


Quick Start Guide: Quanser Aero 2

STEP 1 Check Components and Details

Make sure your Quanser Aero 2 experiment includes the following components:

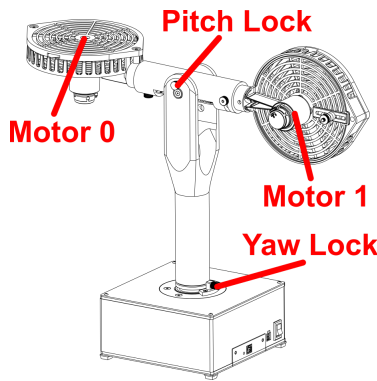
	<ol style="list-style-type: none"> 1. Quanser Aero 2 with QFLEX USB interface panel 2. 24VDC, 2.71A power supply 3. USB 2.0 A/B cable 4. High-efficiency propellers 5. AC power line cord 6. Quanser Aero 2 Workstation resources* <p>*Content provided in digital form at www.quanser.com/resources</p>
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STEP 2 Install and Test QUARC™

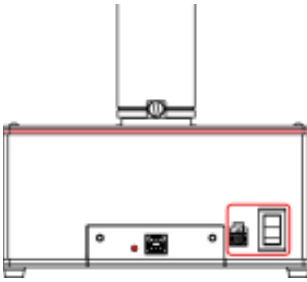
1. Make sure you have all required software, as listed in the QUARC Compatibility Table included in the installation software and [online](http://www.quanser.com) at www.quanser.com.
2. Follow the QUARC installation guide for further installation and configuration instructions. You must install QUARC 2022 (or later).

STEP 3 Setup the Hardware

To set up your Aero 2, please read the following instructions carefully.

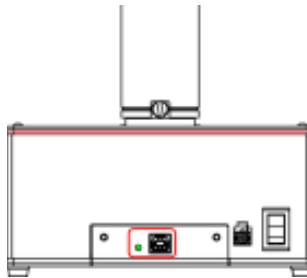
<p>A</p> <p>Place the Quanser Aero 2 on a flat surface with at least 1 square meter of clear space so that the body can pivot freely in both degrees of freedom.</p>	<p>B</p>  <p>Rotate the thruster modules so that Motor 0 applies vertical thrust and Motor 1 applies lateral thrust.</p> <p>Ensure that both the Pitch Lock and Yaw Lock thumb screws are disengaged.</p> <p>Refer to the Quanser Aero User Manual for information on adjusting thrusters and attitude locks.</p>
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C



Connect the supplied 24 volt power supply to the power connector on the Quanser Aero 2 and to a wall outlet using the supplied power line cable. Toggle the Aero 2 power switch to *ON* and verify that the base LEDs and the *USB Status* LEDs are both lit **red**.

D



Using the supplied USB Cable, connect the Quanser Aero 2 USB connection on the QFLEX 2 USB panel to an enabled USB 2.0 port on your computer. Ensure that the *USB Status* LED turns green once the Aero 2 is recognized by the device manager.

STEP 4 Test the Hardware

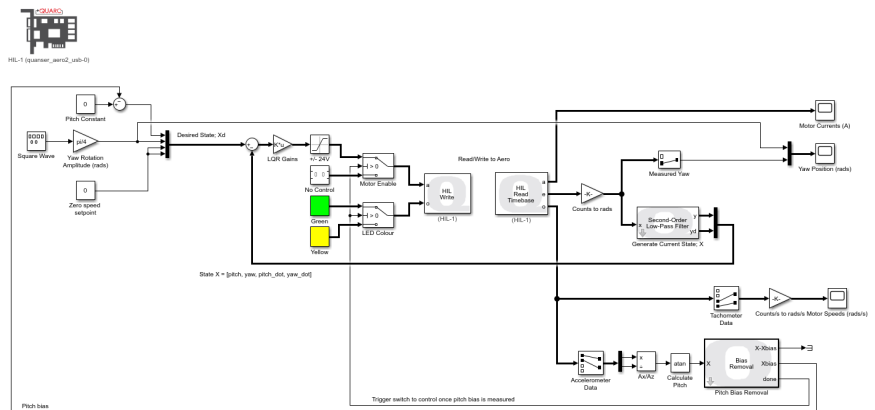
Follow the procedure below to test the functionality of your Quanser Aero 2 experiment.

A

Make sure that the Aero is powered ON and is connected to the computer as shown in Step 3. Download the courseware and technical resources from www.quanser.com/resources, and open the Technical Resources folder.

B

Locate and open the Quick Start folder, and then open the Simulink® model file: *Quick_Start_Aero2.mdl*.



C

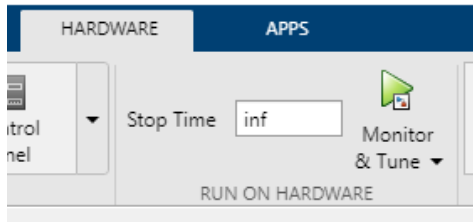
Caution: Do not operate the Aero 2 experiment if the propeller guards are not properly installed and fastened.

Do not touch the propeller guards or other thruster components while the experiment is powered.

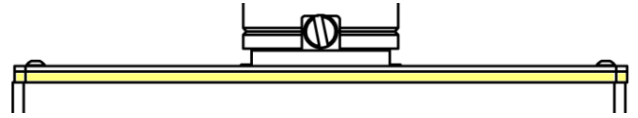


D

Under the “Hardware” tab, click *Monitor & Tune*.

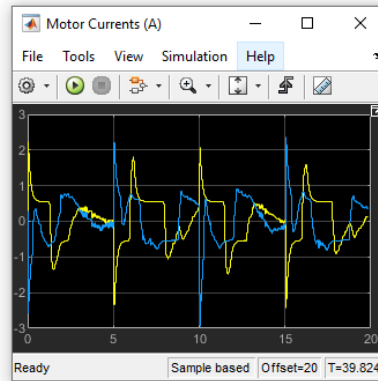
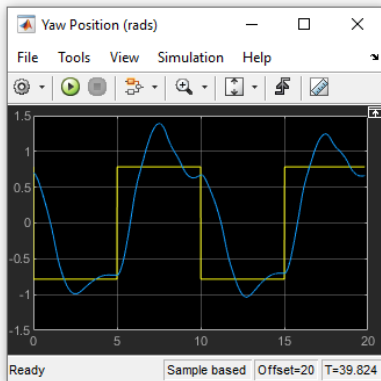


E



The LED strip around the base of the Quanser Aero 2 should turn Yellow for one second while the IMU measures the pitch offset. After one second the LED strip should turn green and the Aero 2 should begin to yaw between two setpoint angles while maintaining approximately level pitch

F



The **Yaw Position (rads)** scope and **Motor Currents (A)** graphs should look like those shown here. The Yaw position should be tracking the setpoint shown in Yellow. If the Aero 2 is not following the desired position commands, consult the troubleshooting guide below. If the output from the Motor Current sense is zero, contact Quanser technical support

TROUBLESHOOTING

Review the following recommendations before contacting Quanser's technical support engineers.

The model will not compile properly.

- Verify that the correct MATLAB and C compiler versions are installed.
- Type **ver** in the MATLAB command window and ensure that QUARC is installed

You see 'An operating system specific kernel-level driver for the specified card could not be found' message.

- Make sure the Quanser Aero 2 is connected to power and turned **ON**
- Ensure that the **USB Status LED** is lit **green**
- Check your Device Manager, verify that a *Quanser Aero 2 USB* appears under the *Universal Serial Bus controllers* heading.

Aero does not move as expected

- Ensure both attitude locks are disengaged and the thrusters are oriented as shown in step 3B.
- Check that the correct propellers are installed in each thruster and that they are firmly seated on the motor shaft. Refer to the Quanser Aero 2 User Manual for more information on propeller installation.

STILL NEED HELP?

For further assistance from a Quanser engineer, contact us at tech@quanser.com or call +1-905-940-3575.