

MARIO 5

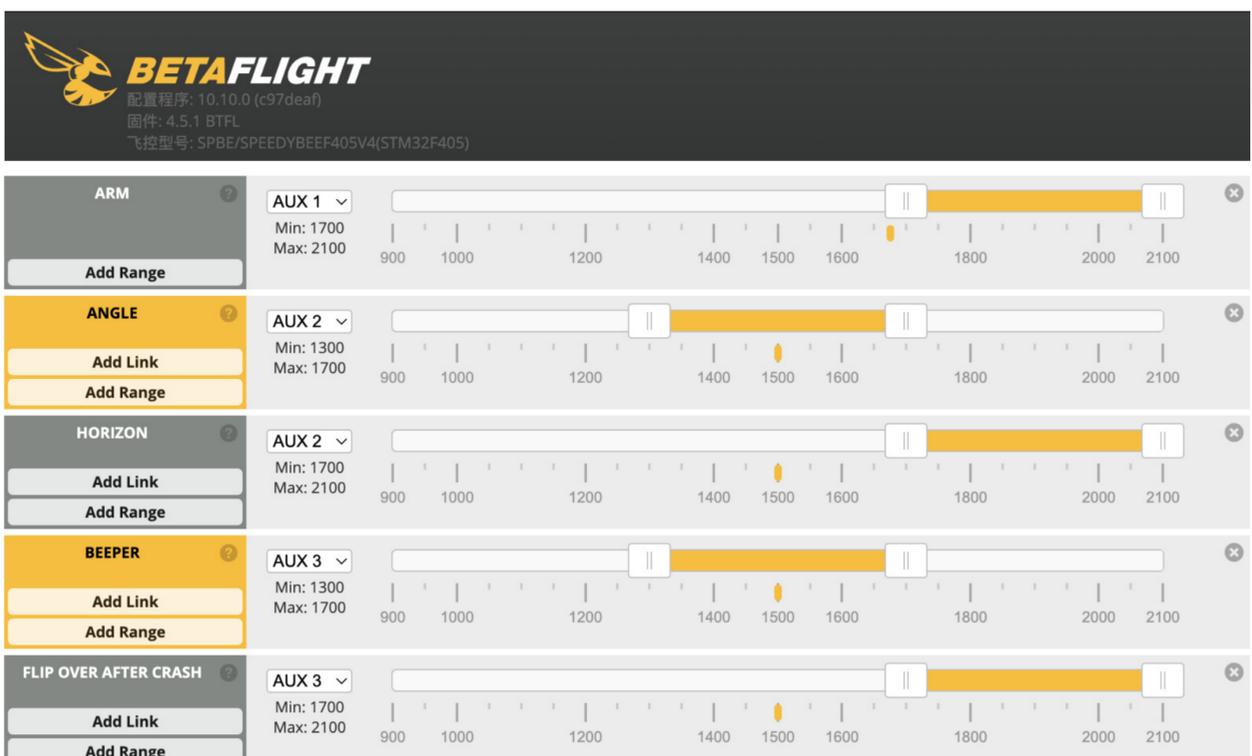
Installation and Operation Guide

*(Note:3D effect requirements, the actual object shall prevail.)

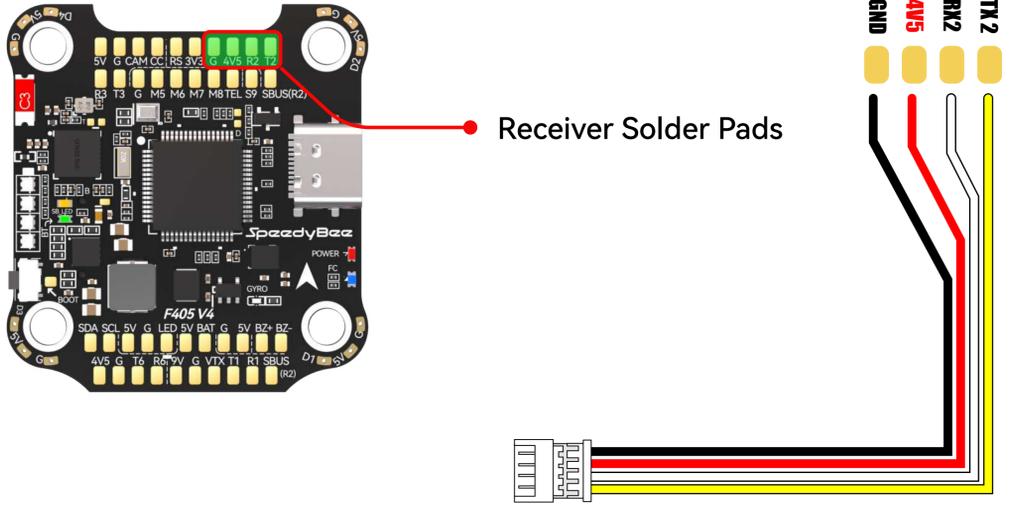
1. Default BetaFlight Configuration
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Default BetaFlight Configuration

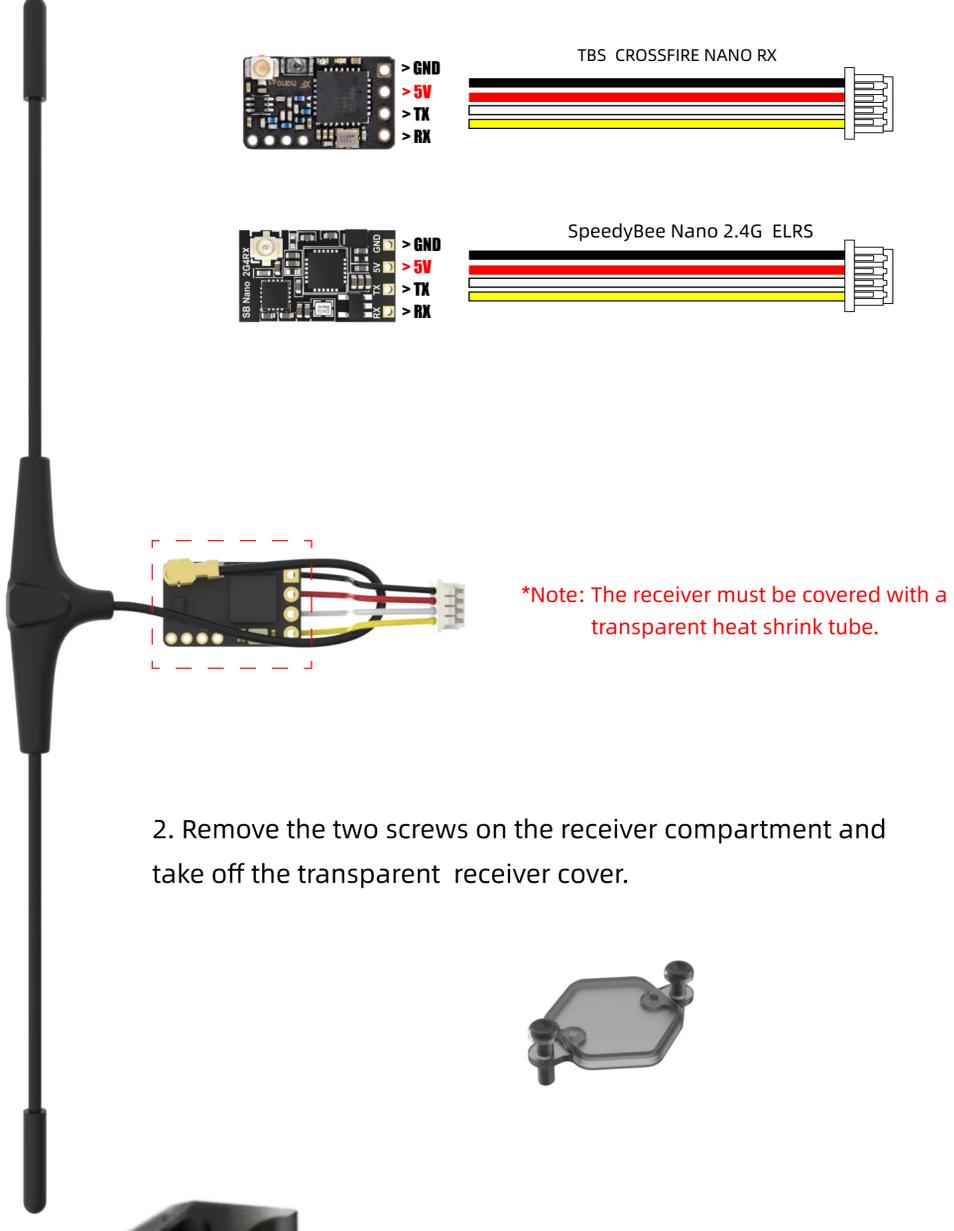


2 Wiring and Installation of Receiver



1. Use the SH1.25 4PIN cable included in the accessories and solder it to the receiver as per the defined pin layout shown in the diagram.

***Note:** Pay attention to the wiring order to prevent a short circuit.



2. Remove the two screws on the receiver compartment and take off the transparent receiver cover.

3. Place the soldered receiver into the receiver compartment.

The SH1.25 4PIN male connector is soldered by default. Enable the corresponding serial receiver port (UART2).

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	VTX (MSP + D) AUTO
UART2	<input checked="" type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART4	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	GPS 57600	Disabled AUTO

***Note:** The factory default receiver protocol is CRSF.

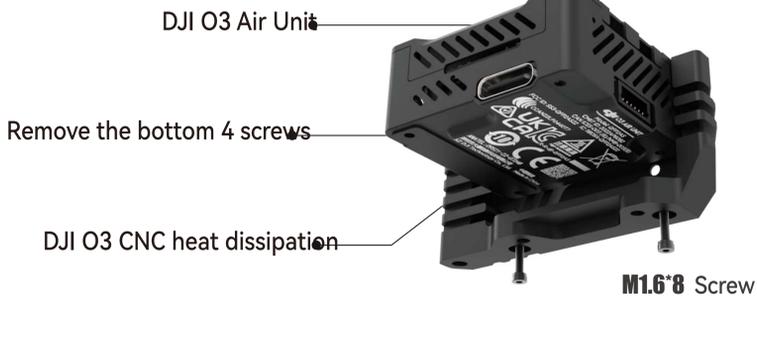


4. Connect the SH1.25 4PIN male connector to the female port of the receiver, place it into the receiver compartment, cover it back with the receiver cover, and tighten the screws.

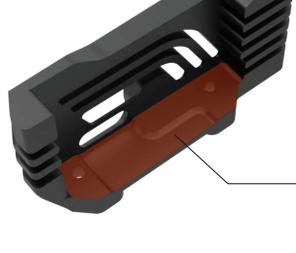


3 Wiring, Installation and Setting of DJI O3 Air Unit

1. Install the CNC heat dissipation side plates on both sides of the DJI O3 Air Unit.

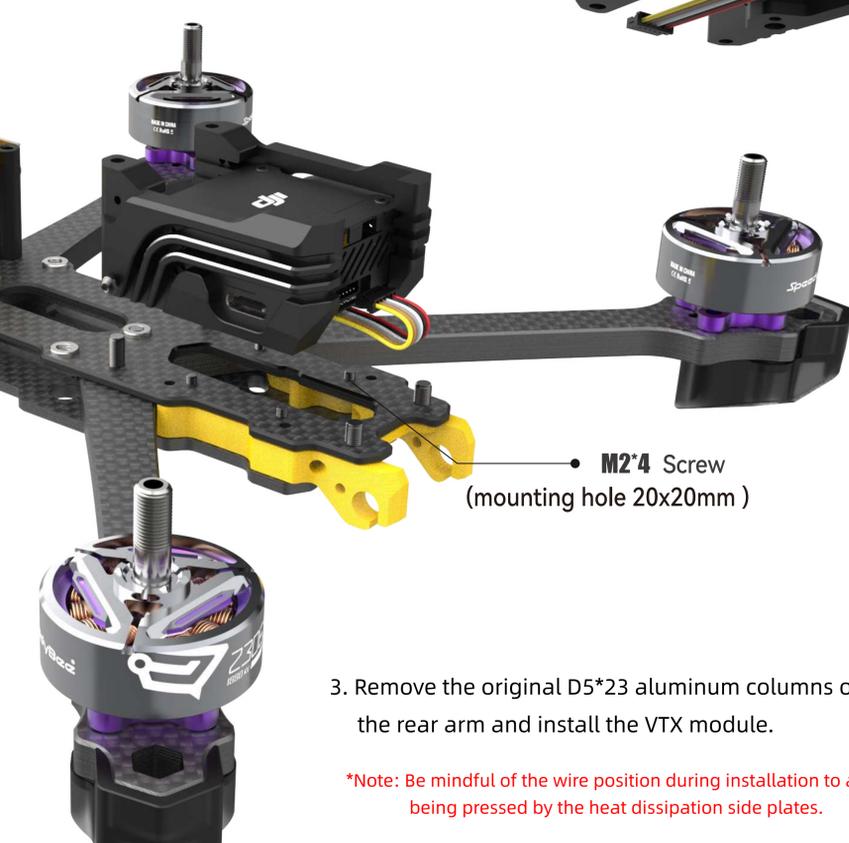


***Note :** Heat dissipation silicone grease can be added to the contact surface between the heat dissipation side plate and the DJI O3 heat dissipation side plate to improve the heat dissipation effect.



2. Insert the DJI O3 Air Unit's 6P cable and mount it onto the frame.

***Note :** It is recommended to use insulation tubes to protect the 6P cable.



3. Remove the original D5*23 aluminum columns of the rear arm and install the VTX module.

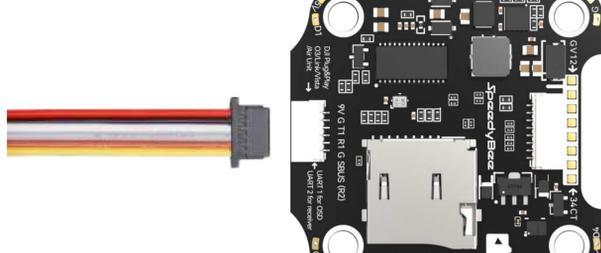
***Note :** Be mindful of the wire position during installation to avoid being pressed by the heat dissipation side plates.

4. Install the camera and antenna mounts.



***Note :** When installing the DJI O3 Air Unit camera, ensure the thinner side of the silicone mount faces the camera.

5. Connect the 6P color cable to the corresponding port on the flight controller.



6. DJI O3 Air Unit setting in BetaFlight.

***Note :** Factory default configuration is set for the DJI O3 Air Unit. No changes are needed when using the DJI O3 Air Unit.

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	VTX (MSP + D) AUTO
UART2	115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART4	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	115200	<input type="checkbox"/>	Disabled AUTO	GPS 57600	Disabled AUTO

UART 1 port is enabled for peripheral communication and configured for HD VTX (MSP+Displayport). Enter the following command in CLI:

```
set osd_displayport_device = MSP
save
```



In the OSD, select "HD" for video format and set "Canvas Layout" to "Wide" in DJI Goggles settings.

7. When using the DJI FPV Remote Controller 2/3, choose the "SBUS" protocol.



DJI Goggles: Set the display control protocol to "Normal" or "Sbus BaudFast".

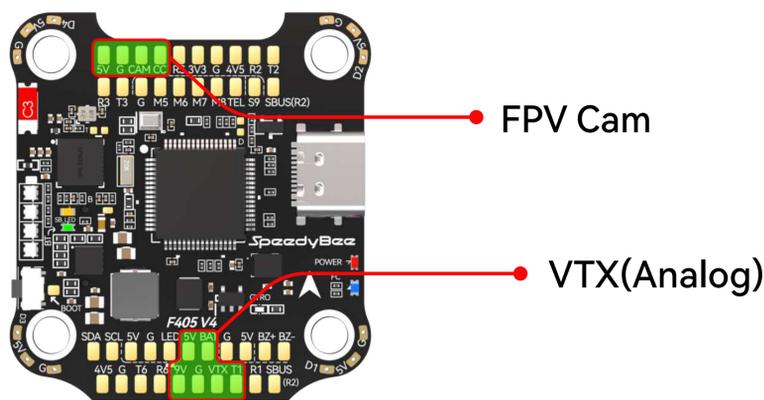
When using the "Sbus BaudFast" protocol, enter the following commands in the CLI (Command Line Interface) and save:

```
set sbus_baud_fast = ON
save
```



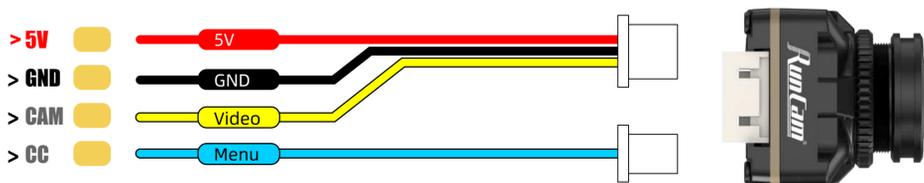
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Wiring and Installation of Analog VTX



1. Use the included FPV camera cable and solder it to the FPV Cam pads on the F405 V4 as shown in the diagram.

***Note :** Ensure correct voltage and wiring order to avoid a short circuit.



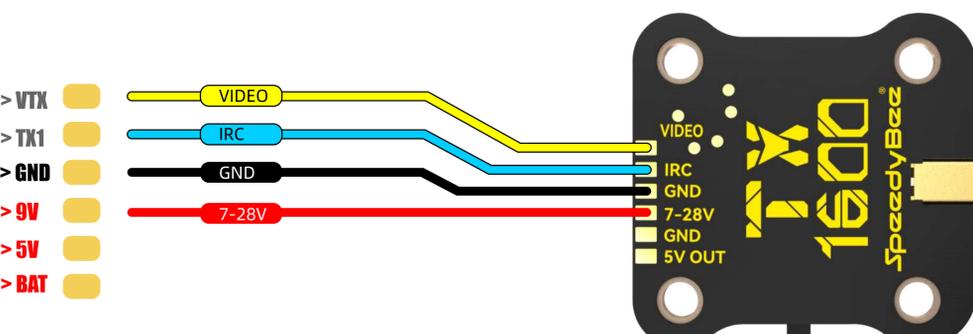
When using a 19mm width FPV camera, it is recommended to use the gray camera mount included in the accessory package.

Factory default configuration is set for the DJI O3 Air Unit. When using an analog VTX, reconfigure the UART 1 port and choose (IRC Tramp) or (TBS SmartAudio).

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	VTX (MSP + D) AUTO
UART2	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART4	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	GPS 57600	Disabled AUTO

2. Solder the analog VTX cable to the VTX pads on the F405 V4 as per the diagram below.

***Note :** Ensure correct voltage and wiring order to avoid a short circuit.



3. Install the SMA pigtail cable.



4. Use a PC or SpeedyBee APP to load the appropriate VTX configuration file, then select the transmission channel and output power.

Selected Mode

- Enter frequency directly
- RACEBAND** Band
- Channel 1 Channel
- 100 Power
- Pit Mode
- 0 Pit Mode frequency
- Off Low Power Disarm

Current Values

- Device ready **False**
- VTX Type SmartAudio Unknown
- Band RACEBAND
- Channel 1
- Frequency 5658
- Power 100
- Pit Mode No
- Pit Mode frequency 0
- Low Power Disarm Off

5. Adjust the OSD video format to (Auto, PAL, NTSC) based on the camera in use.

Video Format

Auto PAL NTSC HD

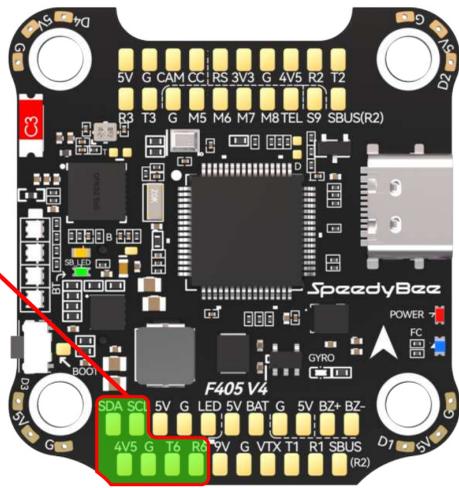
Enter the following command in CLI:

```
set osd_displayport_device = AUTO
save
```

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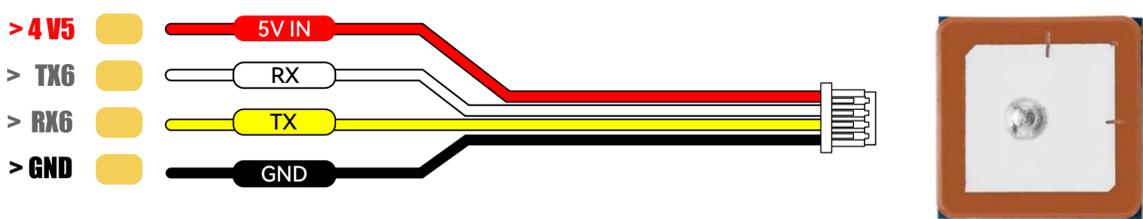
Wiring and Installation of GPS

GPS&Compass

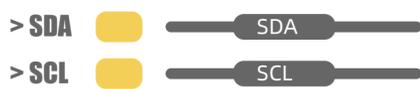


1. Solder the GPS module cable to the GPS pads on the F405 V4 according to the diagram.

**Note: Pay attention to the wiring order to avoid a short circuit.*

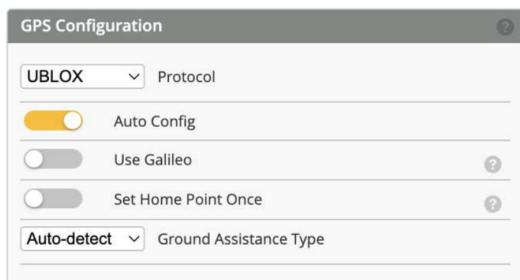


Compatible models with this 4PIN connector : BZ-181 GPS, BE-182 GPS, BK-182 GPS, etc.



Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	VTX (MSP + D) AUTO
UART2	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART4	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART5	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
▶ UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	GPS 57600	Disabled AUTO

Enable the UART6 port for sensor input and set the baud rate to AUTO or as recommended by the GPS module.



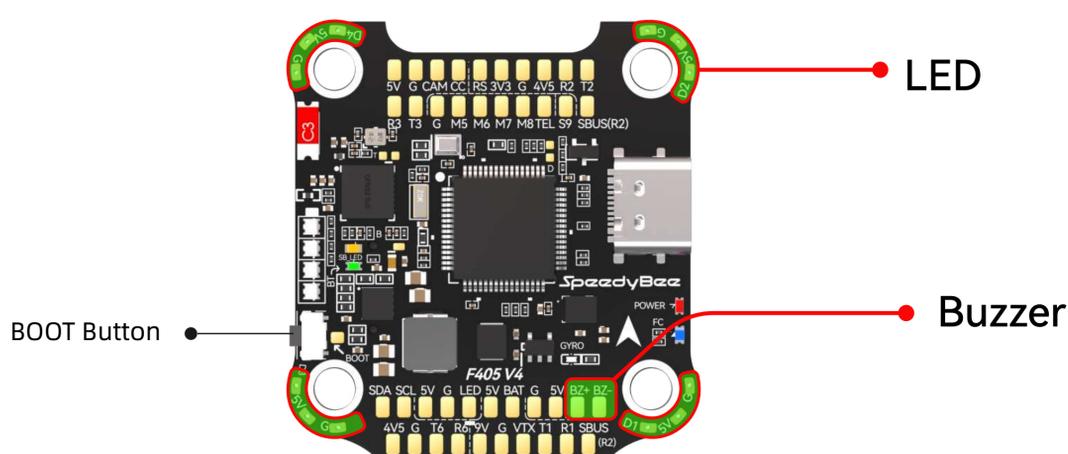
2. Install the GPS module into the TPU mount as shown in the diagram and connect the female connector to the GPS module.

**Note : It is recommended to place the GPS module connection cable on top of the VTX module.*



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Wiring of LED and Buzzer



The side LED strip of the flight controller protection plate contains 4 RGB LED lights. Individual colors and effects can be configured in BetaFlight. Long press the BOOT button to switch to onboard LED control mode. A single press will toggle between different solid color lighting modes.



Motor beeper is enabled by default and supports adding a 5V buzzer.



Propeller Recommendations

Mario 5 was initially designed to meet the needs of DJI O3 Air Unit's image stabilization during flight. Reducing screen jitter at high throttle and minimizing prop wash are key criteria for its default propeller selection.

when not carrying external devices such as a GoPro, it is recommended to use the HQ J40 with the DJI O3 Air Unit for optimal footage. If you prefer an agile flight style or usually carry a GoPro or other devices, consider the propellers like GEMFAN 51466 V2.



*For more details, please refer to the official SpeedyBee F405 V4 manual.