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Installation Guide: Quanser Rapid Control Prototyping Toolkit™ 2021 for Microsoft® Windows®

| STEP 1	Install NI LabVIEW™ and Required Add-Ons

Quanser Rapid Control Prototyping (QRCP) Toolkit™ supports 64-bit Microsoft® Windows® 10.

Ensure at least one version of 64-bit LabVIEW™ 2020 or 2021 is installed on the computer with the following required add-ons:

- **NI Device Drivers (i.e. NI-DAQmx™)**
- **NI LabVIEW Control Design and Simulation™ Module (used in most curriculum VIs)**
- **NI LabVIEW MathScript™ Module (only used in certain curriculum VIs)**

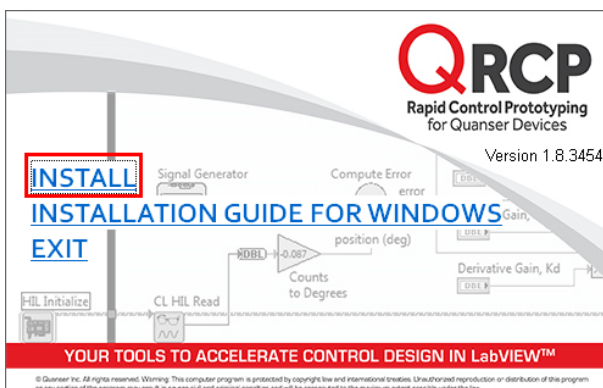| STEP 2	Install Quanser Rapid Control Prototyping Toolkit on Windows

A
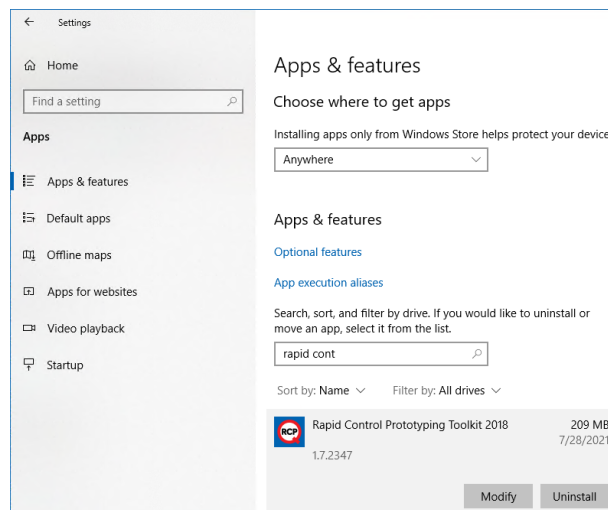
Uninstall any previous version of QRCP that may be present on the computer.

Do so by launching the *Apps & features* dialog.

B

1. Download the QRCP toolkit installer executable using the link provided in the confirmation email that you received.

2. Run the QRCP toolkit installer (i.e., install_quanser_rcp_toolkit.exe). The QRCP toolkit installation screen should appear.

3. Click on *INSTALL* to start the QRCP toolkit installation process.

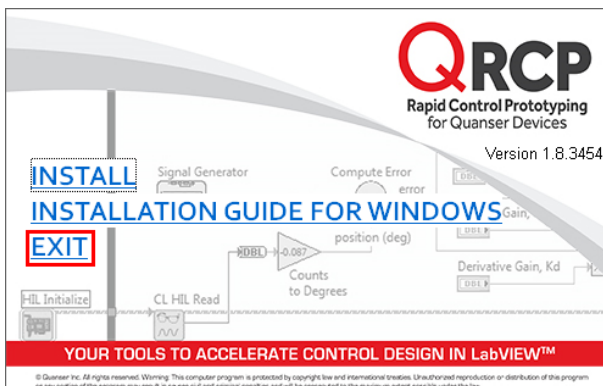4. Follow the steps of the installation wizard.

C
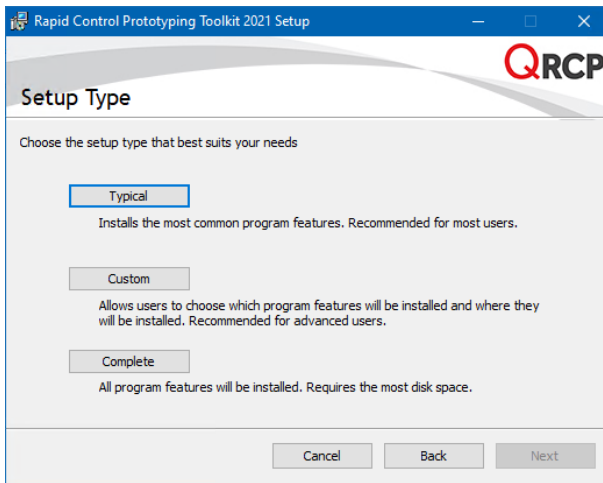
On the Setup Type installation screen, choose *Typical*.

D
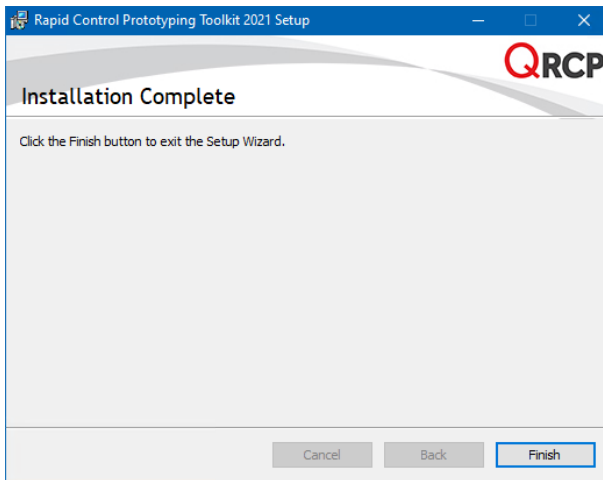
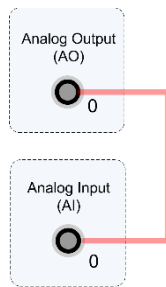On the Installation Complete installation screen, click *Finish* to complete the installation.

E

Once the installation is completed, click on *EXIT* to close the QRCP toolkit installation screen.
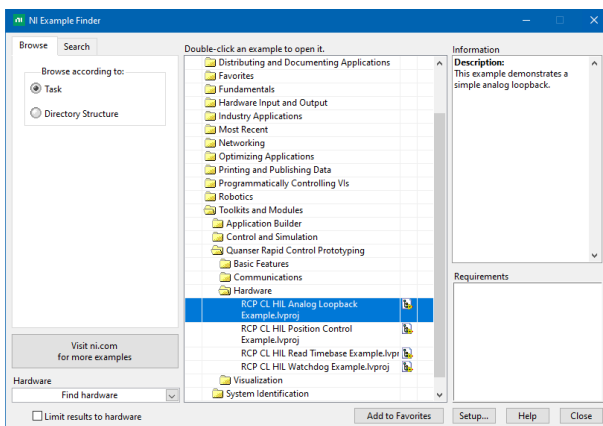
The *Analog Loopback VI* used in this section is to confirm QRCP toolkit has been installed properly. It also tests the data acquisition (DAQ) device on Windows.

A

Using the RCA cable supplied with the data acquisition device, connect the **Analog Output Channel #0** (AO #0) to the **Analog Input Channel #0** (AI #0).

B

- In LabVIEW, open the *NI Example Finder* dialog by selecting **Find Examples...** from the *Help* menu.
- In the *NI Example Finder* dialog, when browsing according to *Task*, open the **Toolkits and Modules/Quanser Rapid Control Prototyping/Hardware** folder.
- Double-click on the **RCP CL HIL Analog Loopback Example.lvproj** LabVIEW project to open the RCP Toolkit example.
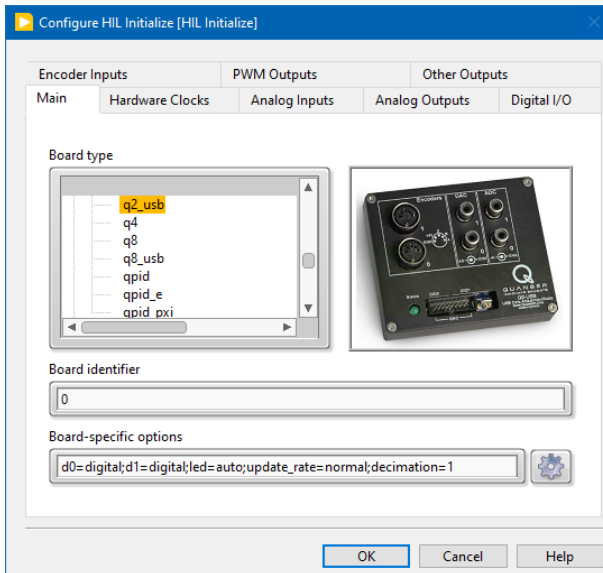
C
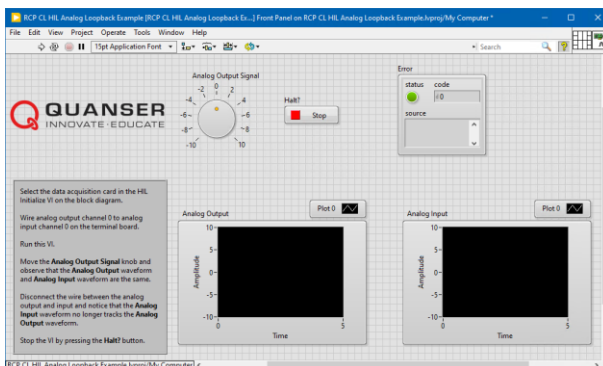
In the *RCP CL HIL Analog Loopback Example.lvproj* example, double-click on the **RCP CL HIL Analog Loopback Example.vi** file listed under My Computer.
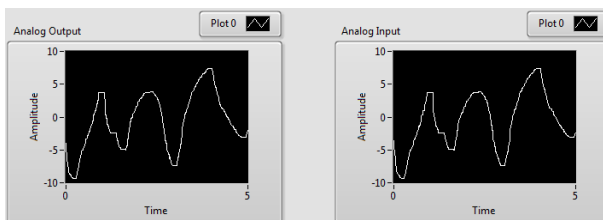
D
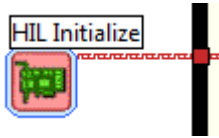
Open the VI Block Diagram (**Ctrl-E**) and double-click on the **HIL Initialize** VI.

E

- In the *Board type* treeview under the *Main* tab, select the data acquisition card that is installed on the computer (e.g. *q2_usb*).
- Click on the **OK** button.

F
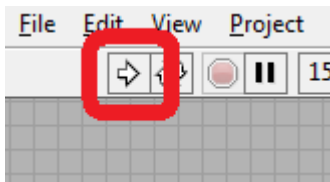
- Go to the Front Panel of the VI (**Ctrl-E**).
- Click on the **white arrow** button to run the VI.

G

When manually moving the **Analog Output Signal knob** of the VI, both the *Analog Input* and *Analog Output* scopes should display the same trace. If not, go to the Troubleshooting section.

H
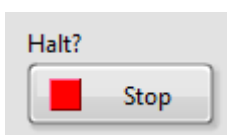
Click on the **Stop** button to stop running the VI.

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

Getting error: '*VI Missing*' message when opening the DAQ Test example VI.	● Ensure NI LabVIEW and all the add-ons listed in Step 1 have been installed. ● Ensure the QRCP toolkit has been installed, as detailed in Step 2.
Getting error: '*The NI DAQ device is not recognized: driver not installed.*' when running a VI	● Ensure the NI DAQmx drivers are installed, as described in Step 1. The NI DAQmx installer can be downloaded from https://www.ni.com/drivers/. ● Verify the data acquisition (DAQ) device is properly connected to the computer.
When running the DAQ Test, the Analog Input scope does not display anything.	● Ensure the RCA loopback connection is made on the data acquisition (DAQ) device, as described in Step 3A. ● Verify that the proper DAQ device name was selected in the HIL Initialize dialog, as described in Step 3E.