SPARROW 2

Manual v2.0

Description

On the basis of the *SPARROW* FC, *SPARROW 2* has updated the operation mode to simplify the user's use and enhance the operation experience. At the same time, it adds support for a variety of receiver signals, including PWM,PPM,SBUS,IBUS,CRSF and supports DJI-OSD,CRSF-TELE. For specific functions and usage, refer to the detailed description below.

WARNING

Please strictly abide by relevant national laws and regulations and fly safely. Before using the FC, you must fully understand the safety details. The equipment and any electronic products on the aircraft cannot be completely reliable. The necessary inspections must be carefully performed before the flight.

Content

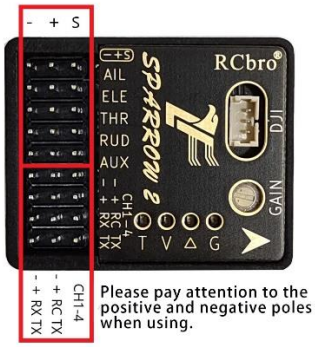
1. PARAMRTER

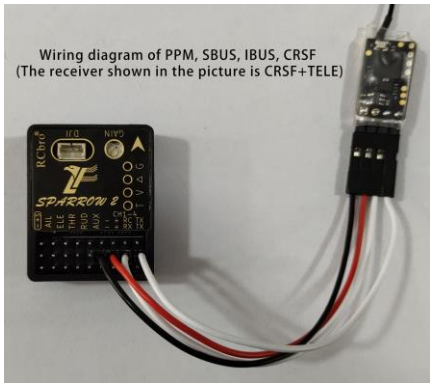
FC	Size	33*27*12mm
	Weight	11g
	Voltage	5V
GPS	Size	18*18*6mm
	Weight	6g
	Voltage	5V
Receiver	Type	PWM,PPM,SBUS,IBUS,CRSF(ELRS)
Others	Accessories	FC,GPS,Screwdriver,Wire
	Protocol	DJI-OSD,CRSF-TELE

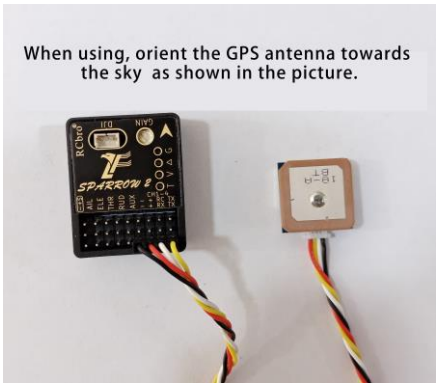
2. INSTALLATION & WIRING

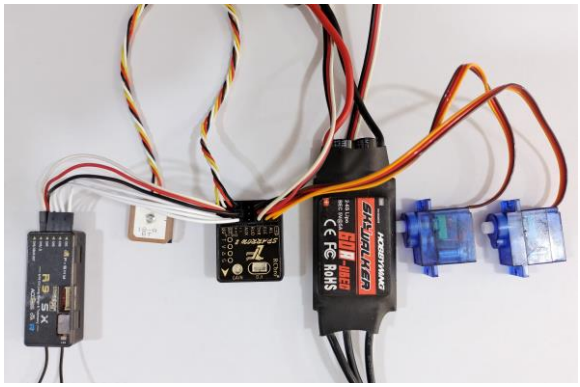
➢ FC Installation Direction

➢ Interface









Servo	AIL	AIL
	ELE	ELE
	THR	THR
	RUD	RUD
	AUX	RC CH6 or CH7 output
Receiver	CH1-4	PWM-IN,CH1-4:AIL,ELE,THR,RUD
	RC	PPM,SBUS,IBUS,CRSF or PWM Mode Channel
	TX	CRSF-TELE
GPS	Refer to the schematic diagram to connect	

*It is recommended to select the 3-switch as a mode channel.

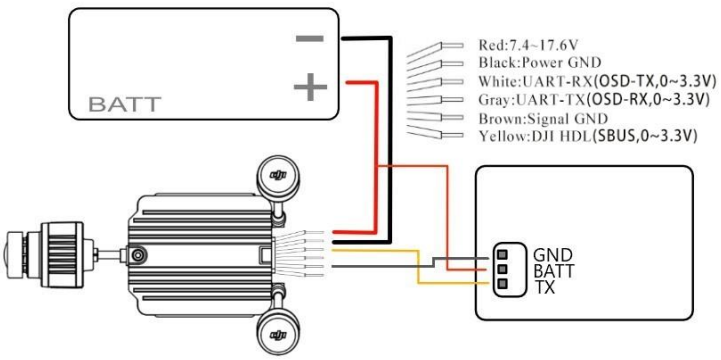
*It supports 5-channel PWM input, so when using PWM receiver, the AUX cannot be used.

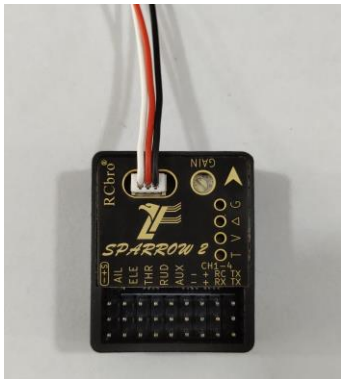
*For PPM, SBUS, IBUS, CRSF, the order of channel 1-4 is defined as AIL, ELE, THR, RUD.

*The 5th channel of the PPM/SBUS/IBUS is the mode channel, the 6th channel is the AUX.

*The 6th channel of the CRSF is the mode channel, the 7th channel is the AUX.

➢ DJI





*DJI interface also supports voltage detection.

*DJI interface voltage detection ranges from 2~6s, pay attention to the DJI supply voltage (7.4-17.6V) when wiring, so as not to burn equipment!

➢ DJI-OSD

The display includes:Latitude/Latitude, Satellite, Altitude, GroundSpeed, ClimbRate, Distance, Voltage,Attitude information, FlightMode, Heading.

➢ **CRSF-TELE**

3. REMOTE CONTROL

➢ How to judge whether the RC is normal?

After the PC is powered on, all the LEDs are on, and the GPS configuration starts. The 3 green lights flash at the same time, indicating that the GPS configuration is completed, and the RC is not recognized; when the green light T and V flash rapidly at the same time, the RC has been recognized.

* When power-on, the sensor takes 15 seconds to initialize, please keep the FC level.

*The green light T and V flash quickly and the △ is on, indicating that the RC signal has been recognized, but the roll or pitch has a large trim or the throttle is not at the lowest position.

➢ How to use the RC to unlock the FC?

Step 1: Keep the throttle at the lowest position after power on;

Step 2: Push the throttle to the highest position;

Step 3: Push the throttle to the lowest position, the green light starts to indicate the type of plane and flight mode.

➢ How to use the FC to calibrate the ESC?

Step 1: Push the throttle to the highest position in MANUAL mode;
Step 2: Power on;
Step 3: Green light T and △ flash, pull the throttle to the lowest after hearing the ESC tone, the green light starts to indicate the type of plane and flight mode.

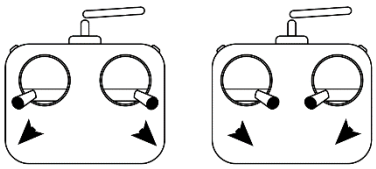
➢ How to use the RC to set the type of plane?

Set the type of plane through the quick hit mode switch (CH5 or CH6) after using the RC to unlock the FC.

*You need to stop one second after switching once to continue to switch.

➢ How to use the RC to calibrate level?

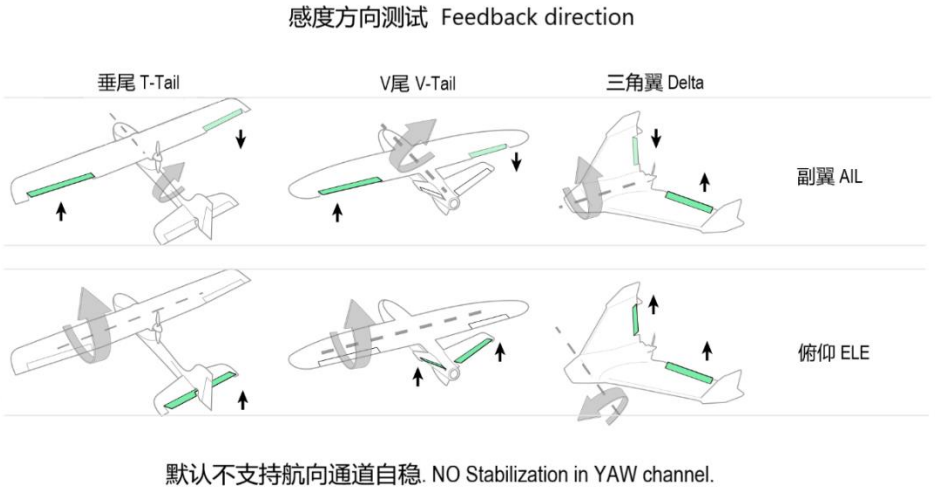
FC is placed horizontally and kept still,choose a way to dial the sticks as shown in the figure, until the three green lights flash at the same time.



➢ How to use the RC to set direction of the servo?

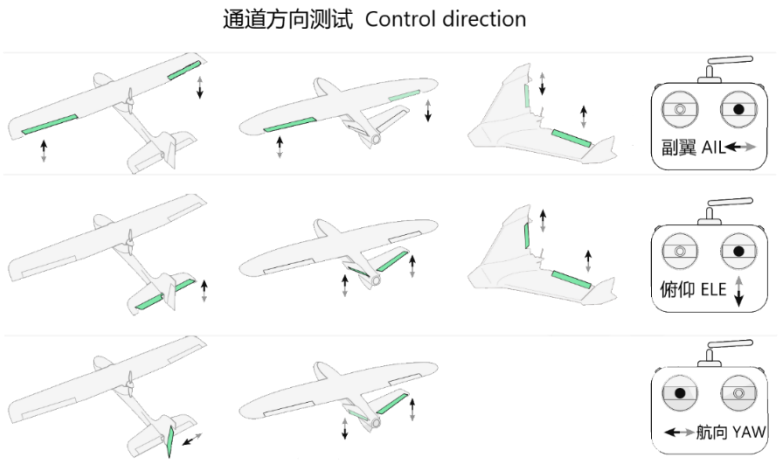
*Must be completed before unlocking the RC.

Step 1: Check the feedback direction.



Step 2: If the feedback direction is not correct, turn the AIL or ELE stick to the maximum position and hold it until the direction of the servo changes.
Step 3: Check the feedback direction again.

➢ How to set the RC direction?



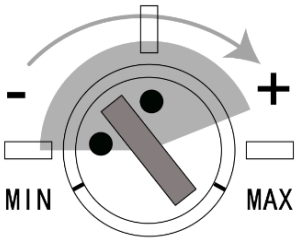
*If the control direction is not correct, you can set the channel output reverse in the RC.

➢ FailSafe

Type	Setting method
PWM	Set the mode channel output in the RC to ensure that the flight mode is RTH after the RC is turned off.
PPM	
IBUS	
CRSF	
SBUS	Automatically identify whether it is out of control.

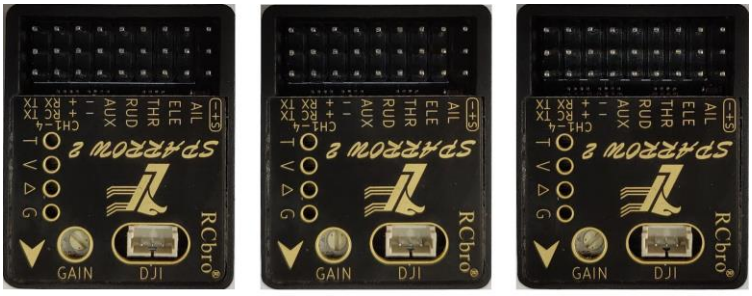
*Must connect to GPS when using it, otherwise RTH mode cannot be used.

4. GAIN



Adjust clockwise to increase the sensitivity, if the sensitivity is too large, the flight will jitter

*The knob adjusts the overall sensation of the flight control, and does not distinguish the individual channel.



MAX MID MIN

5. FLIGHTMODE

MODE	Describe	Green LED
MANUAL	RC directly controls the aircraft	Slow Flash
STABILIZATION	Auto level	ON
ALTHOLD(NO GPS)	Plane holds altitude, 25m minimum height limit	Fast Flash
RTH(GPS OK)	Return to home. Circle within a radius of 50 m at an altitude of 70 m,13m/s	Fast Flash

Red LED	Describe
OFF	NO GPS
Flash	NO Positioning.Can not fly.
nON	Successful Positioning.You can fly.

➢ AUTO TAKEOFF

ALTHold mode: Push the throttle to the MAX and after the motor rotates, the plane will automatically climb to a height of 25m.
RTH mode: Push the throttle to the MAX, shake the plane or give the plane an initial speed. After the motor rotates(Start slowly), the plane will automatically climb and circle at HOME.

➢ Takeoff/Landing State

The motor is slowly activated only in the takeoff / landing state, when the altitude is above 30m, the speed is greater than 3m/s, then enter the normal flight state,at this time, switch to the RTH mode, the motor is no longer started slowly; when the altitude is below 15m, the throttle is minimum, the speed is less than 1 m/s, then enter the landing state, at this time, switch to the RTH mode, the motor will start slowly.

➢ Throttle Control

The throttle in the return home mode is controlled semi-automatically. If the cruising speed is low, the user can manually raise the throttle to increase the speed; the throttle in other modes is manually controlled.

➢ Throttle Output

Before using RC to unlock the FC, the throttle is locked,no output! After unlocking, the throttle output is determined by the GPS state, referring to the table below.

MODE	NO GPS	NO Positioning	Positioned
MANUAL	RC throttle	RC throttle	RC throttle
STABILIZATION		NO Output	
ALTHOLD		RTH	RTH
RTH	ALTHOLD	NO Output	*<Throttle Control >*