


Quick Start Guide: Quanser AERO for NI myRIO


STEP 1 Check Components and Details

Make sure your Quanser AERO experiment includes the following components:

	<ol style="list-style-type: none"> 1. Quanser AERO with QFLEX myRIO interface panel 2. Low-efficiency propellers 3. 3/16" hex key (stored in the base) 4. NI myRIO MXP interface cable 5. 24VDC, 2.71A Power Supply 6. Power Cable 7. Quanser AERO Workstation resources* <p>*Provided in digital form at www.ni.com/teach</p>
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STEP 2 Additional Components Required for Setup

To complete the Quanser AERO setup, you will also need the following:

	<ol style="list-style-type: none"> 1. NI myRIO system 2. Power supply for NI myRIO 3. USB cable <p>Note: These components must be purchased separately.</p>
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STEP 3 Install LabVIEW® and Addons

Make sure LabVIEW™ is installed with the following required-addons:

1. LabVIEW™ 2016 SP1
2. LabVIEW™ myRIO Module
3. LabVIEW™ Real-Time Module
4. LabVIEW™ Control Design and Simulation Module
5. LabVIEW™ MathScript RT Module [only used in certain VIs]

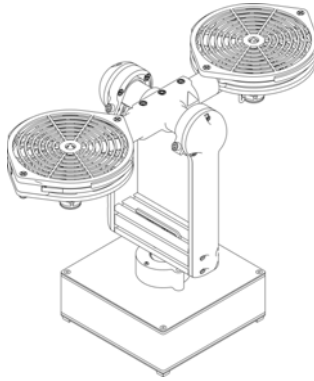
STEP 4 Set Up The Hardware

The steps below outline the instructions for a setup of Quanser AERO with QFLEX 2 myRIO panel. If you are using the Quanser AERO with the QFLEX 2 Embedded or USB panel, please refer to the corresponding data-sheet or the Quanser AERO User Manual for further instructions.

A

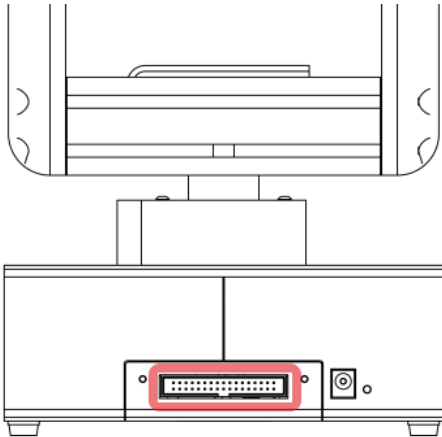
Place the Quanser AERO on a flat surface with enough space so that the body can pivot freely in both degrees of freedom

B



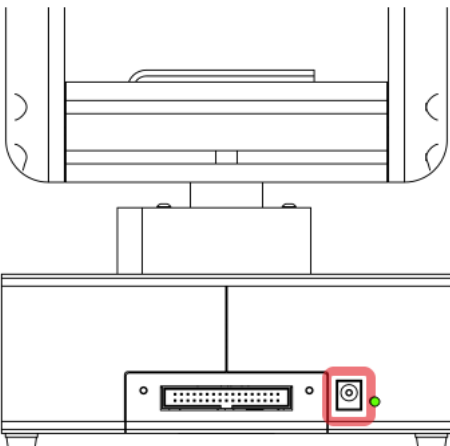
1. If necessary, rotate the thruster modules so that **Motor 0** and **Motor 1** thrust vertically as shown
2. Ensure that both the **Pitch** and **Yaw** locks are disengaged. Refer to the Quanser AERO User Manual for information on how to adjust the thrusters and attitude locks.

C



Using the NI myRIO MXP cable, connect the MXP A port on the NI myRIO to the QFLEX 2 myRIO connector socket on the Quanser AERO. Make sure the NI myRIO is connected to the computer via a USB cable and that the NI myRIO is powered.

D



Connect the supplied 24V power supply to the Power connector on the Quanser AERO and to a wall outlet using the supplied power cable. The Power LED on the Quanser AERO should light up green.

STEP 5 Testing the Quanser AERO

Follow the procedure below to test your Quanser AERO experiment.

A

Download the Quanser AERO Workstation Resources from www.ni.com/teach and locate the **Quick Start** folder: Quanser AERO\Quick Start.

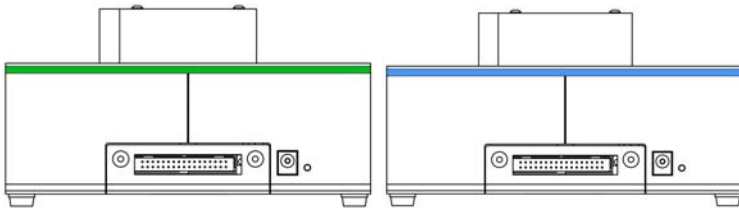
B

Open the project **Quick Start.lvproj**, and the file **Quick Start.vi**.

C

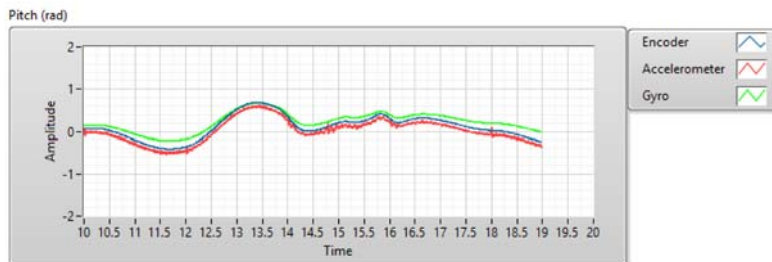
Run the VI.

D



The LED strip around the base of the Quanser AERO should alternate between blue and green every 2 seconds.

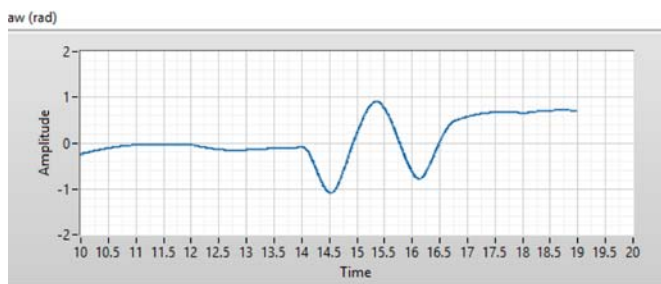
E



The **Pitch (rad)** graph should display the pitch angle measured through encoders (blue), accelerometer (red) and gyroscope (green).

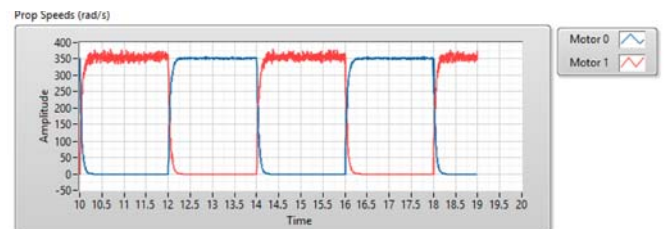
F

The **Yaw (rad)** graph should display the current yaw angle when disturbed.



G

The **Prop Speeds (rad/s)** graph should display the propeller speeds. Stop the VI.



TROUBLESHOOTING

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

1. Check the connections outlined in Step 4 of this guide.
2. Make sure cables are firmly connected.

The Motor is
not responding.

Ensure the green Power LED on the Quanser AERO is lit. If not, make sure the power supply is operational and properly connected.

The AERO does not
move as expected.

Ensure that both the pitch and yaw locks have been disengaged and that the thrusters are positioned according to the instructions in step 4B.

Thrusters emit
a clicking or buzzing
sound.

Ensure that the propeller hubs are seated all the way down on the motor shafts. Refer to the Quanser AERO User Manual for instructions on how to assemble the thrusters properly

STILL NEED HELP?

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

LEARN MORE

To browse and download the latest Quanser AERO resources, visit www.quanser.com/courseware

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