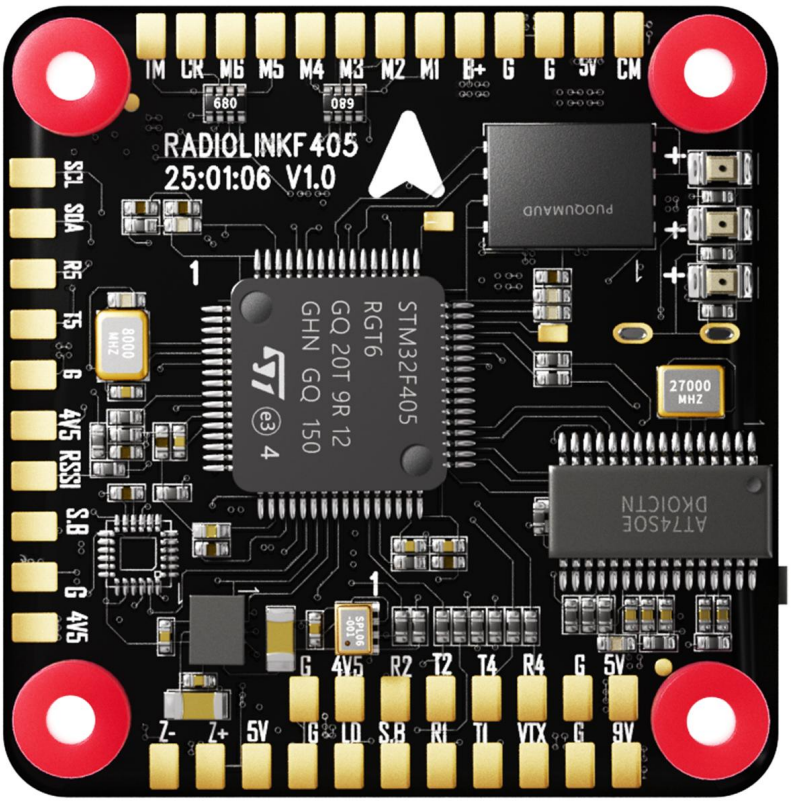
RadioLink

F405

Quick Start Guide



14+

Thank you for choosing RadioLink product. This product is not a toy and is not suitable for children under the age of 14. Adults should keep the product out of the reach of children and exercise caution when operating this product in the presence of children.

You can also download the manual of RADIOLINKF405 from https://www.radiolink.com/f405_manual

Read carefully and set the device as instructed. If there is any question, please send messages/ leave comments on Facebook and YouTube or send mails to after_service@radiolink.com.cn

Contact RadioLink RL
via Facebook Messenger

F405 Manual

Contents

Specifications

Weight & Dimension	Dimension	30.5*30.5mm(1.2″*1.2″)
	Weight	9.5g
Hardware	Processor	STM32F405RGT6
Sensor	Gyro	BMI270
	Barometer	SPL06
	Blackbox	128MB, record and store flight logs
	OSD Module	AT7456E
Connector	Channel Output	M1 - M6
	HD Digital Video Transmission	Support HD digital video transmission plug-and-play
	Analog Video Transmission	Support analog video transmission plug-and-play
	Battery Scale	110
	UART Port	5
	ESC Features	Support (UART3 RX)
	I2C	Support
	LED Strip	Support, with LED strip soldering pads
	Buzzer	Support, with buzzer soldering pads
	RSSI Output	Support, with RSSI soldering pads
	Firmware Type	Ardupilot, Betaflight, INAV firmware

	Firmware Name	RADIOLINKF405
	USB Port	1 (Type-C)
	RC In Signal Input	SBUS/CRSF
	OSD Telemetry	Support, OSD Module Integrated
	ESC Protocol	PWM, two-way DShot, and OneShot Protocol
	Input Voltage	2S-6S
	BEC	3.3V/300mA; 5V/3A; 9V/3A
	9V BEC Switch	Support (USER1)
	Adaptable Models	2-6 axis multi-rotors, Airplanes, Helicopters, flying wings, Cars, Boats, Robots, bait boats, Lawn mowers, etc.
	Operating Temperature	-30~85°

Package

F405 Flight Controller*1

ESC Connect Cable*1

Camera Connect Cable*1

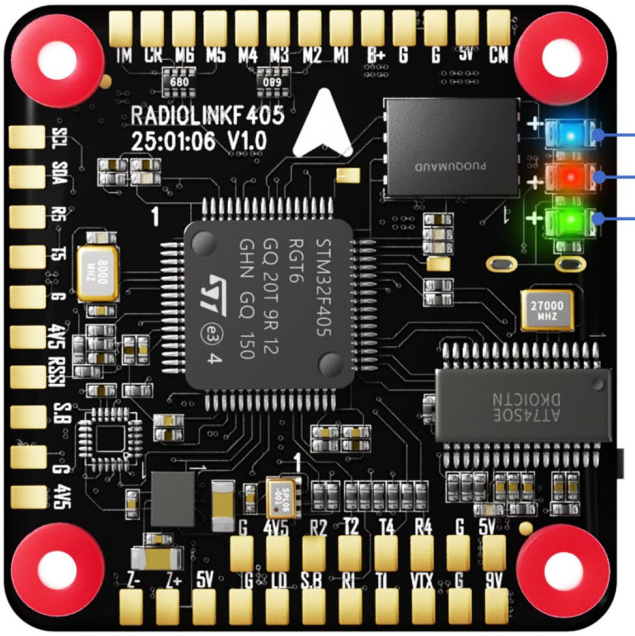
R8SM Receiver Connect Cable*1

Analog Video Transmission Connect Cable*1

GPS Connect Cable*1

R9DS Receiver Connect Cable*1

LED Indicator

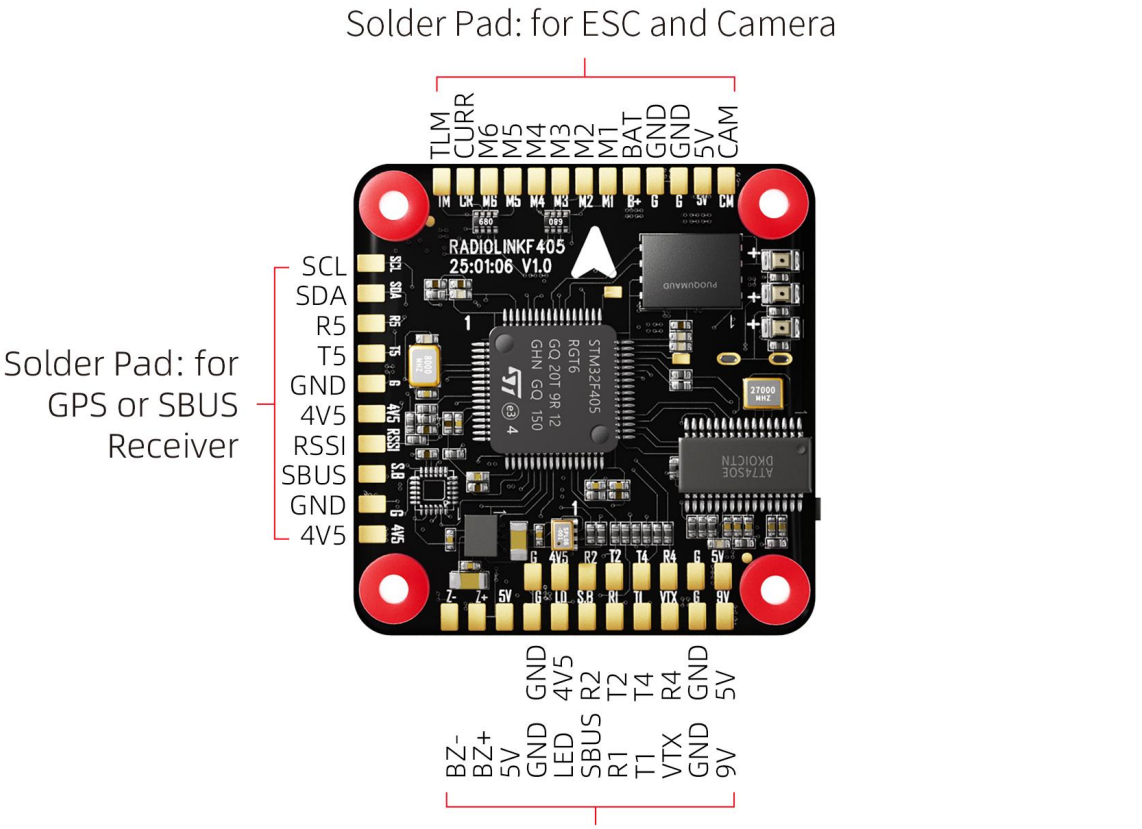


Blue LED: Status indicator.

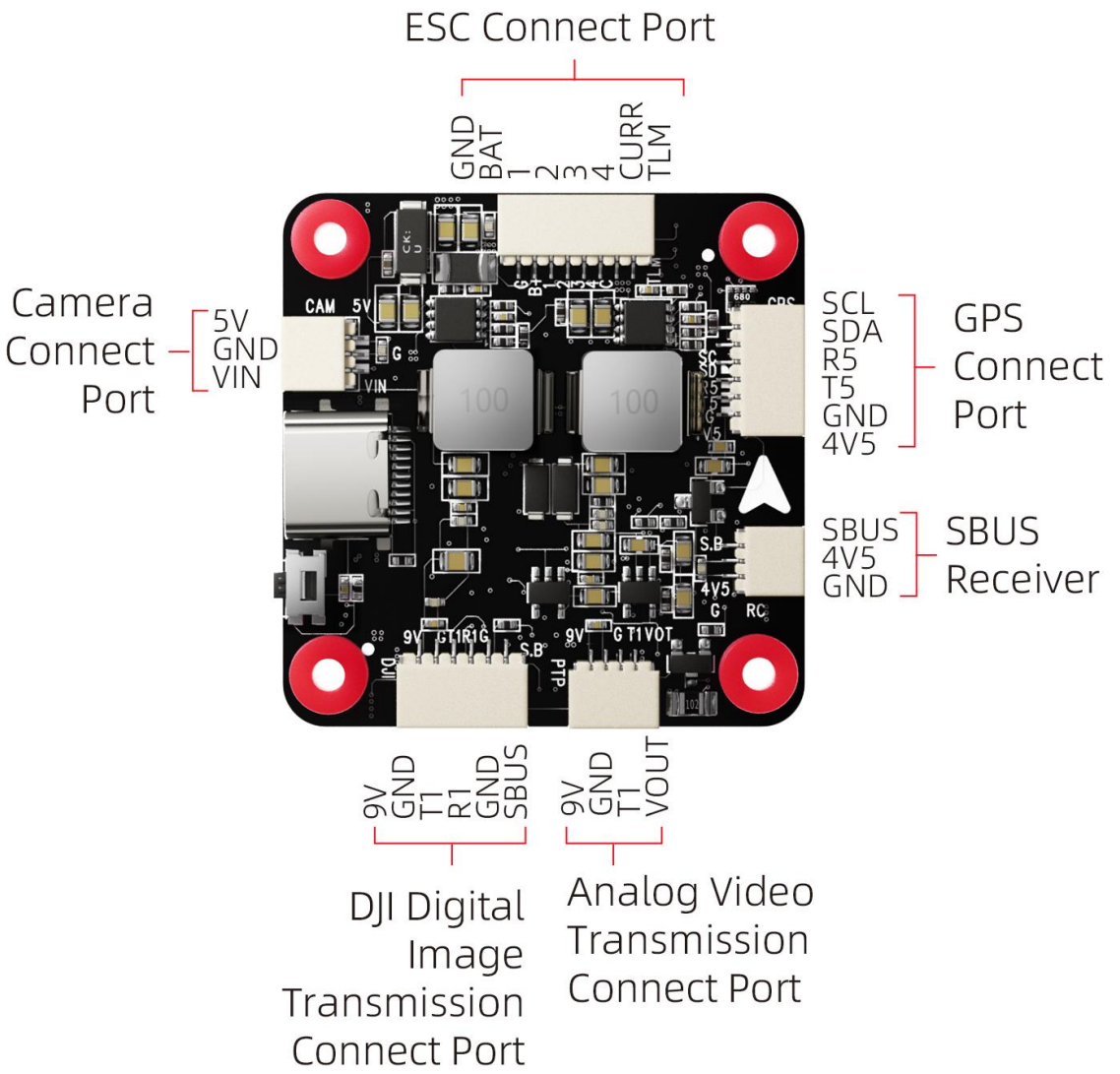
Red LED: Power indicator.

Yellow and green LED: 9V BEC indicator. When the 9V BEC is turned on, the yellow and green LED is always on.

Soldering Pad Definition

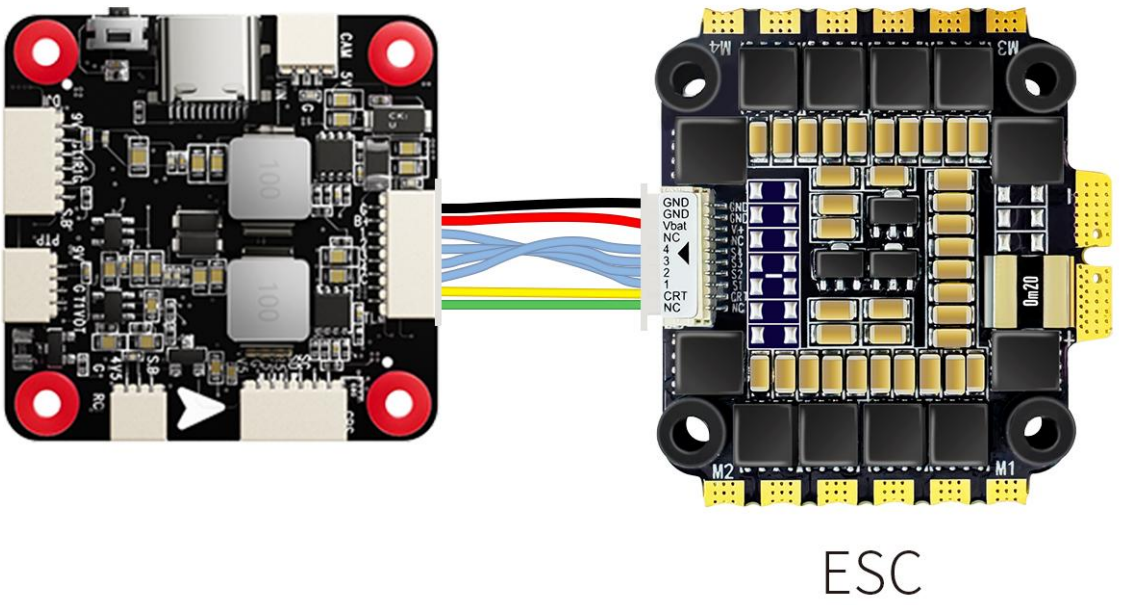


Socket Interface Definition

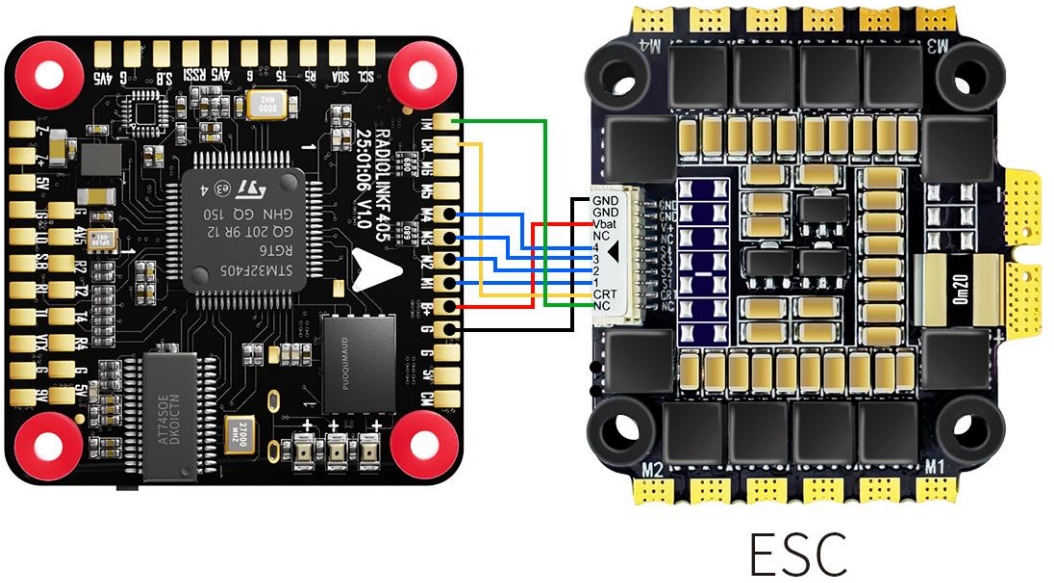


FC & ESC Connection

Method 1: All connectors

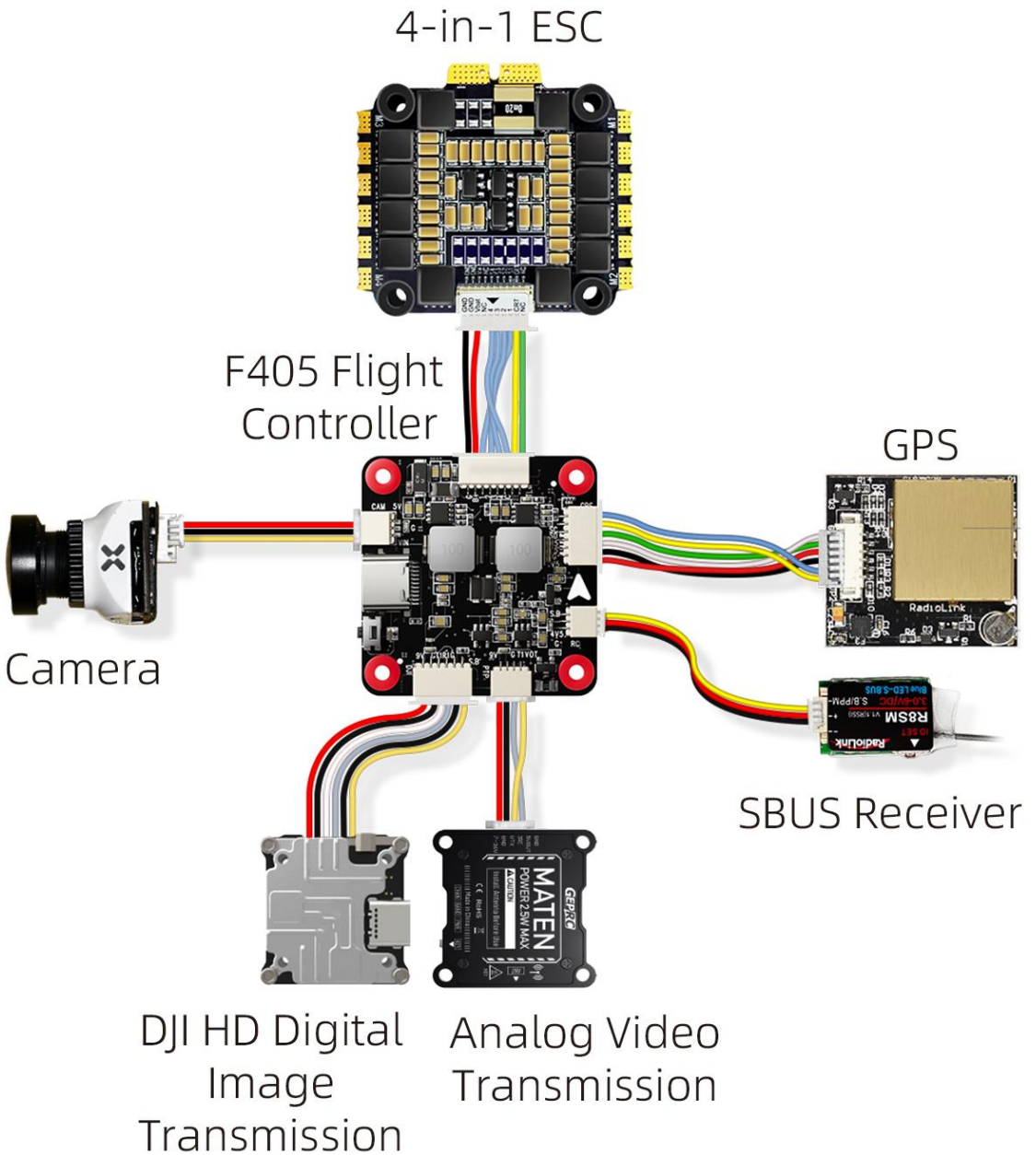


Method 2: Direct Soldering



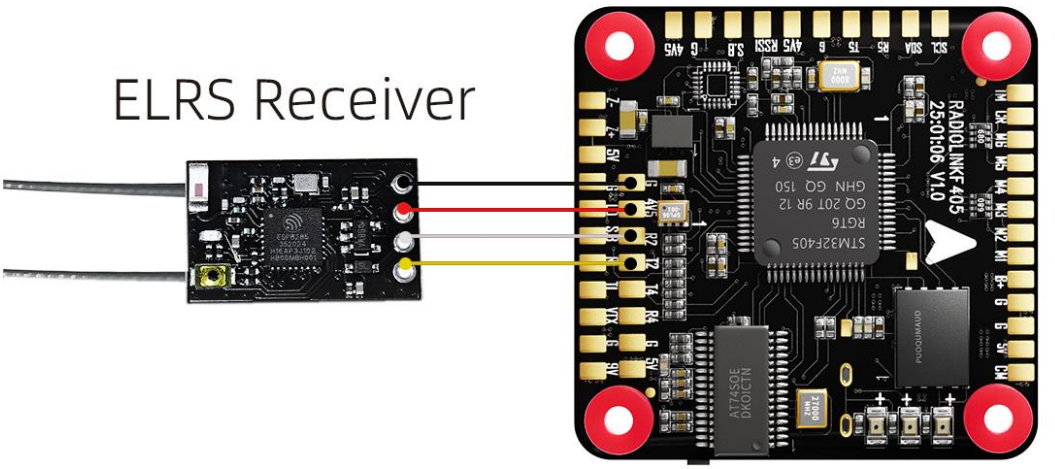
FC's Peripheral Connection

Method 1: All connectors

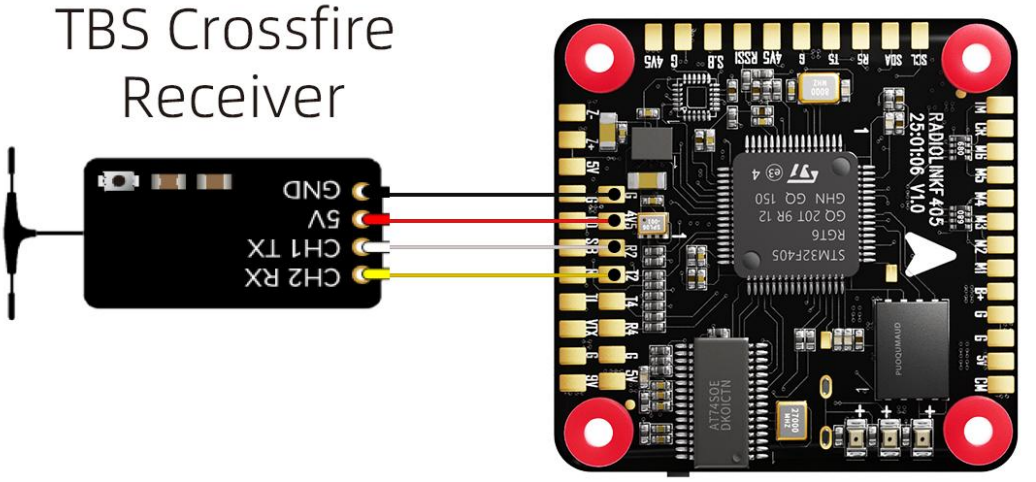


Method 2: Direct Soldering

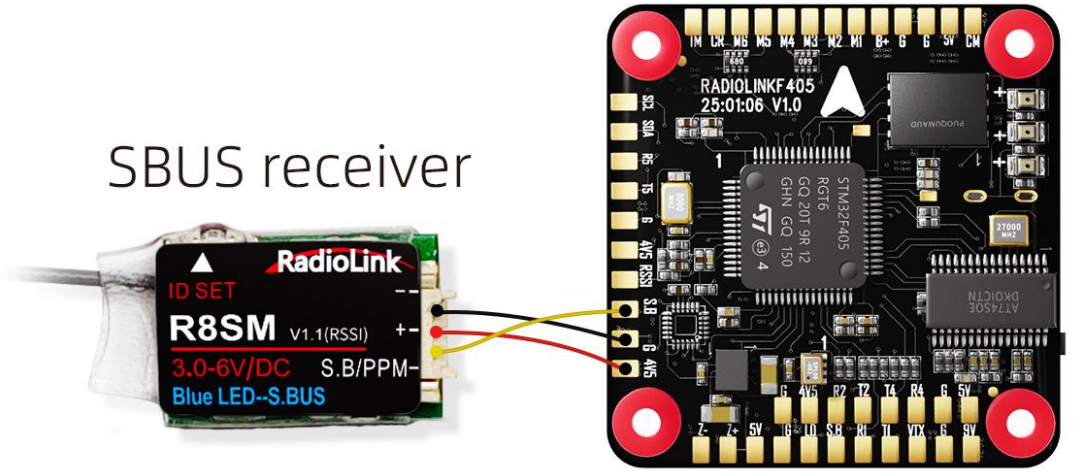
ELRS Receiver

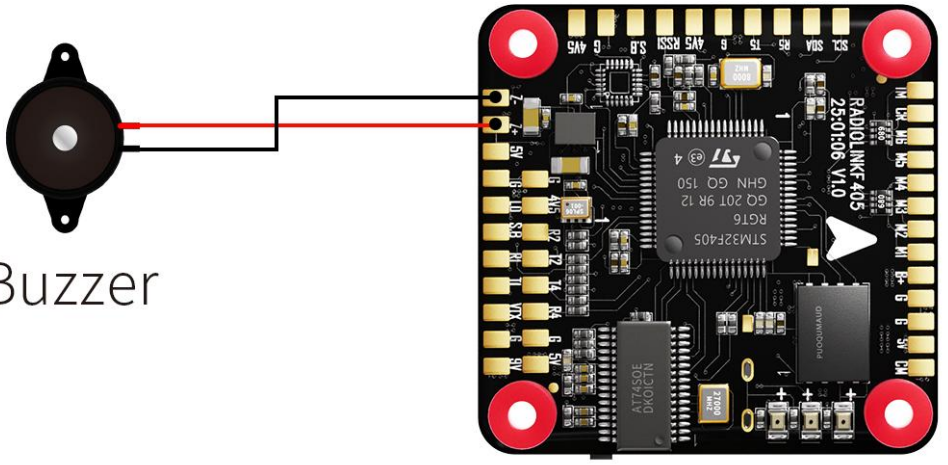


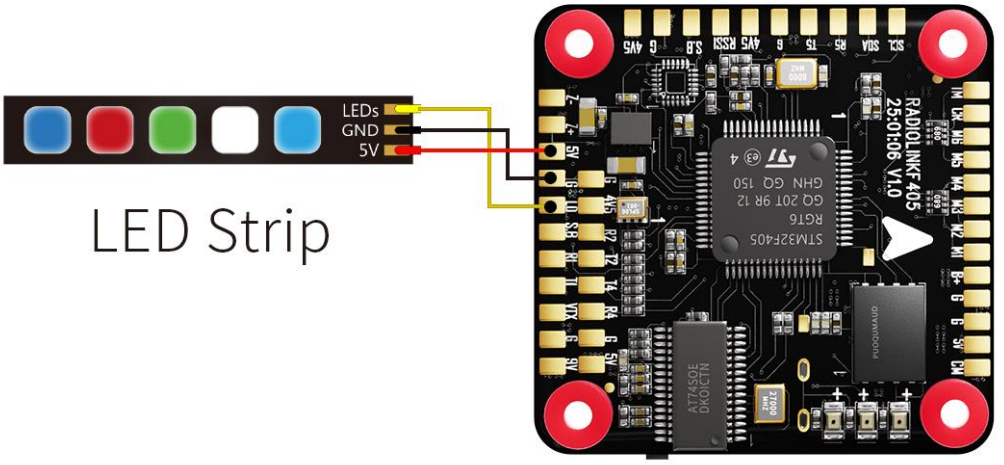
TBS Crossfire Receiver

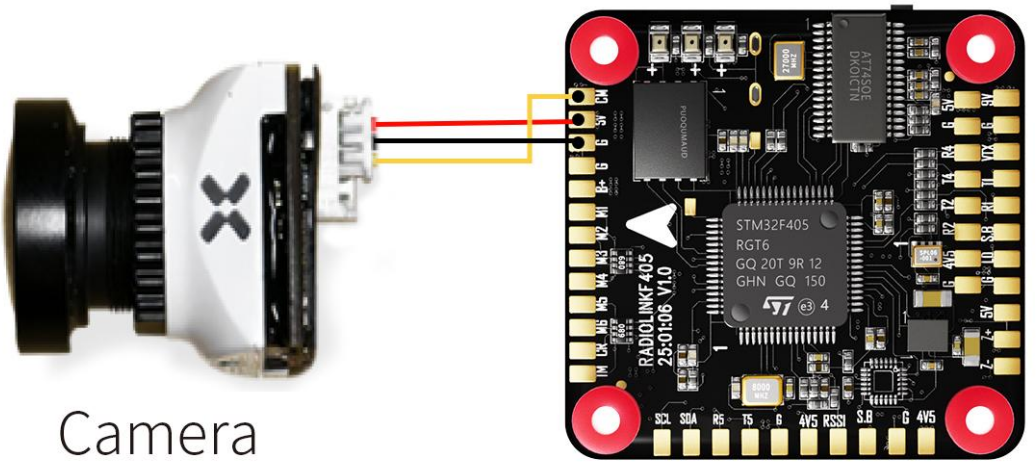


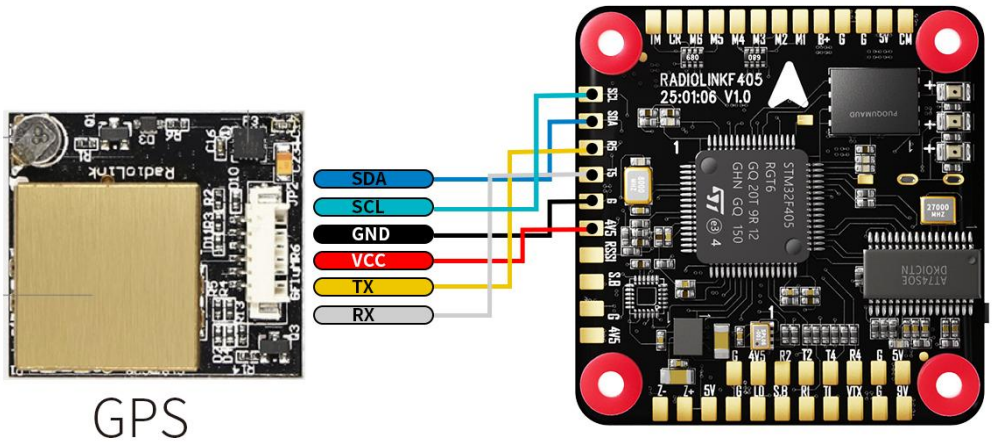
SBUS receiver



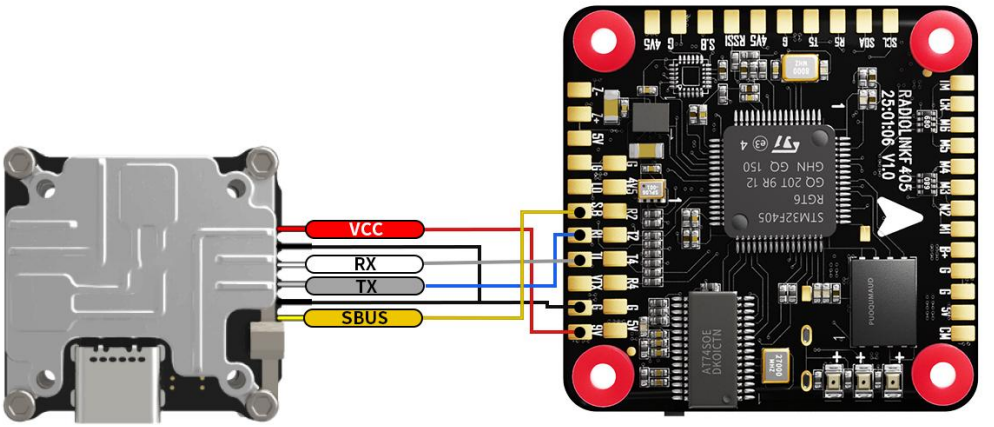

Buzzer


LEDs
GND
5V
LED Strip

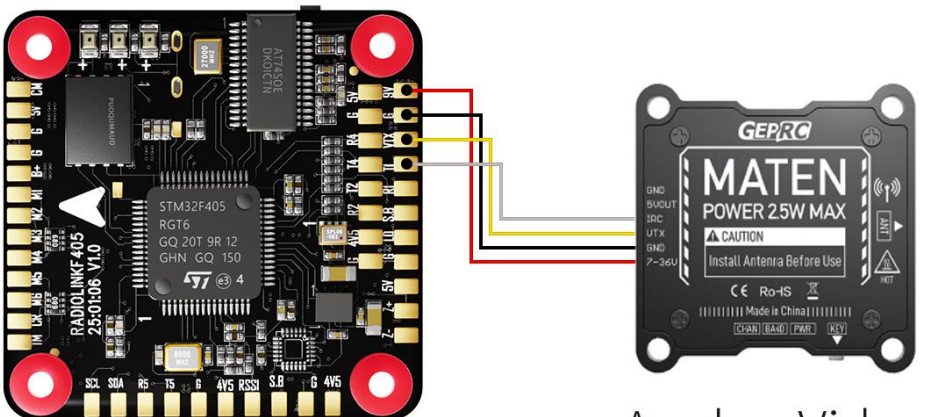

Camera
STM32F405
RGT6
GQ 20T 9R 12
GHN GQ 150
RADIOLINKF 405
25:01:06 V1.0



GPS



Digital Image Transmission



Analog Video Transmission

FC Firmware Update

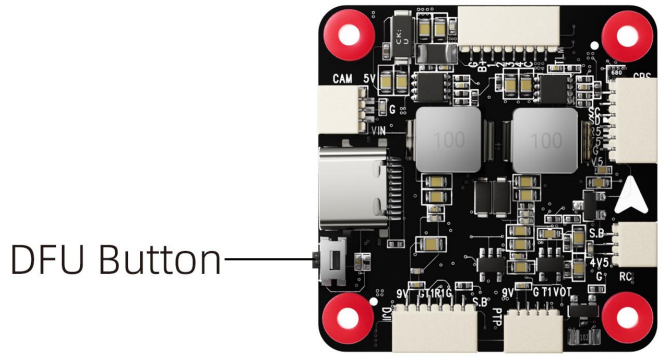
The firmware of F405 can be updated by loading local firmware now. After betaflight officially adds the RADIOLINKF405 flight control board, you can update the firmware by loading online firmware in Betaflight Configurator.

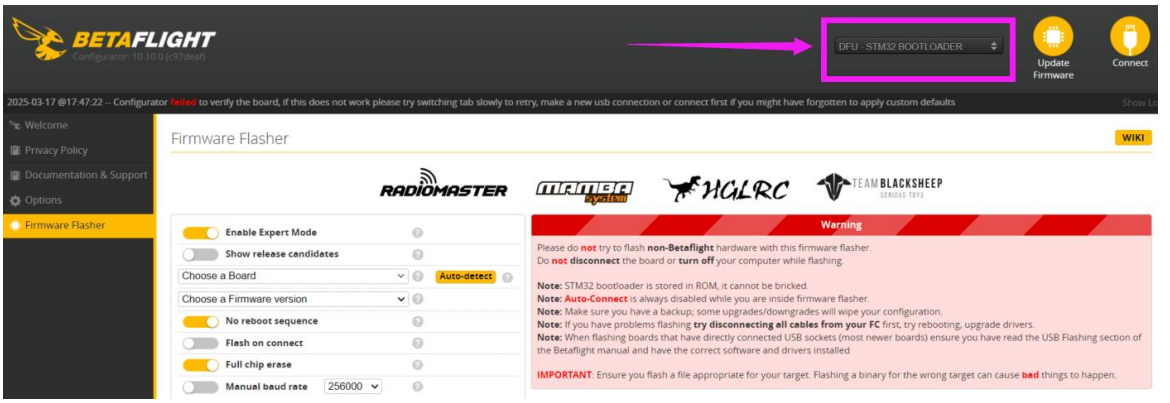
F405 firmware download link:

https://www.radiolink.com/f405_parameters_setting

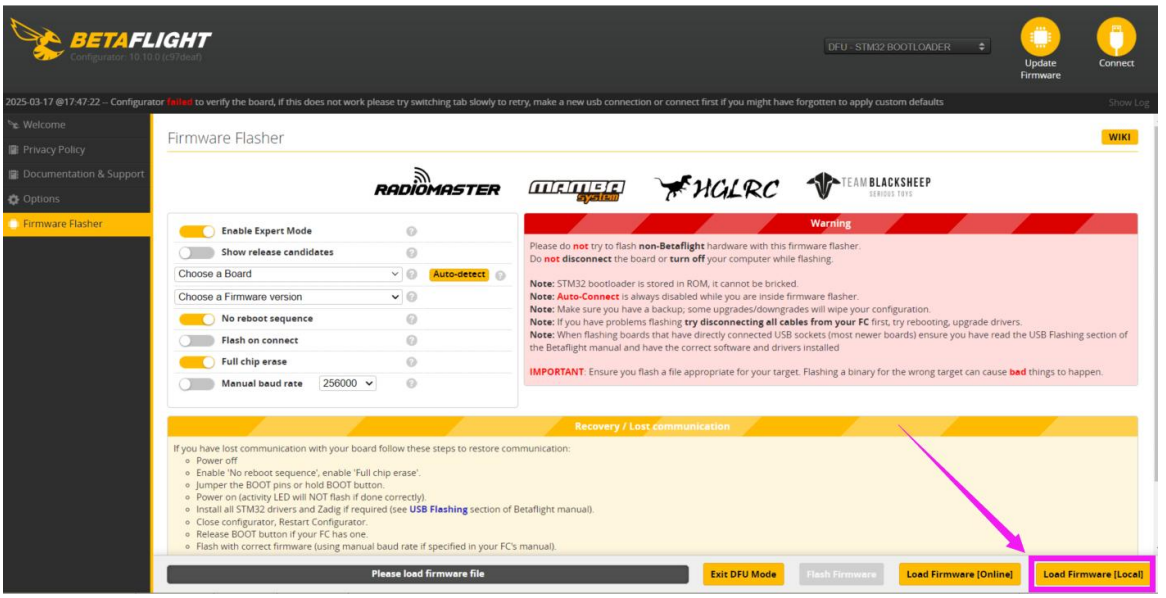
F405 firmware update steps:

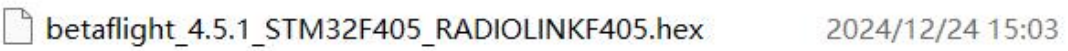
(1) Long press the DFU button. At the same time, connect F405 to the computer with a USB cable. Betaflight Configurator will display the DFU mode (See picture below);





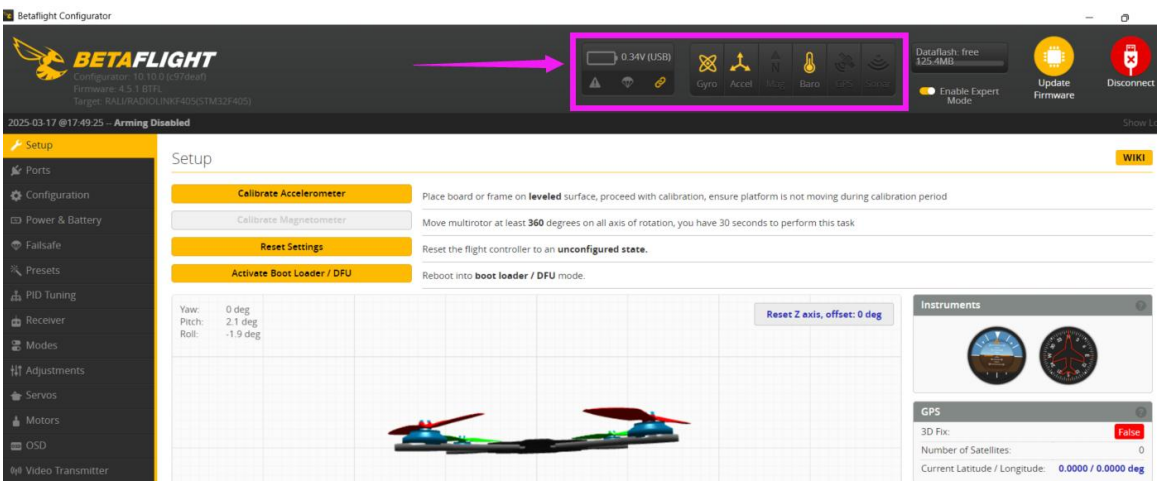
(2) Click “Load Firmware [Local]”. Select the firmware downloaded from RadioLink official website;





(3) Click “Flash firmware”;

(4) After the firmware is flashed, connect it to Betaflight Configurator again. The icon of gyroscope, accelerometer, barometer and DataFlash will be displayed.



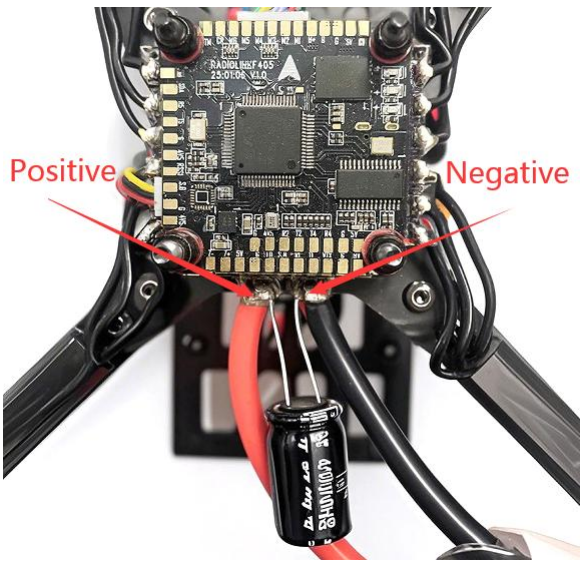
Installation of ESC and Capacitor

1. ESC Installation

The frame bottom plates of some racing and aerobatic drones are made of conductive materials by CNC technology. If they are not installed properly, the safety distance between the electronic components at the bottom of the ESC and the metal bottom plate may be insufficient. Due to the buffering effect of the fuselage shock absorber ball (or shock absorber bracket), when the aircraft encounters a collision or landing impact, the ESC may be displaced and directly contact the bottom plate, causing a short circuit and damaging the ESC and flight controller.

2. Capacitor Installation

Please install the capacitor that comes with the ESC. Make sure there is no false soldering, otherwise the ESC and flight controller will be easily damaged when there is a crash. Solder the capacitors correctly to the red and black ends of the ESC battery cable. Remember not to solder the positive and negative poles of capacitor in reverse (As shown below).



Large capacitors significantly improve the reliability of the ESC under complex working conditions by stabilizing voltage, suppressing interference and providing instantaneous energy. They are important components to ensure the stable operation of the UAV power system. It is easy to damage the flight controller if ESC is not equipped with capacitors.

Specific functions of large capacitors

1. Stabilize power supply voltage: When the motor starts, accelerates or stops suddenly, it will consume a lot of current instantly, which may cause power supply voltage fluctuations. Large capacitors can quickly release stored energy, compensate for instantaneous current gaps, and avoid voltage drops.
2. Filter out high-frequency interference: The ESC controls the motor speed through high-frequency switching signals, which will generate current spikes and electromagnetic noise. Large capacitors can absorb high-frequency interference and reduce signal interference to ESC and FC.
3. Protect electronic components: When the motor stops suddenly or stalls, it may generate instantaneous high voltage. Large capacitors can absorb such abnormal energy to prevent damage to the power tube (MOSFET) or power circuit inside the ESC.
4. Improve dynamic performance: When the flight attitude changes rapidly, the capacitor can serve as a temporary energy source to assist the ESC in responding to control commands quickly and ensure the continuity of the motor power output.