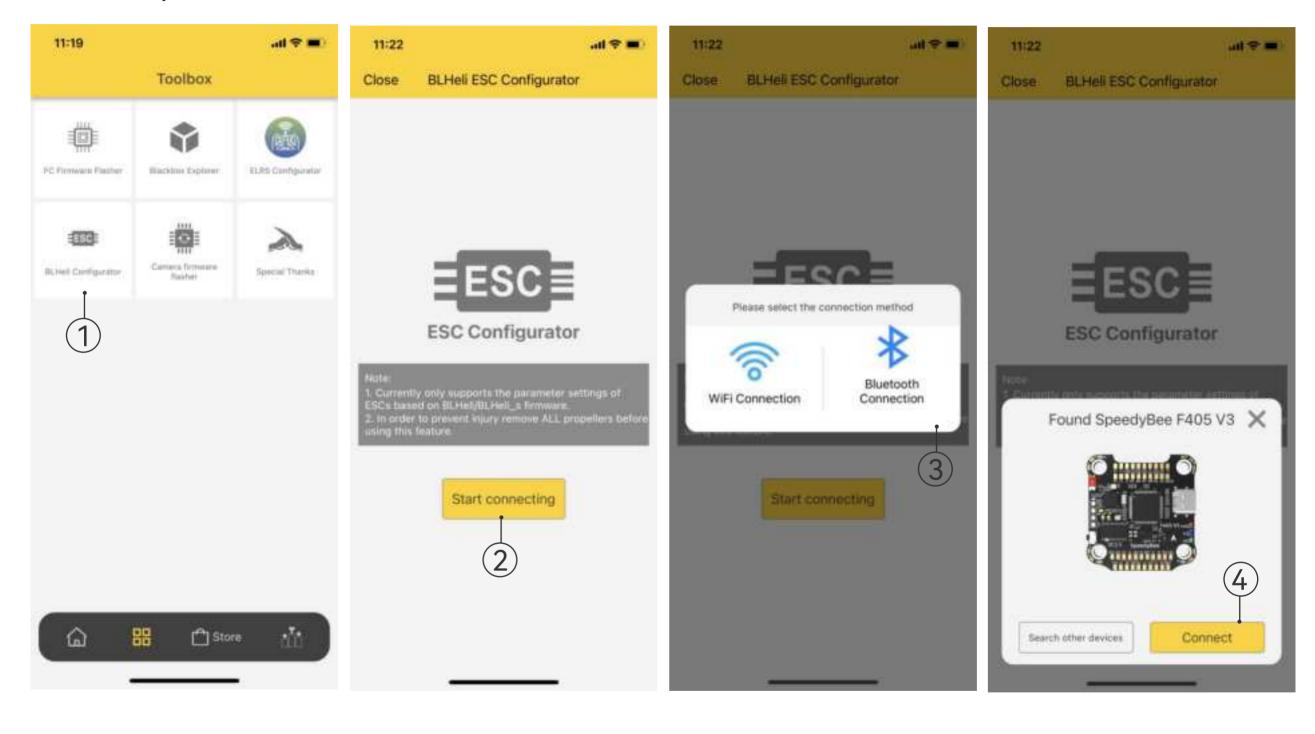


F405 V3 Flight Controller

BLS 60A 4-in-1 ESC

ESC Configuration

■ You could use SpeedyBee app to completely configure this 8-bit ESC. The steps are as follows:



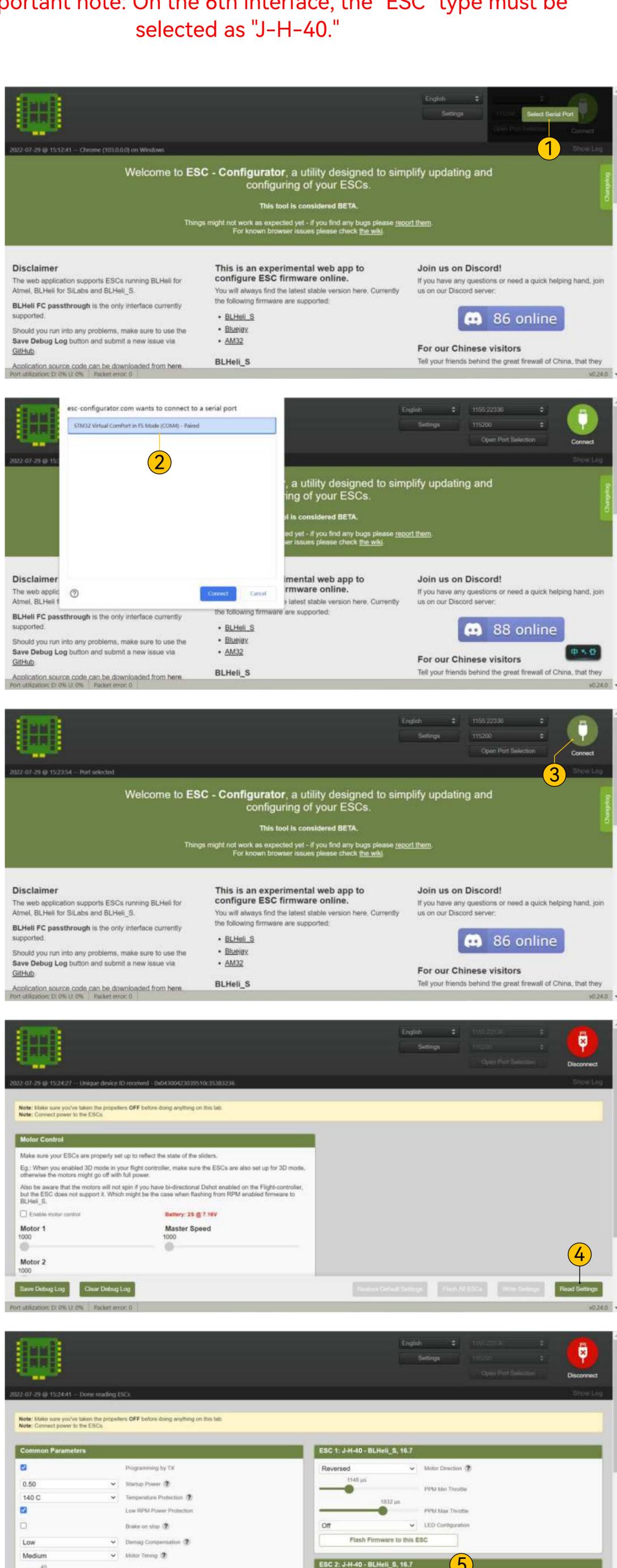
■ You could also use PC configurators to configure this ESC. We recommend the ESC Configurator. Please use Google Chrome browser and visist: http://www.esc-configurator.com.

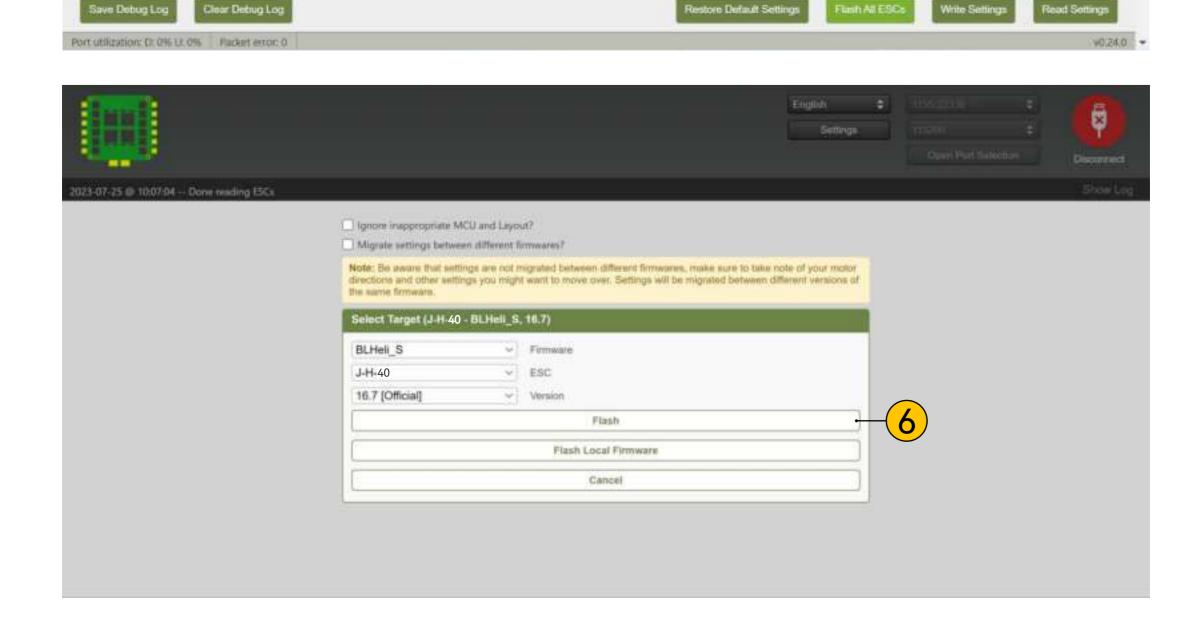
■ This 8-bit 60A ESC can run BLHeliS or Bluejay firmware. It is loaded with BLHeliS firmware by default. You could also flash it to Bluejay firmware which can support RPM filtering and Bi-directional Dhsot.

Firmware flashing steps are as follows:

- Remove all the propellers from your drone.
- Ensure that the flight controller is connected properly to the ESC, then power up the drone. This step ensures that the ESC starts up correctly.
- Connect the flight controller to the computer using a USB Type-C cable.
- Open the Chrome browser and visit the following website: https://www.esc-configurator.com/
- Follow the firmware flashing steps as shown in the screenshots below.

Important note: On the 6th interface, the "ESC" type must be selected as "J-H-40."





Reversed

Motor Director

Beep Strength (2)

Specifications

Product Name	SpeedyBee BLS 60A 30x30 4-in-1 ESC
Firmware	BLHeli_S J-H-40
PC Configurator Download Link	https://esc-configurator.com/
Continuous Current	60A * 4
Burst Current	80A(10sec)
TVS Protective diode	Yes
External Capacitor	1000uF Low ESR Capacitor(In the package)
ESC Protocol	DSHOT300/600
Power Input	3-6S LiPo
Power Output	VBAT
Current Sensor	Support (Scale=400 Offset=0)
ESC Telemetry	Not supported
Mounting	30.5 x 30.5mm(4mm hole diameter)
Dimension	45.6(L) * 44(W) *8mm(H)
Weight	23.5g