WF-DT007 Onboard Thrust Test Kit

3.0

Quick Start Guide(QSG)

Wing Flying Tech Co.,Ltd

I. Notice and Disclaimer

Please read following terms carefully before taking any operation:

1. Power Input should be within its range, DO NOT reverse polarity;

2. **DO NOT** test small-size motors with LY-10KGF test stand due to static friction between spindle and guide rail;

3. Ensure the test stand, power supply,batteries and all cables are well fixed;

4. Always **Disconnect** power source before entering the test area or touching the tool. Ensure no electric leakage when voltage exceeds the safety voltage of human body;

5. Check the test stand according to the regular checklist to avoid any safety issue caused by bolts loosening;

6. Operation **MUST** be strictly follow the user manual. Wing Flying has no liability for any issue caused by wrong operation(eg. Approach or touch the rotating motor and propeller);

7. Violent test or destructive experiment is **Prohibited**. Disconnect power source immediately when accidents occur like resonance, propeller exploding and propeller breaking.

II. Installation

Please install the propulsion system in accordance with following instructions.
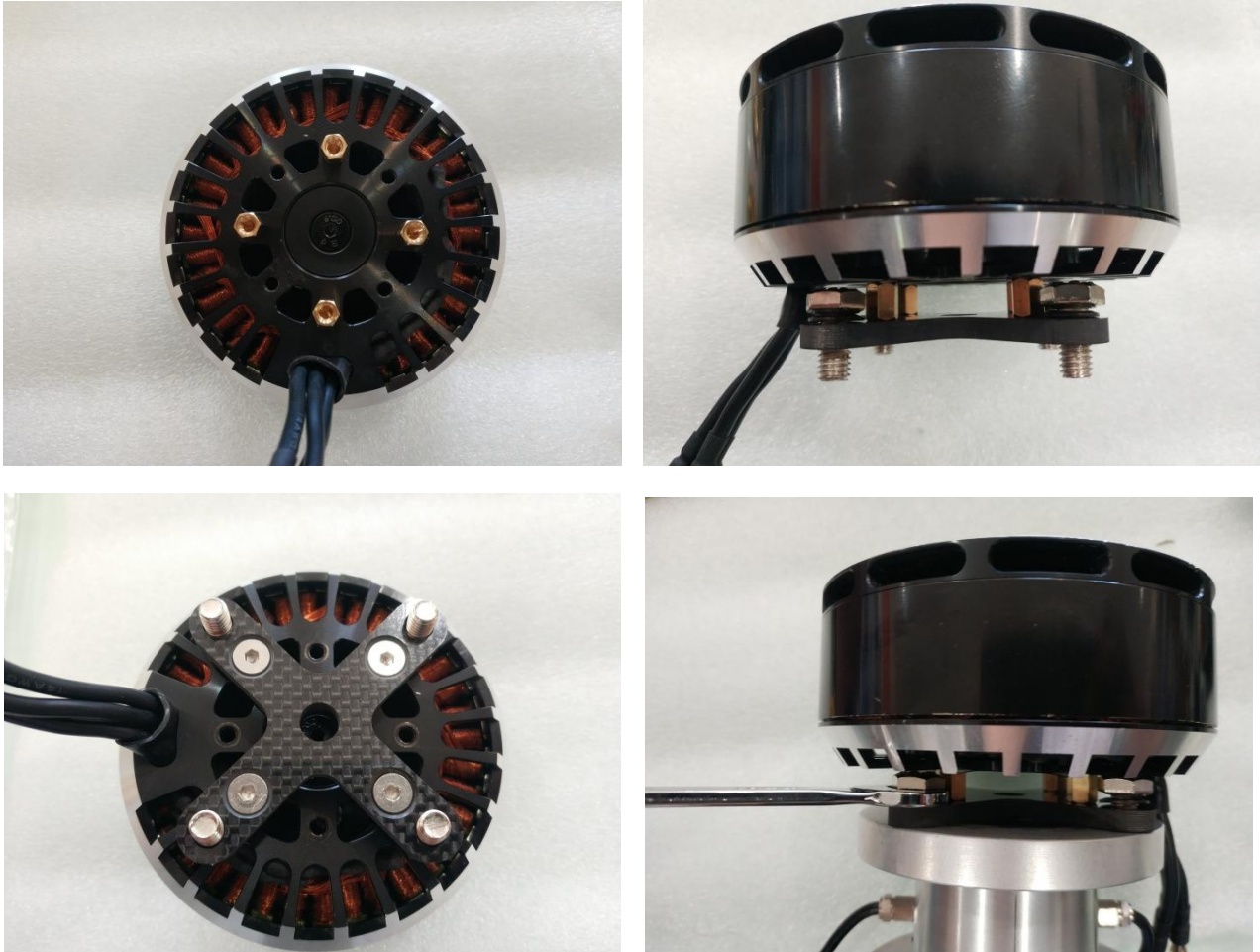
1.Install Motor

Fig 2.1 Motor Installation

1. Fasten the auxiliary studs on the motor mount.   User can use low-strength thread lockers if aircraft or motor vibrates strongly.

2. Fix the motor mount on the motor with 4x M6 screws and washers.

3. Fix the motor on the sensor and fasten the screws.

4. User needs to connect the sensor with your aircraft

2. Install ESC

Connect the RPM sensor to any two cables of the ESC in series. Connect the JST plug. Then connect RPM sensor to "RPM1" interface on the control module, as shown in Fig.2.2

Fig.2.2 Signal Cables Connection

Note：

1. 3.5mm banana connector, max current 50A. And 4.0mm banana connector, max current 80A.We recommend users to weld cables by themselves if it exceeds the range above. (the conversion cables can be welded to any two soldered joints to reduce loss);

2. As shown in Fig. 2.2, motor, ESC and RPM sensor must be well fixed. Keep a loose connection between motor and ESC, otherwise it will affect the accuracy of the test. (according to the experiment, a tight connection may incur thrust error,which may reach 200g).

3. Connect with Power Supply

Battery connects with the power module in parallel. ESC signal cables and control module(read interface) connect with the receiver(FC), as shown in Fig.2.3.
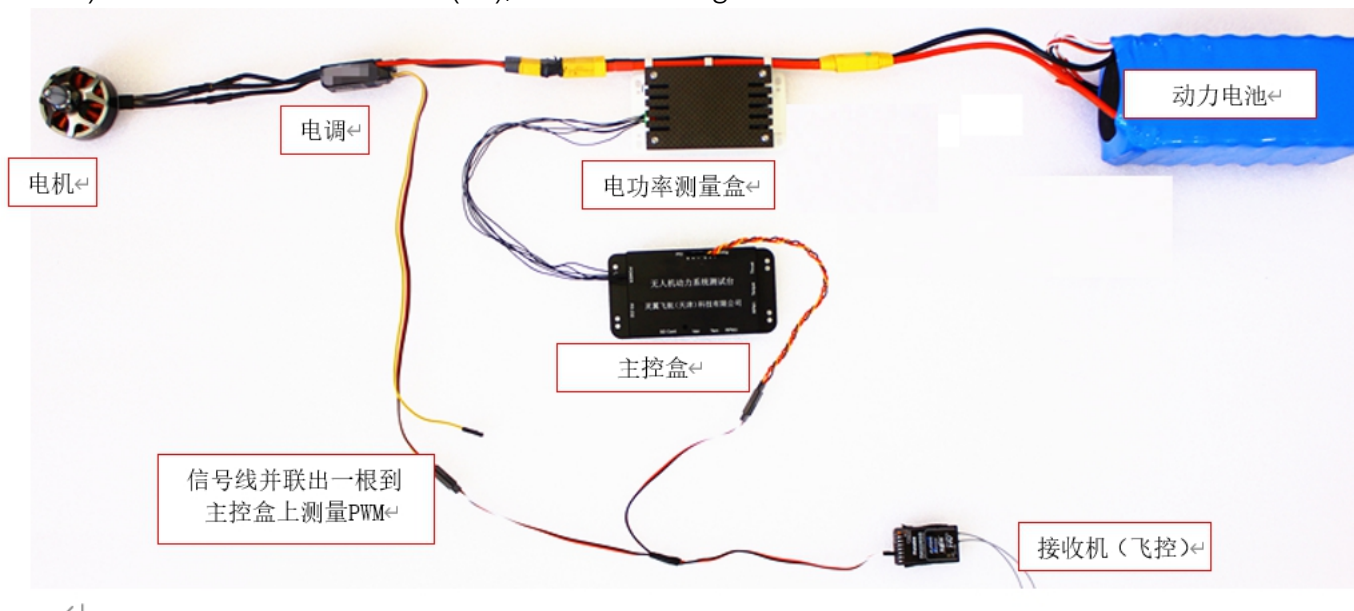

Fig.2.3 ESC connects with Power supply

Note:

1. "Read" comes with 5V output, which can supply power for some ESC. DO NOT connect to Read 5V+ if the ESC can be powered with other supplies

2 .Use a multimeter to test if the Ground wire and signal cable are conducting before connecting to Read interface.

    A.   Not conducting: Connect signal cable and Ground cable(s,-), and red the PWM.

    B.   Conducting: only connect signal cable(S), otherwise it will interfere the main board

IV. Pre-flight Check

After installation, open the software and check if sensors are good working.

1. Clear thrust and torque: keep the sensor and motor main shaft parallel to the ground. Place the propeller(2 blades) horizontally, then clear thrust and torque.

2. Clear Airspeed: cover the pitot tube with the sleeve when there is no wind. Then clear airspeed.

3. Clear Current: the software may display a weak current due to the conducting sequence. User can click"EC CLR" to clear current.

4. Test sensor starts recording after powered on and save the data when powered off.

V. Self-Inspection

    User needs to check the sensor when the aircraft had a hard landing, strong vibration or propeller damaged due to the rough landing.

    A. Disconnect the plug of thrust/torque sensor.

    B. Detach the sensor and place it horizontally on the table.

    C. Power on the test sensor and connect with the software. The thrust should be within 200g, torque within 0.05.

    D. Connect the sensor and observe the values in the software(make sure the sensor is not affected by other forces)

    1. Sensor damaged: thrust > 1000g, torque>0.25NM. Please contact the manufacturer

    2. Sensor is good working: thrust< 1000g, torque <0.25NM.