T1 Ranger VTOL – PNP Instruction Manual

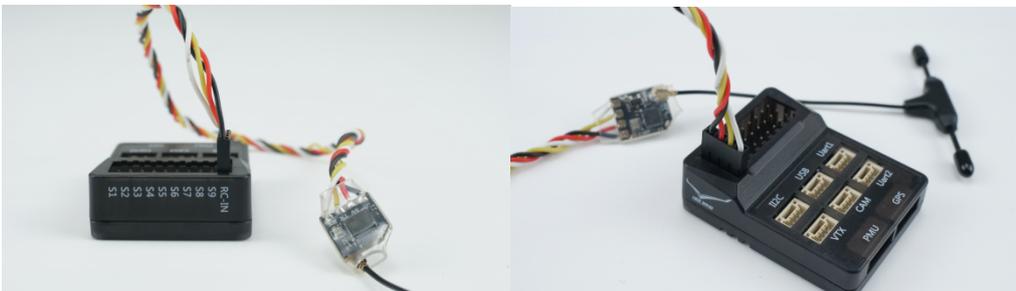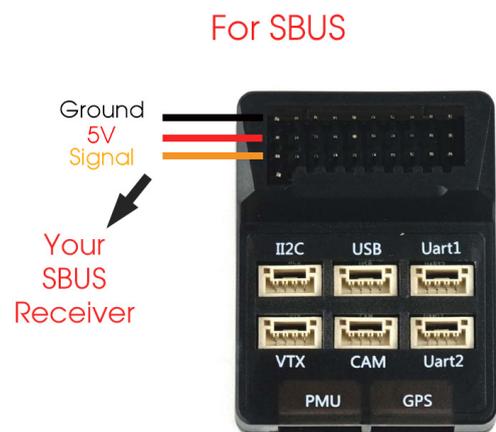Source : Heewing Official Store at www.heewing.com

Package Content

Remove the content out of the box including the provided USB wires for the Flight Controller. Also, prepare your radio, receiver and battery.

Connect your preferred receiver to the RC-In port of the FX-405 Flight Controller.
*Note the Ground, 5V & Signal line.
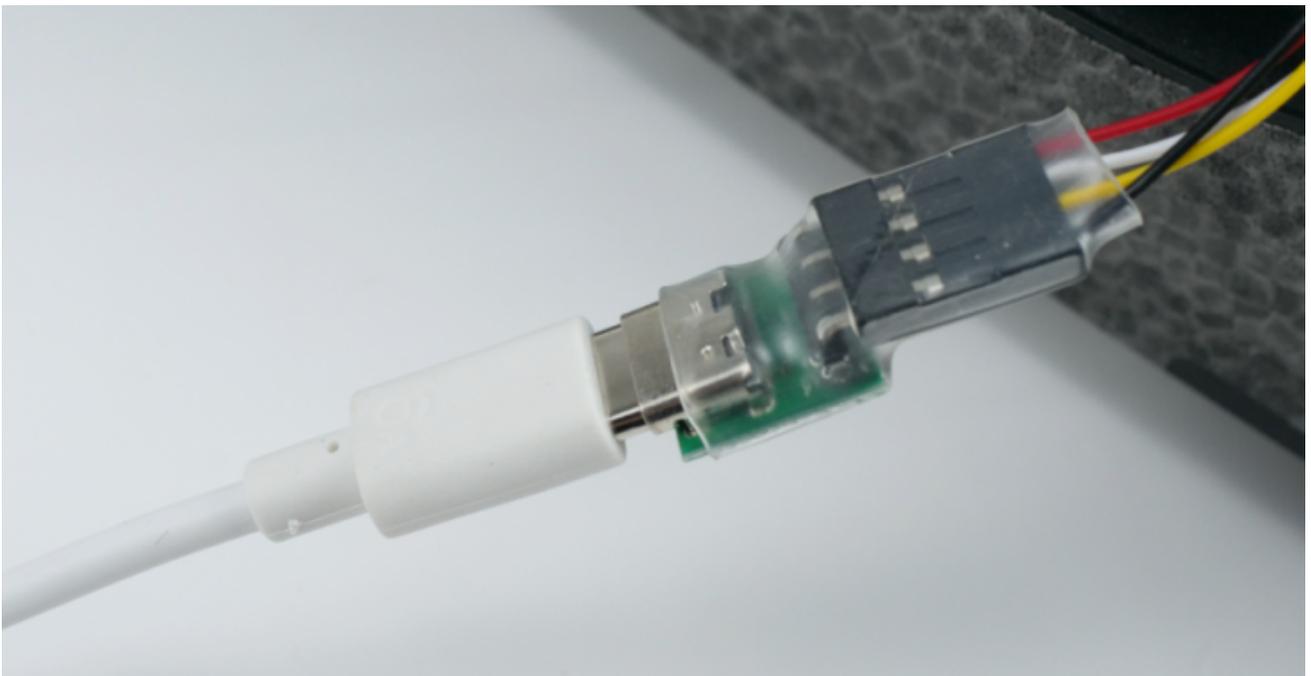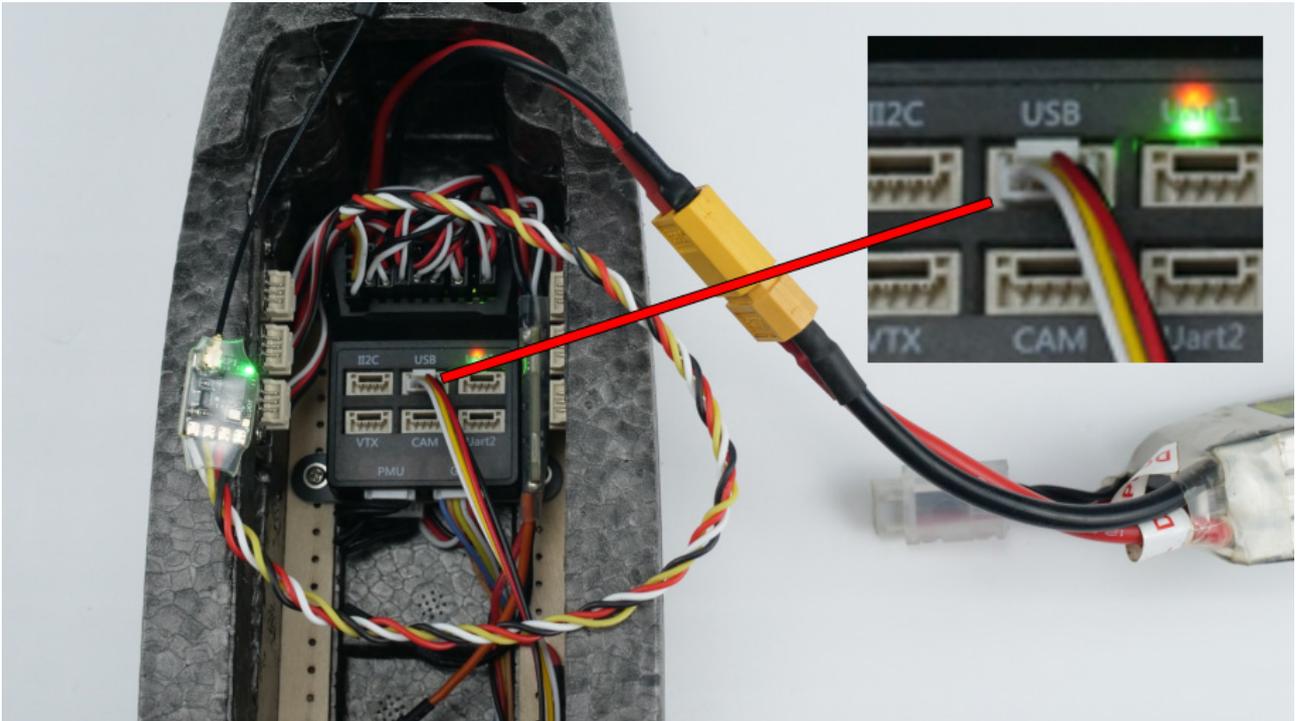

**For Crossfire or ELRS**

For SBUS

Ground
5V
Signal

Your
SBUS
Receiver

Turn on your radio and hook up battery to your T1 Ranger.

Then connect the USB cable provided to the flight controller's USB port and the other end to your PC.

Open the Mission Planner software on your pc. If you do not have one yet, visit our website for the download link here > https://www.heewing.com/pages/fx-405-vtol-flight-controller
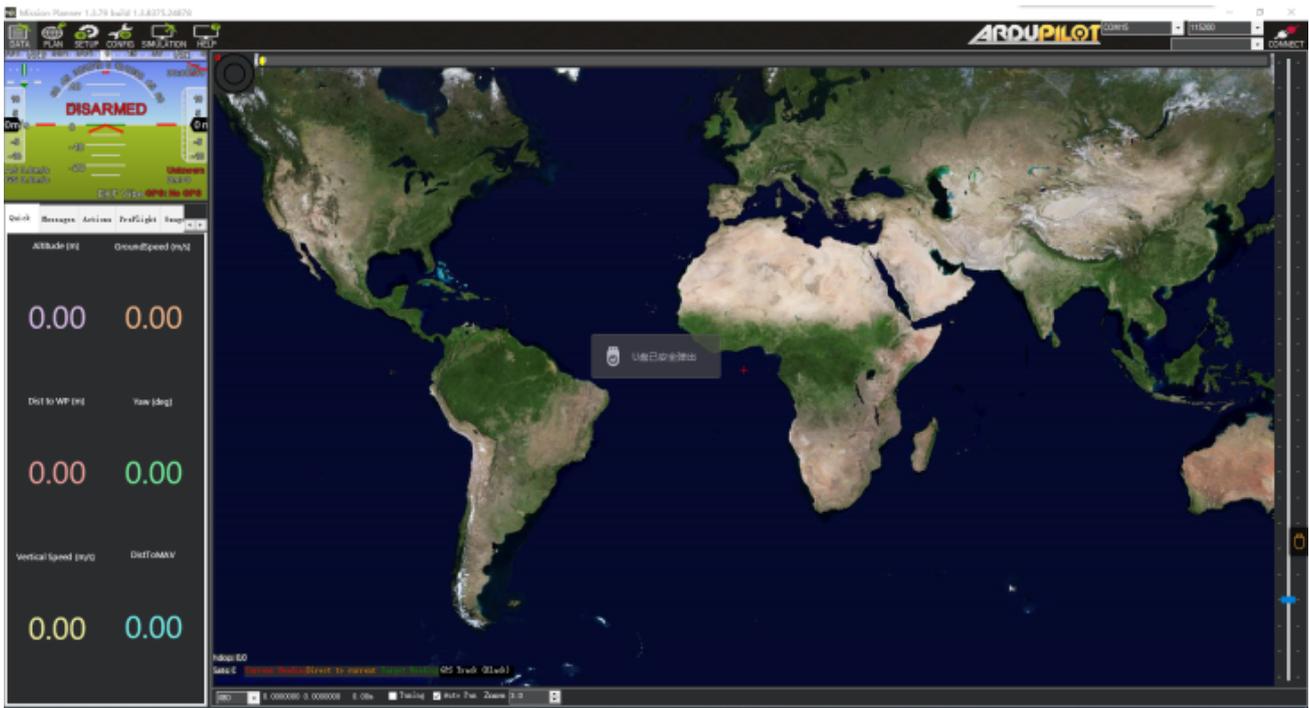
On the top right of the window, select the correct COM port. *every PC has different COM number, it will be different COM number on your PC.
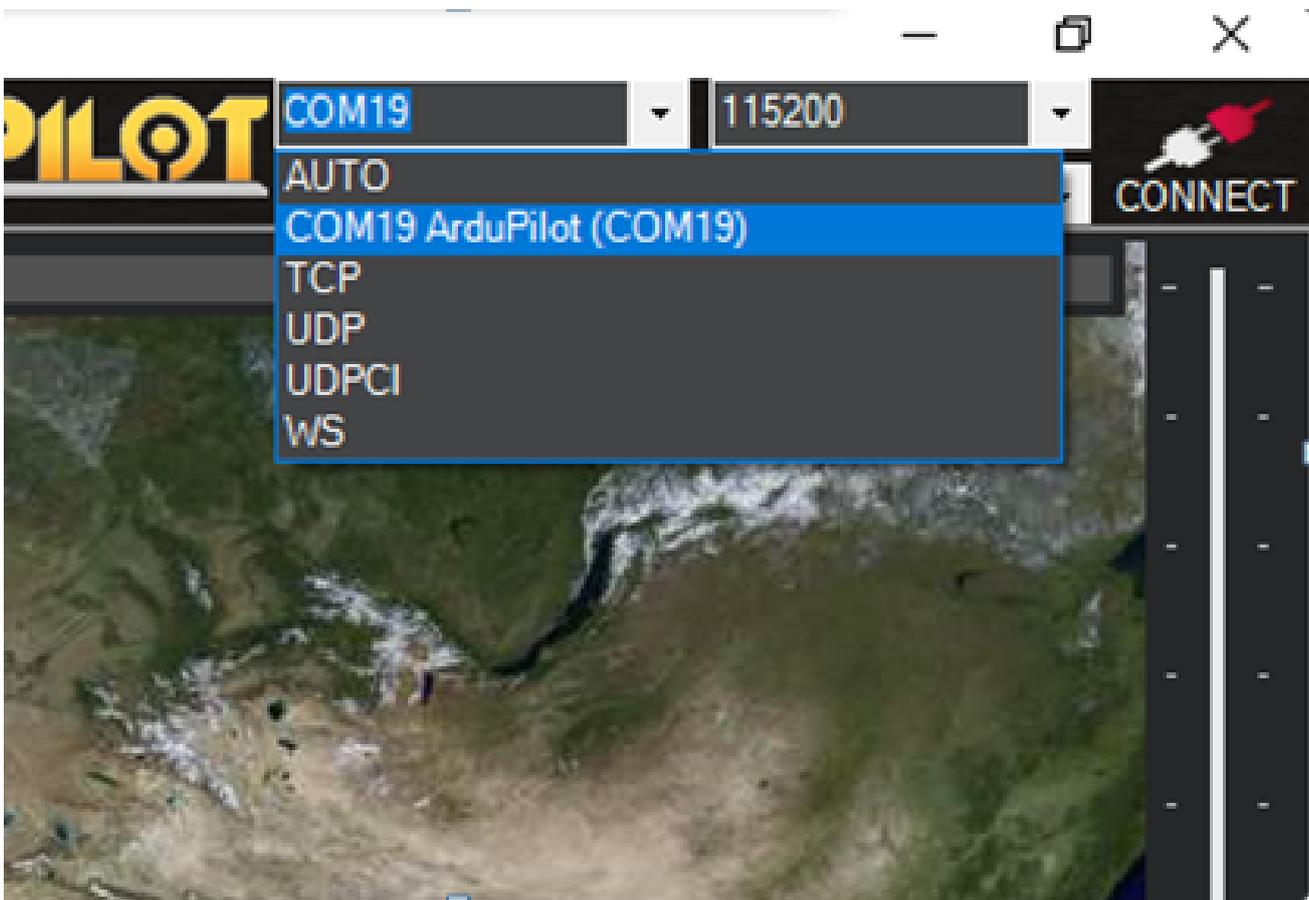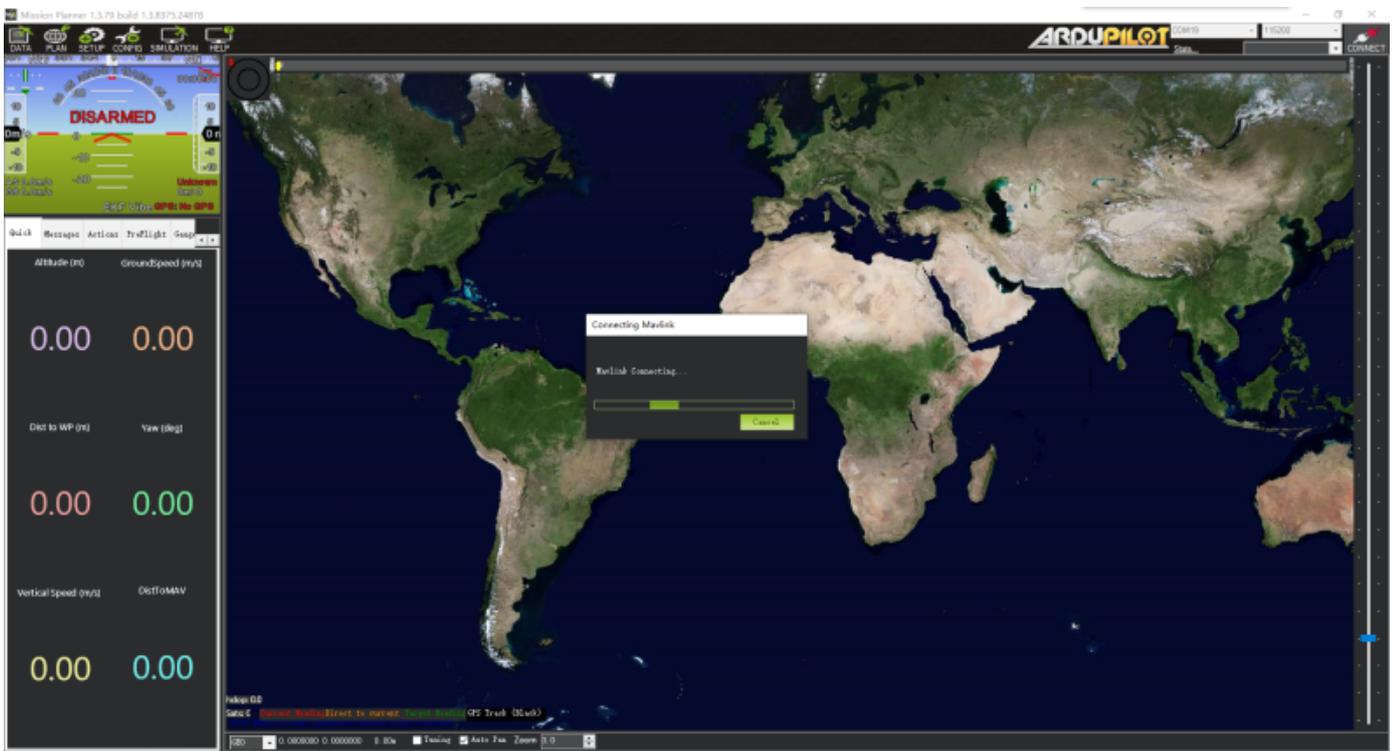
Then click connect

After successfully connecting to the flight controller, please ignore any errors and proceed to next step.
Note : Ardupilot automatically recognizes SBUS input, you do not need to perform receiver setup if you are using SBUS receiver. For Crossfire or ELRS receiver, please follow steps below.
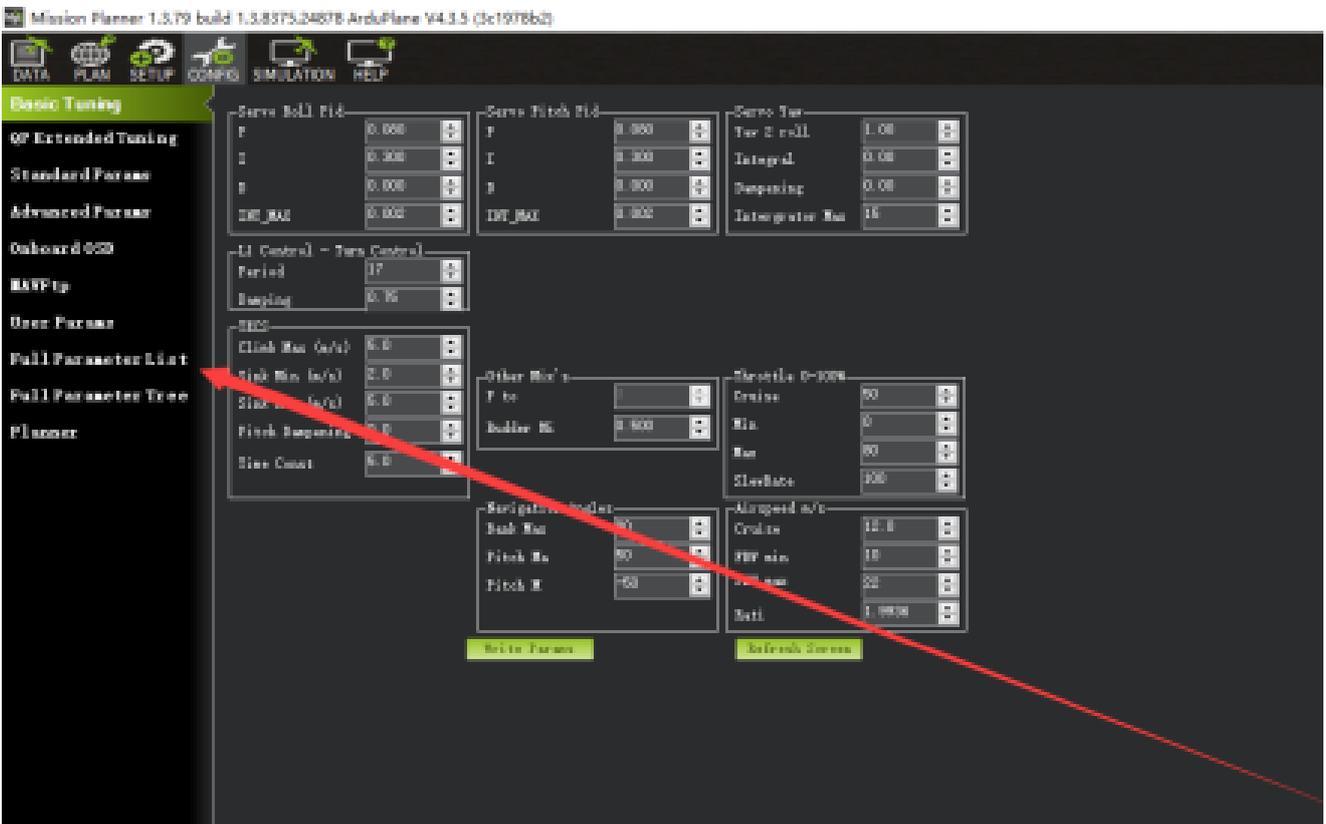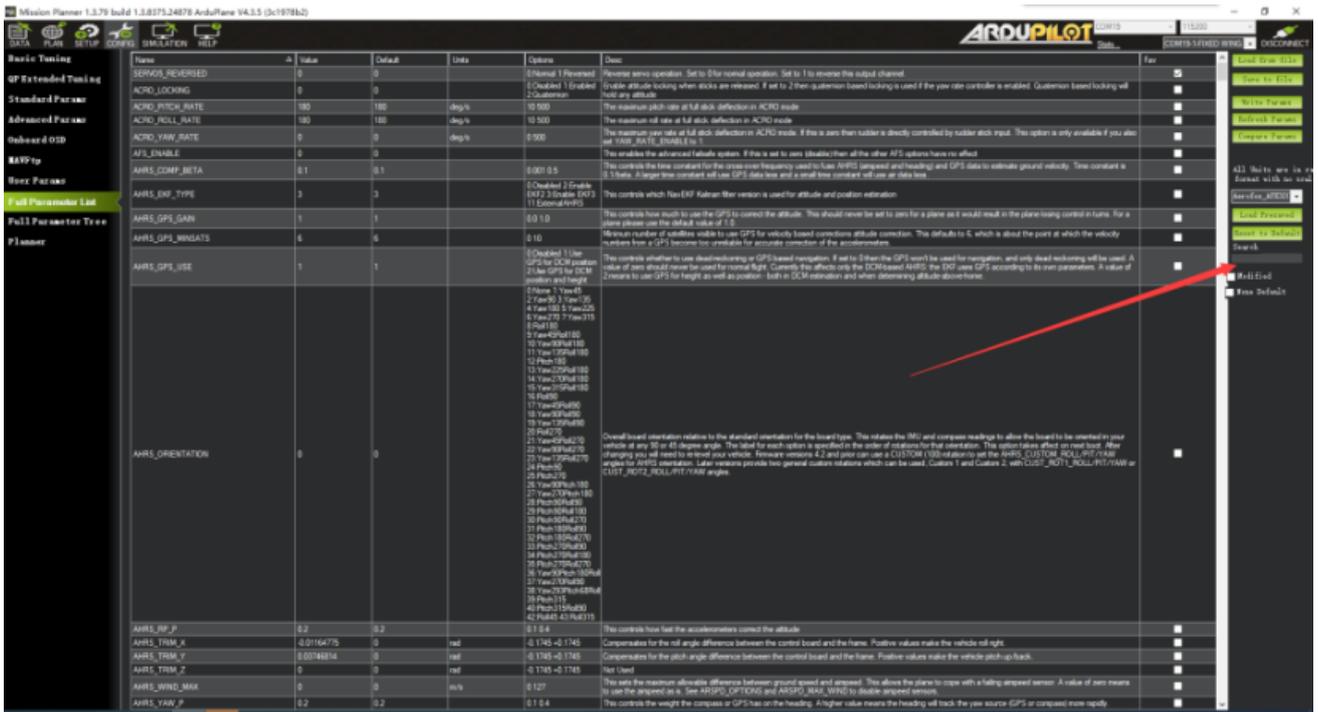
1. Setting up of the receiver
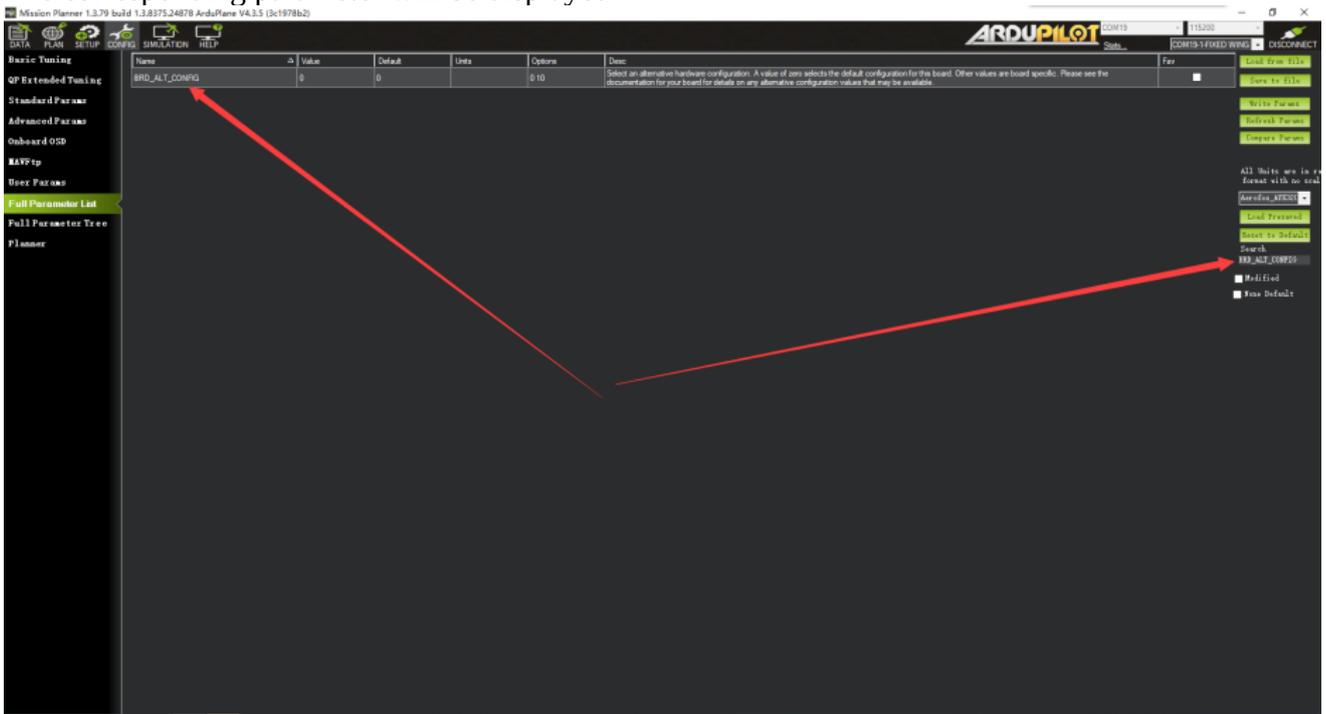- Click CONFIG on the top left of the screen
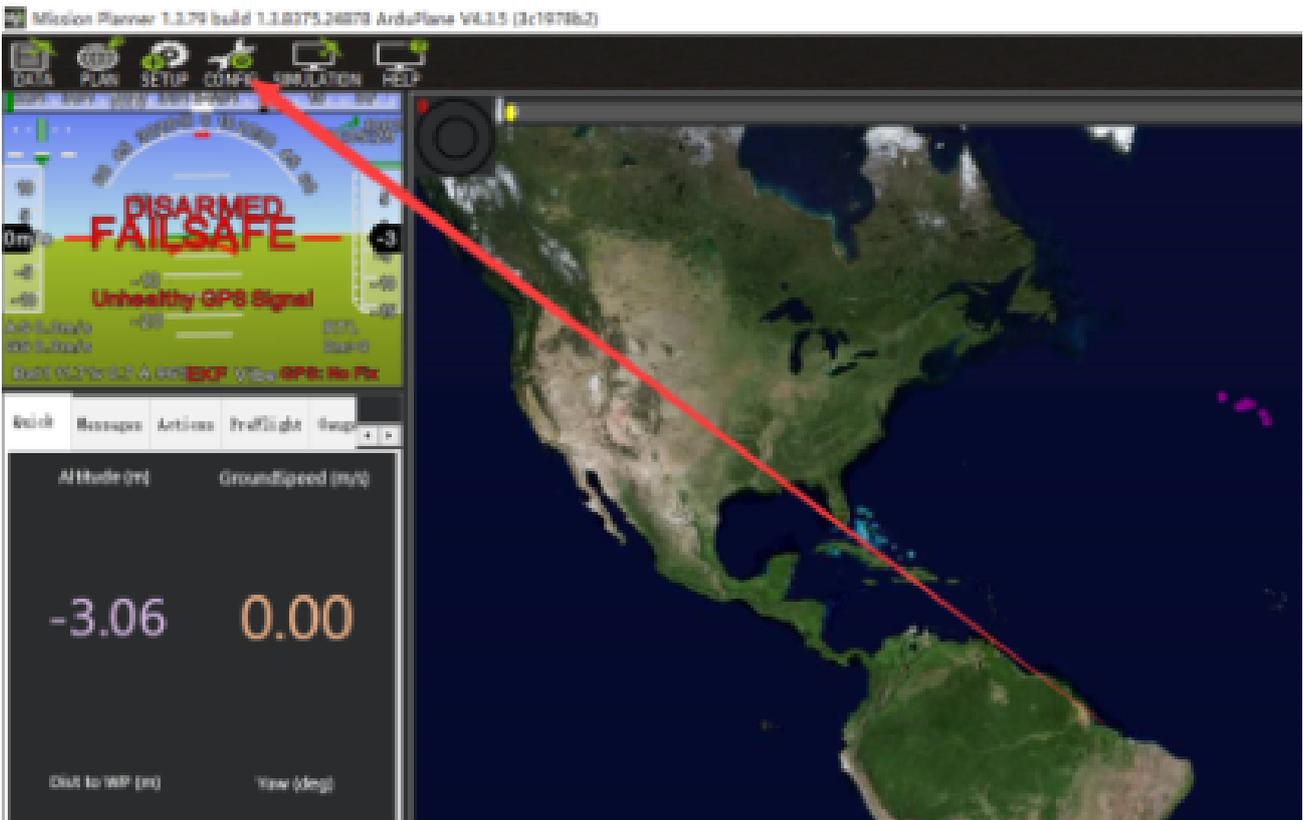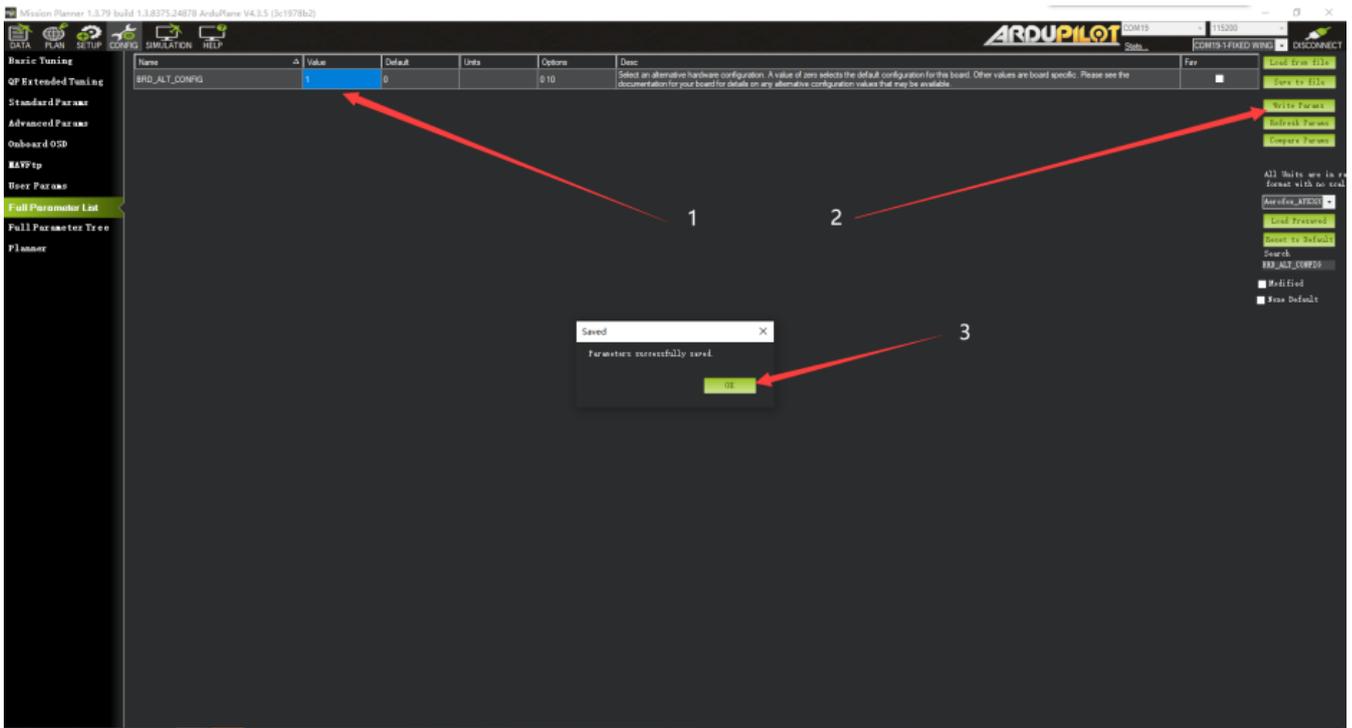

Click Full Parameter List on the left menu

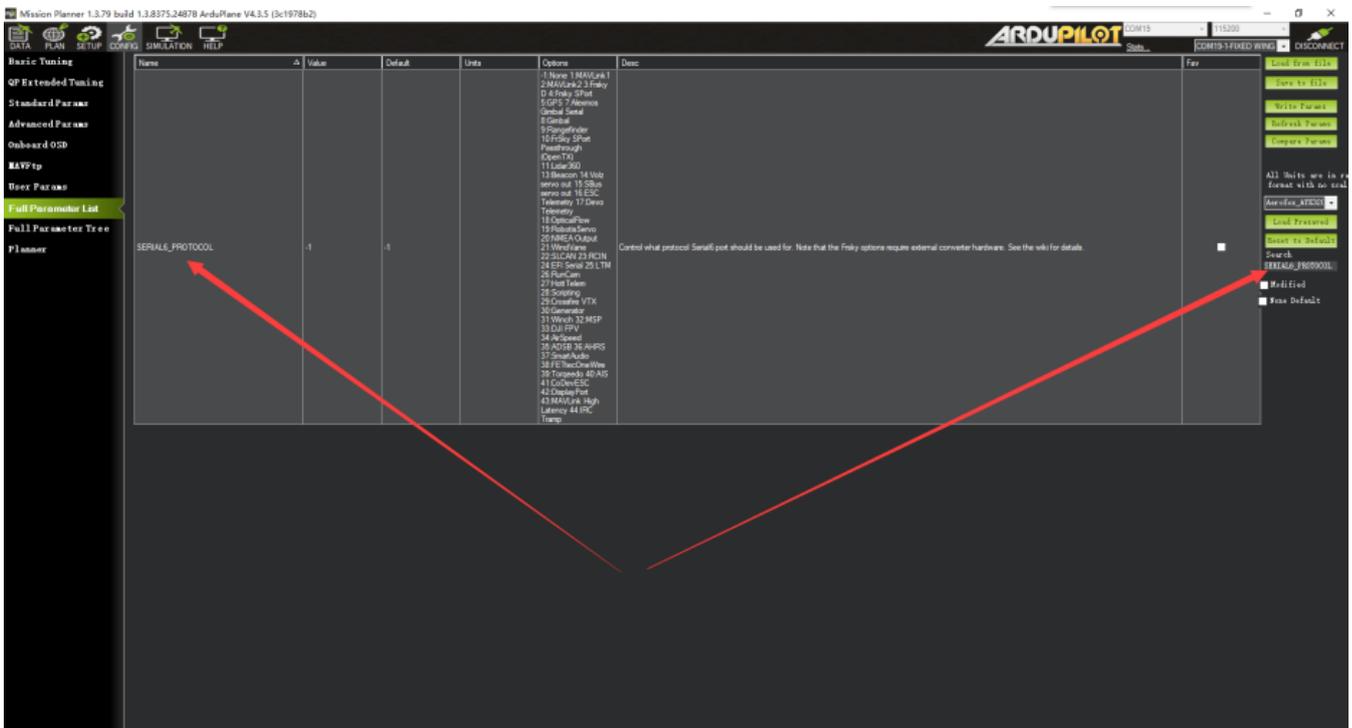On the Search box on the right side, type BRD_ALT_CONFIG

The corresponding parameter will be displayed

Change the "Value" from "0" to "1", then click "Write Params" to write the changes to the flight controller. Click "Ok" to confirm.
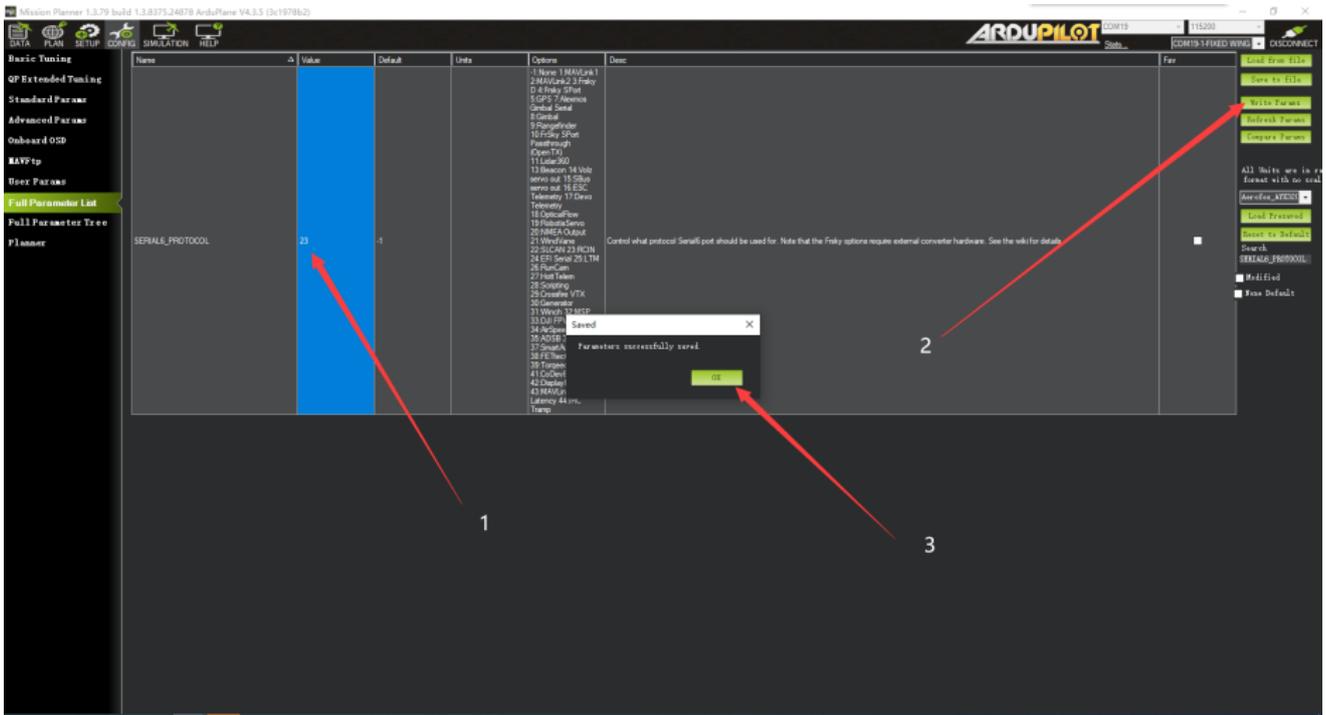

Again, on the Search box, type SERIAL6_PROTOCOL
The corresponding parameter will be displayed

Change the "Value" from "0" to "23". Click "Write Params", then click "Ok".

Congratulation! You are done!

Below are the relevant parameters for your reference. Please make sure it's correct.

SBUS receiver setup   : BRD_ALT_CONFIG = 0 ; SERIAL6_PROTOCOL = -1
CRSF/ELRS receiver setup   : BRD_ALT_CONFIG = 1 ; SERIAL6_PROTOCOL = 23

IMPORTANT, after the above is completed, before we proceed to next step, click "Disconnect" on the top right of the screen > disconnect the USB cable from the Flight controller and the PC > disconnect the battery.
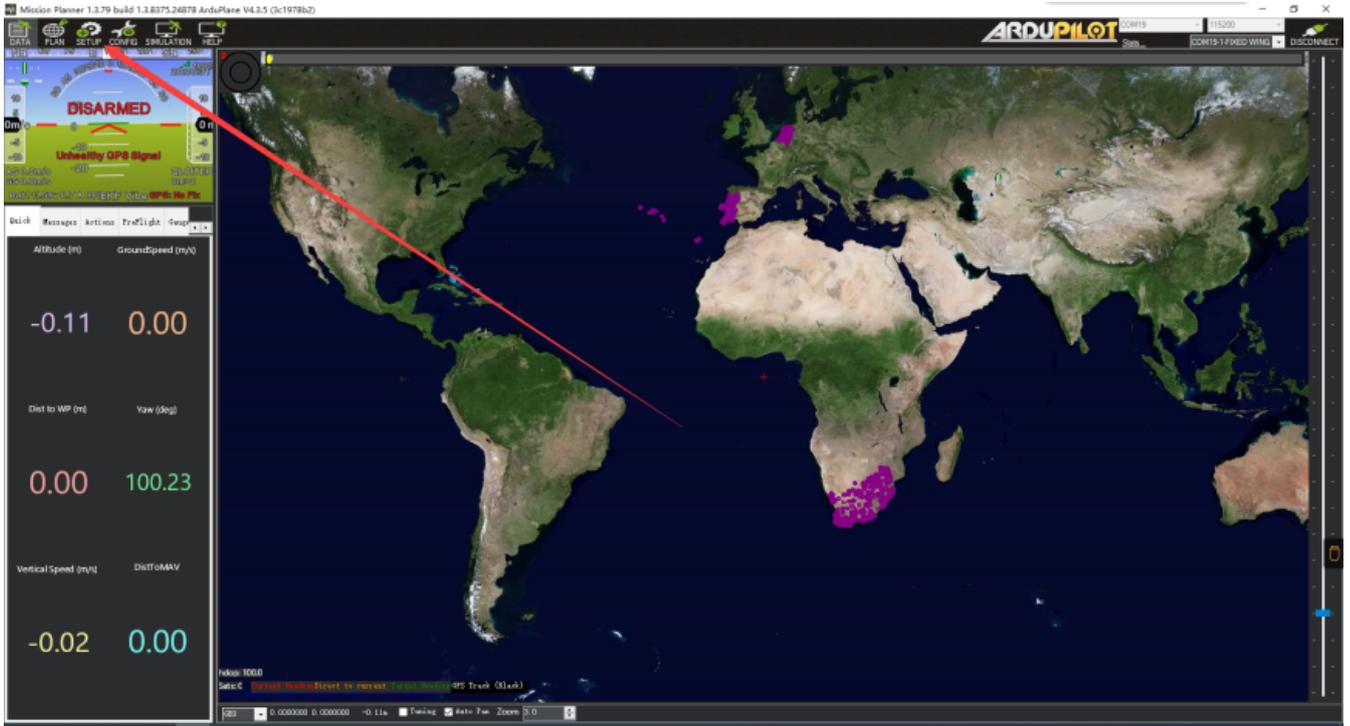
When you connect the battery again, CRSF/ELRS should be working now.
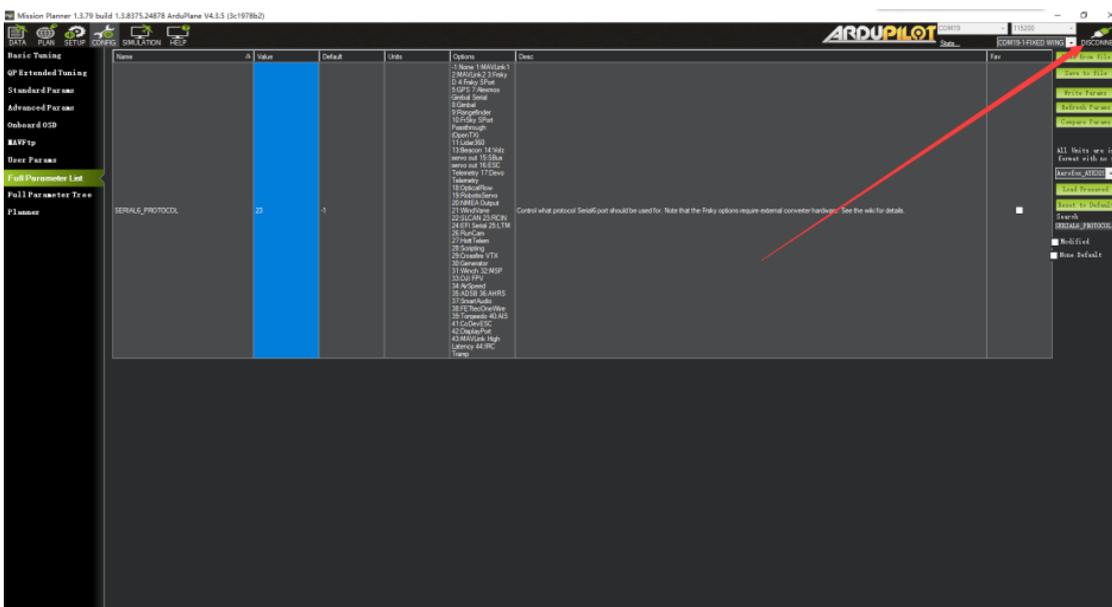
2. Radio Calibration

Turn on the radio, connect battery to your T1 Ranger, connect USB to the flight controller and your PC.
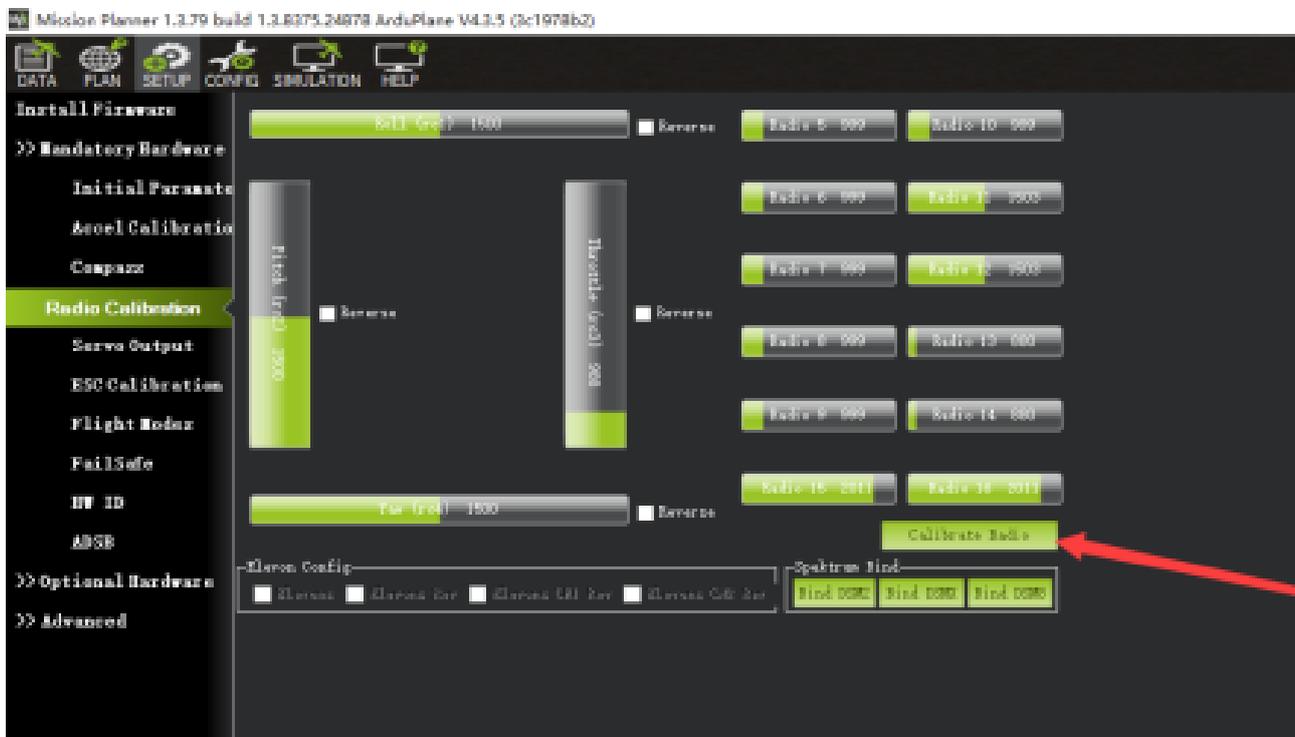Then open Mission Planner and click Setup.

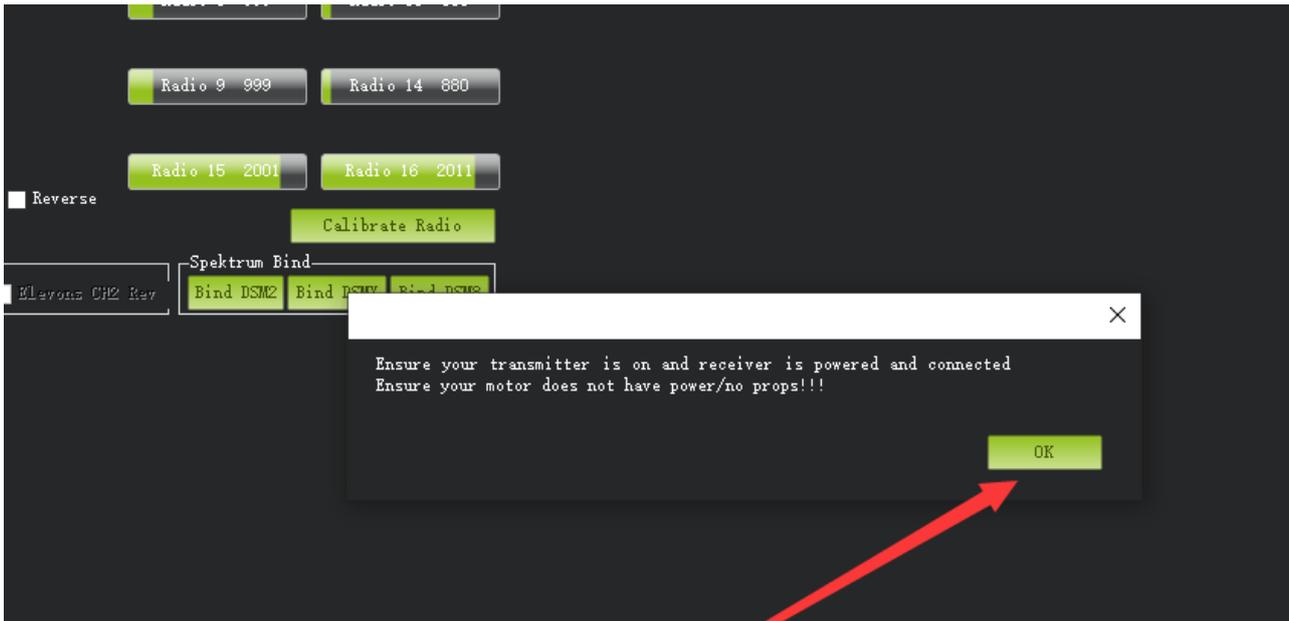Click "Mandatory Hardward" on the top left.

Click "Radio Calibration"

Click "Radio Calibration" as shown in the picture below

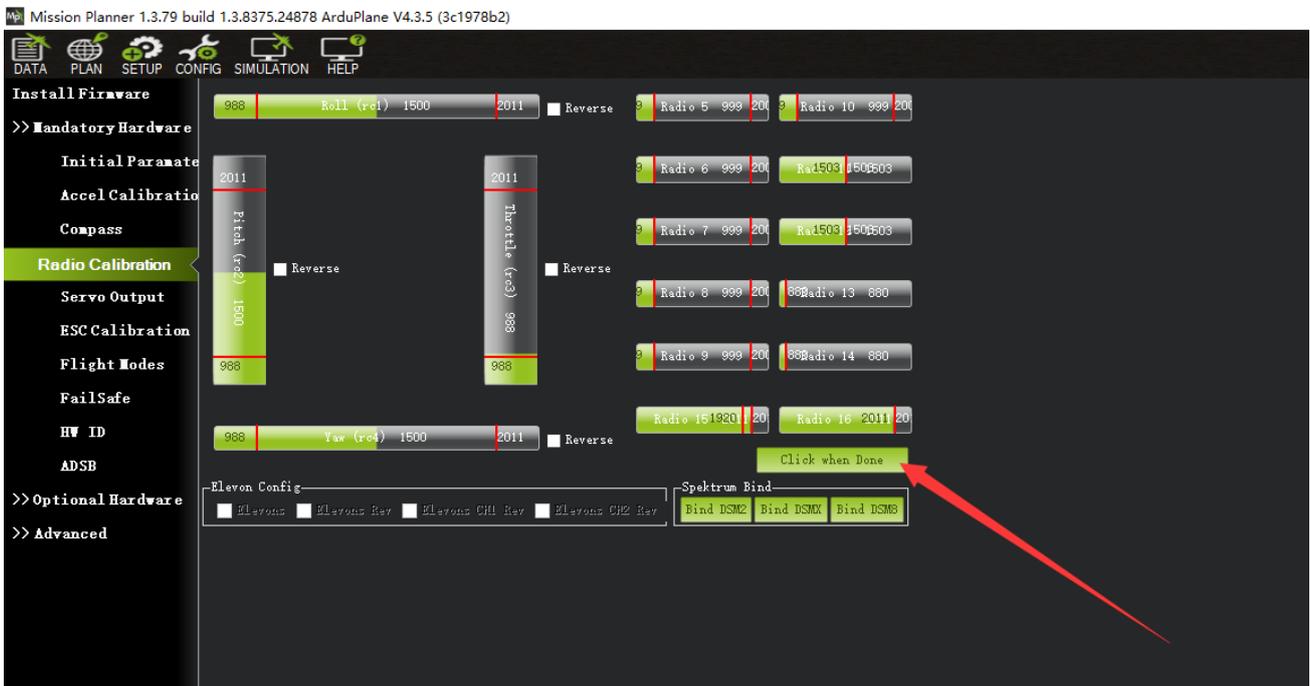Follow the instruction as shown on the screen. Click OK.

Click OK and perform the instruction as shown. Move all your control sticks and flight modes switches to their max.
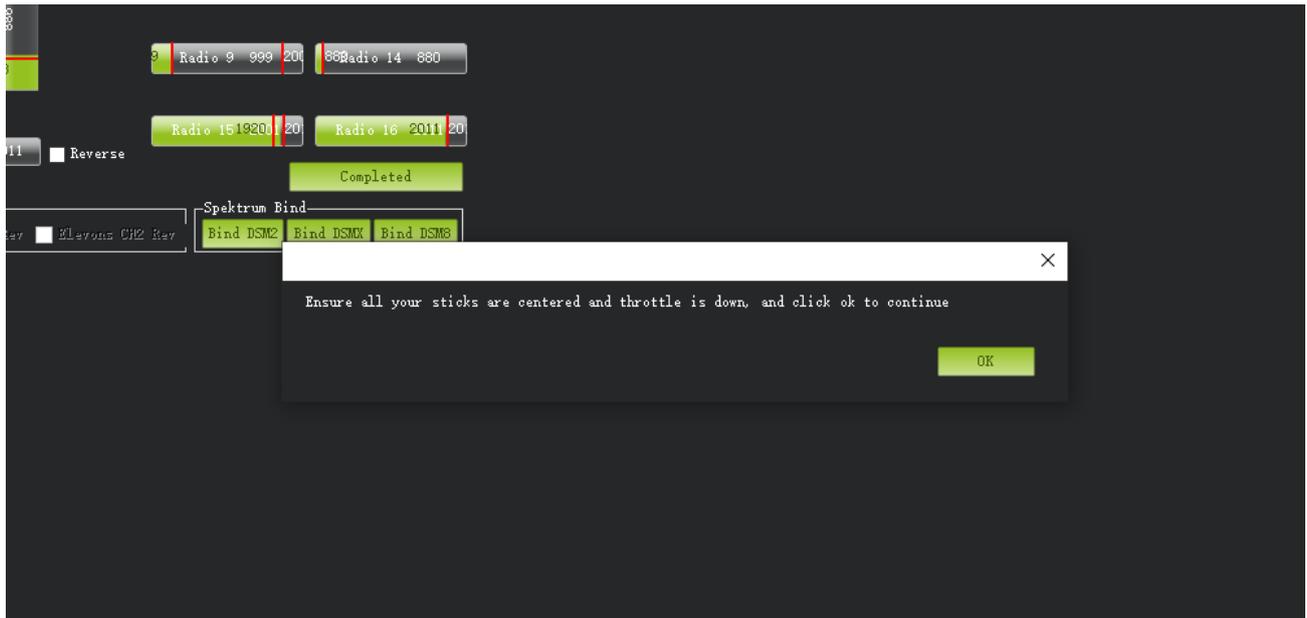
Click OK. Now observe Mission Planner recognizing your new inputs/stick values of your own radio and the changes are shown on the moving red color lines.
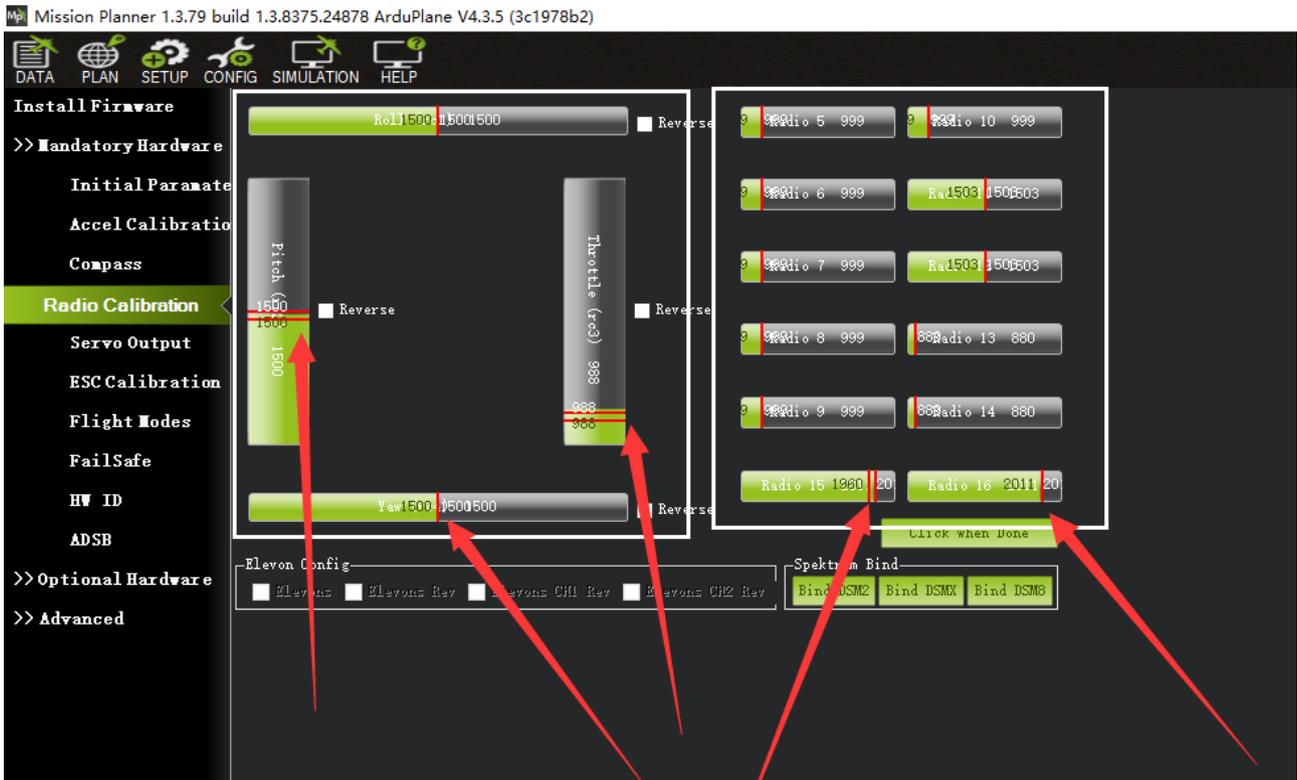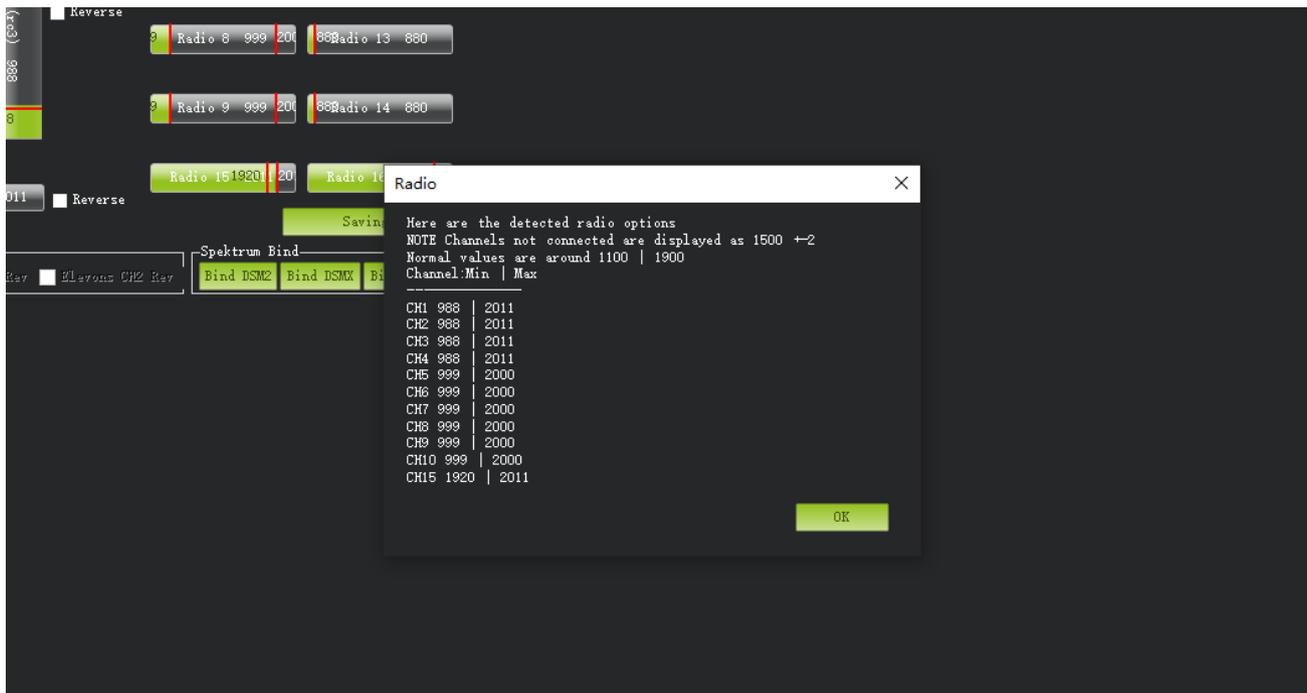

When you are done, click "Click when Done"

Follow the instruction shown and click OK

Mission Planner now display the MIN and MAX of your PWM values of your Radio.
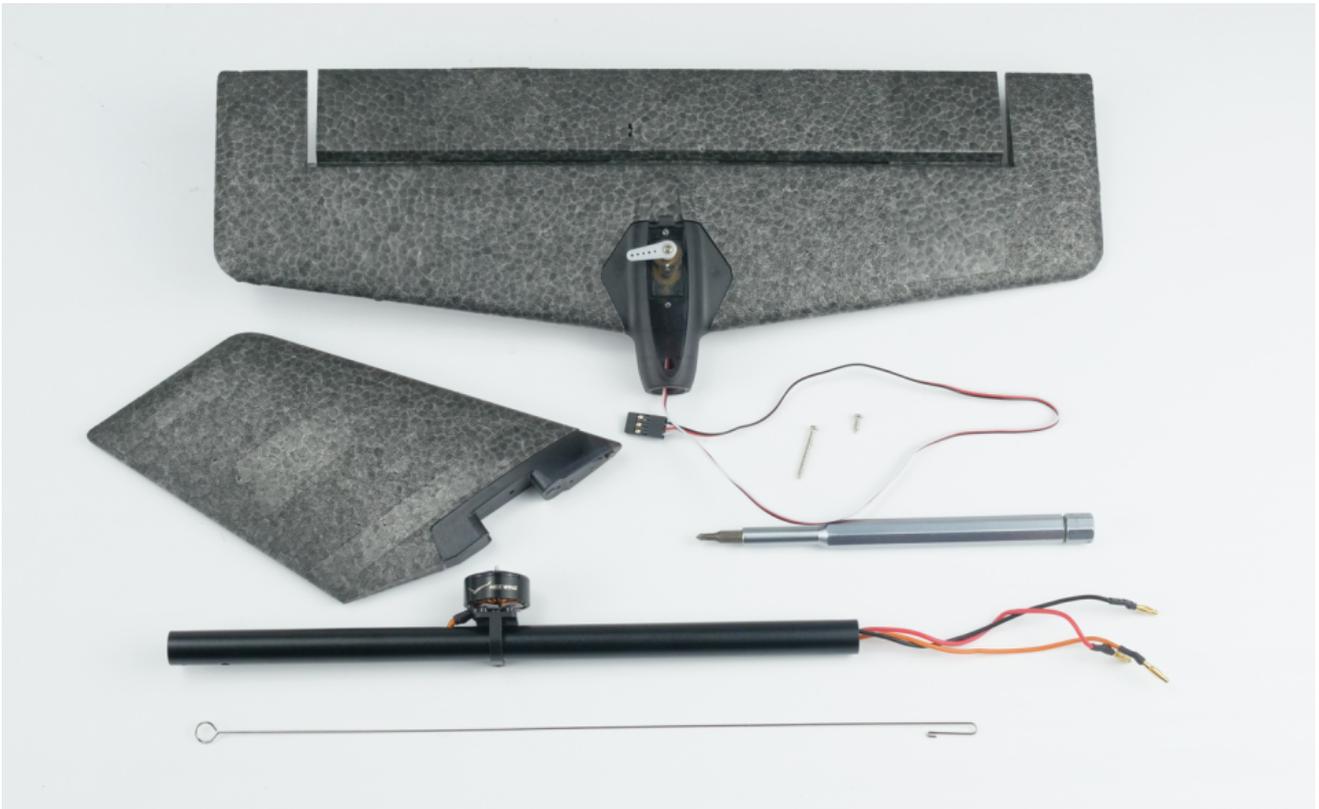Click OK again

It will then display "Completed"

You have completed the Ardupilot/Mission Planner setup.
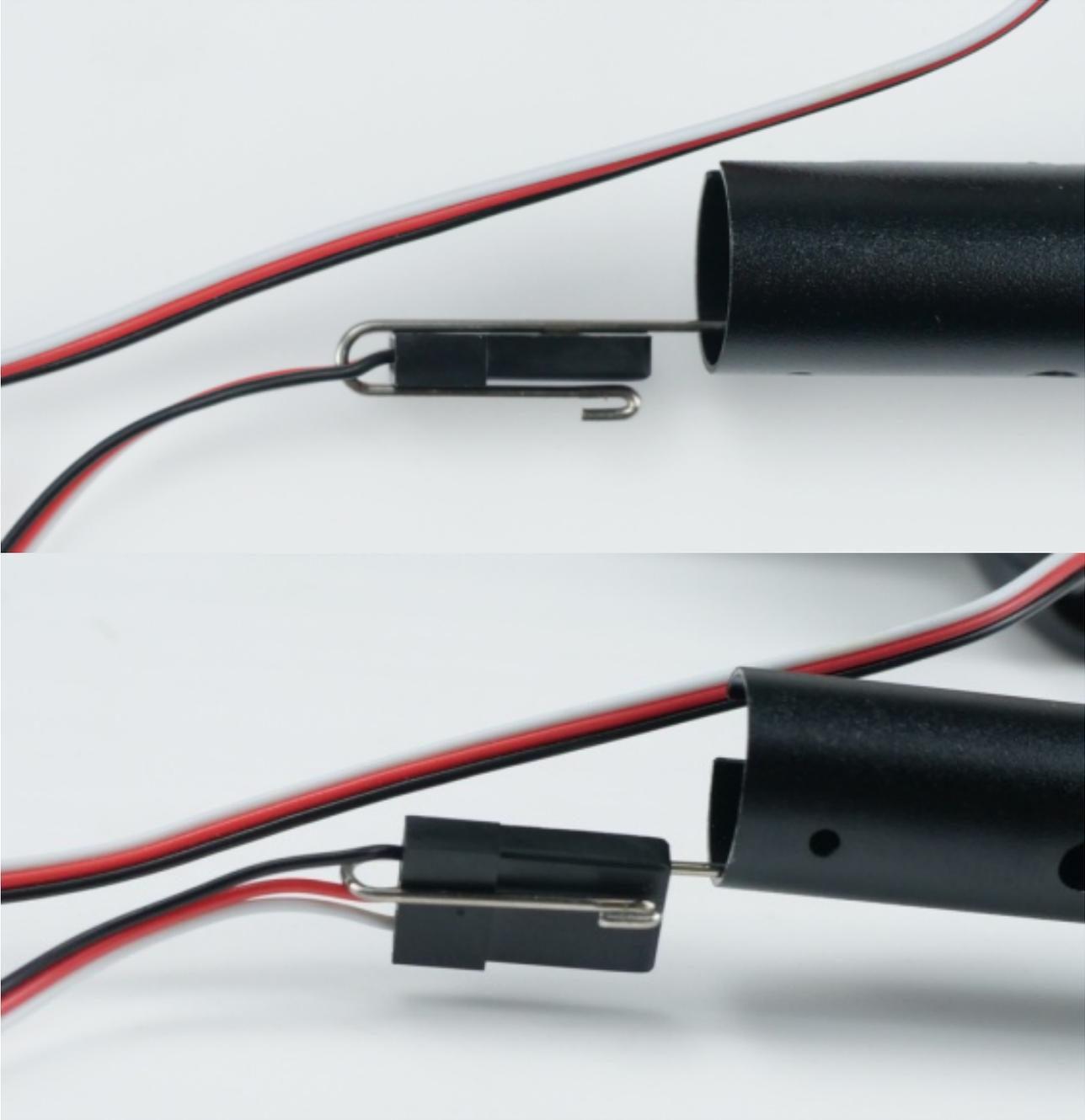
3. Assembly of the plane

a. Prepare the tail boom, horizontal stabilizer, vertical stabilizer, guide wire, 2x20 screw, 2x6 screw and a Philips screwdriver.

b. Using the provided guide wire, pull the servo connector through from one end of the tail boom to the other end of the tail boom

Tips : using the U shape of the wire and clip it onto the servo connector

Gently pull the servo connector through the tail boom to the other end as shown

c. Observe the U Shape cut on the tail boom and align it to the stop inside the horizontal stabilizer mount.

d. After inserting the tail boom, ensure the U shape cut is centered and is not pushing onto any wires. If installed correctly, the hole is clearly see through and the servo wire is visible as well.

e. Align the vertical stabilizer onto the clip of the horizontal stabilizer as shown below and install it.