

F405

Quick Start Guide



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	3
	Package	5
	LED Indicator	5
	Soldering Pad Definition	6
	Socket Interface Definition	7
	FC & ESC Connection	8
•	FC's Peripheral Connection	9
	FC's Firmware Update	13
	Installation of ESC and Capacitor	15

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)		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°



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



Solder Pad: for Buzzer, LED Strip, ELRS/TBS Crossfire/SBUS Receiver, Digital Image Transmission, Analog Video Transmission

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





TBS Crossfire Receiver





SBUS receiver















Digital Image 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:

 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);



DFU Button-



 Click "Load Firmware [Local]" . Select the firmware downloaded from RadioLink official website;

Setafli	ант		CP-U -STURZ POOTLOADER = Come			
2825-03-17 @12-47-22 - Configurate *%: Welcome # Physicy Policy	Finited to sently the board, if this does not work please by switching side slowly in a Firmware Rasher	ety, culic a reseale connection or connect liest if you might have	er Tanganteen ka apply ankkaren derSaults Secon Lag 1990			
 Documentation & Support Options 	RADIOMASTER	aurause FHGLRC	TEAN BLACKSHEEP			
- homeire Kophe	Devils Open Water Devils Capen Water Devils Capen Water Devils Capen Water Devils of Privmen vesses Vesses to Registre Net of the Registre Devils Must also casese Must also casese Must also cases Must also cases	Port of the set o				
	Figs has been an end on the second se	Receivery () Les administrations () menuation Benefigte menual) ; menual Ener 1959 Maria				
🗋 beta	flight_4.5.1_STM32F405_R/	ADIOLINKF405.hex	2024/12/24 15:03			

(3) Click "Flash firmware";

Loaded Local Firmware: betaflight_4.5.1_STM32F405_RADIOLINKF405.hex (500571 bytes)	Exit DFU Mode	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.

SETAF	LIGHT			1223/W629	× 7		Caselloit- Iner	Lipciaz Fernivare	Decorrect
2025-03-17-017-0125 - Arming									
🖈 Setup	Con a								-
🖆 Parts	setup								with
Configuration	Calibrate Acceler	Place bo	and or home on leveled surf	ics, proceed with calls	ation, ensure plat	orm is not moving during a	alibration period		
ED Power & Battery	Calibrate Hagnet	More m	Abratur at least \$40 degrees	on all arcs of rotation, y	to have 30 second	to to perform this task			
	Reset Sector	P Roeth	fight controller to an unce	figured state.					
%, Prosets	Activate Boot Lond	er/dfu Reboot	to best leader / DFU mode						
₫ PID Tuning							Instruments		0
d Receiver	Pach: 2.1 deg					Repet Z exis, offset: 0 di		-	
2 Modes	Rol: -1.9-deg	-15-leg							
HT Adjustments									,
🖶 Serios							-	-	
A Motors			-		-		GPS		0
■ 050		-					Number of Satellites		
Ad Midney Transconting							Current Latitude / Lo	returie 1 0000	/ 0.0000 day

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.