Open and Run an Example VI

In this exercise, you will open and run an advanced LabVIEW example VI that performs data logging with a Vernier Stainless Steel Temperature Probe connected to the SensorDAQ or LabQuest interface. Data analysis can then be performed on the logged data. In addition, this example provides feedback that the interface and sensor are properly connected.

Most of the examples in this book and on the Vernier web site are very simple. They are kept simple so that they are easier to understand. This VI is different; it is a fairly advanced example that displays some of the power of LabVIEW. It is designed as a program that can be used in the classroom for data logging and analysis.

OBJECTIVES

In this exercise, you will

- Open and run an example VI.
- Take measurements.
- Receive feedback on your hardware connection.

MATERIALS

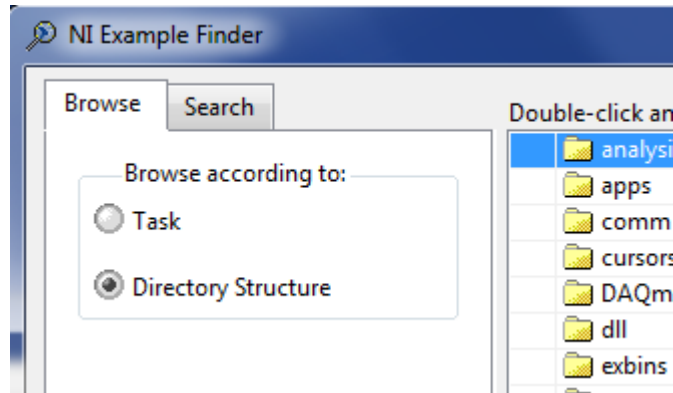|	
SensorDAQ or LabQuest interface	computer
Vernier Stainless Steel Temperature Probe	USB cable
LabVIEW	

PROCEDURE

Part I Connect Hardware

1. Connect the USB cable to the SensorDAQ or LabQuest interface.

2. Connect the other end of the USB cable to any available USB port on your computer. If you are using a LabQuest 2 or the original LabQuest, you must press the Power button to activate the interface. The SensorDAQ and LabQuest Mini are powered on whenever they are connected to the computer. If you are using a SensorDAQ, the green LED (next to the USB cable port) should be blinking. If you are using a LabQuest Mini, the orange LED should be on.

3. Connect the Temperature Probe to Ch. 1.

Part II Start LabVIEW and Collect Data

4. Start LabVIEW.

5. Launch the NI Example Finder by choosing Find Examples from the Help menu.

6. Select Directory Structure in the upper-left corner. From the list of folders, choose Vernier.
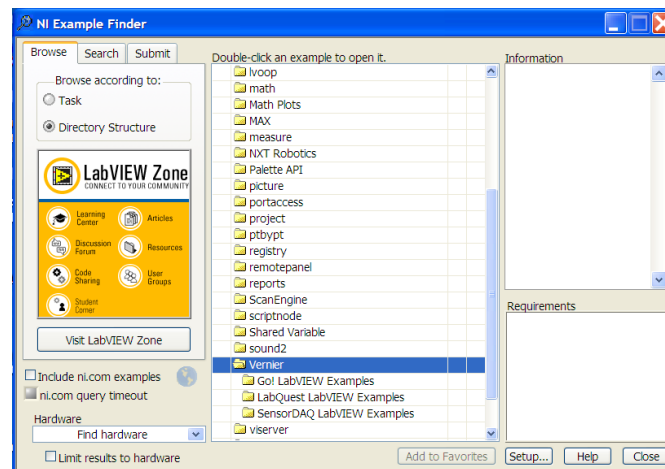

SensorDAQ

If you are using SensorDAQ, open the folders SensorDAQ LabVIEW Examples ► Log and Analyze Data ► Log with Analysis and single-click SensorDAQ Logger.vi to view the description of this example in the Information box.
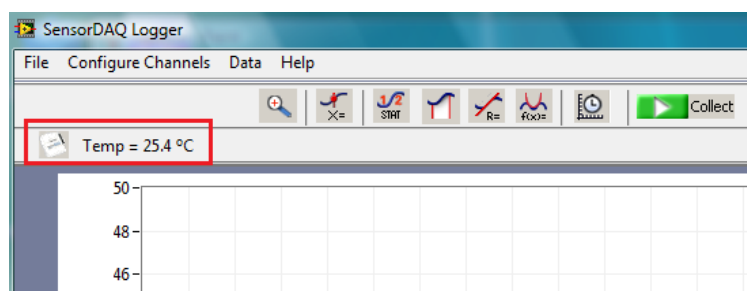
LabQuest Interface

If you are using a LabQuest interface, open the folders LabQuest LabVIEW Examples ► Log and Analyze Data ► Log with Analysis and single-click the LQ Logger.vi to view the description of this example in the Information box.

7. Double-click the Logger file to open it.

8. Start the example by clicking LabVIEW's Run arrow, , in the upper-left corner.

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Tip: If LabVIEW has successfully detected the interface, you will see an interface icon in the upper-left corner (see below), along with the sensor reading. In the example below, a Temperature Probe was connected.

9. Click Collect, ▶. LabVIEW will begin plotting data in the graph.

10. Once data have been collected, click and drag on the graph to highlight data. Click the various analysis buttons in the toolbar (Zoom, Examine, Statistics, Integrate, Linear Fit, and Curve Fit) to study your data.

11. Stop this VI by choosing Exit from the File menu.

12. When you are ready to move to the next chapter, close LabVIEW.

EXTENSIONS

1. Click Data Collection, 🕒 . Modify the length and sampling rate, and then collect some new data.

2. Store several runs of data and analyze them using the Linear Fit, Statistics, and Examine analysis features.

3. The Data Collection window has a triggering tab that allows you to set a data-collection trigger. Collect data that is triggered to start when the temperature has reached a user-defined limit.

4. Open the NI Example Finder by choosing Find Examples from the Help menu. Open and run the program called "Tangent Analysis.vi" that is found in the Log with Analysis folder.