Getting Started Guide for NI ELVIS II/II+

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Overview

This tutorial describes how to get started using the NI ELVIS II and NI ELVIS II+ hardware. This is a basic tutorial to help an educator to conenct NI ELVIS to their PC and install all software. Also included are a tips and tricks on testing the hardware.

The NI ELVIS is a modular engineering educational platform that enables students to easily connect to measurements for their various laboratory experiments. These measurement instruments, called NI ELVISmx soft front panels can be launched both from the native NI ELVIS Instrument Launcher as well as from NI Multisim.

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1. Step 1: Installing NI ELVISmx Software

The 12 instruments integrated into the NI ELVIS hardware are accessed through measurement instruments that are accessed, viewed and controlled from your PC. The instruments connect to the NI ELVIS hardware via the USB DAQ connection. To setup the NI ELVISmx:

- Insert the NI ELVISmx CD included with your NI ELVIS into your PC, **or:**
- Download the NI ELVISmx driver from http://joule.ni.com/nidu/cds/view/p/id/3050/lang/en (http://joule.ni.com/nidu/cds/view/p/id/3050/lang/en)
- Follow the software based steps to install NI ELVISmx onto your system
- Restart your machine to ensure all changes have taken place

2. Step 2: Connect NI ELVIS to a Computer

- Ensure the power switch on the back of the NI ELVIS workstation is in the **OFF** position (as in figure 1)

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Figure 1 - NI ELVIS off switch

- Connect the USB cable to the back of the NI ELVIS workstation (grey cord in Figure 2)

Figure 2- USB Cable

- Connect the AC power supply to the NI ELVIS II Series Workstation. Connect the power supply into a wall outlet.

Figure 3 - AC Power Supply

- Install the prototyping board by positioning the PCI connector at the receptacle on the top of the workstation.
- Slide the PCI connector into the workstation and ensure it is tightly connected.
- Turn the power switch on the back of the NI ELVIS workstation (figure 1) to the ON position.

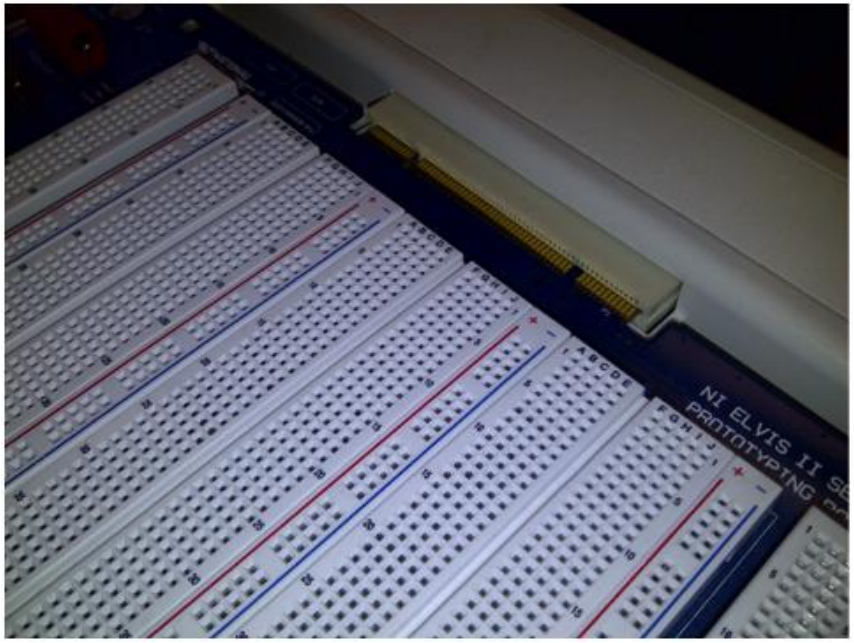

Figure 4 - Plug-in the prototyping board

- Turn the prototyping board power switch to the **ON** position as in figure 5.

Figure 5 - Prototyping Board in the ON position

3. Step 3 - Confirm Setup

- Select **Start > All Programs > National Instruments > Measurement & Automation Explorer** to open the interface to configure and access your hardware devices.
- Under **My System** expand **Devices and Interfaces.**
- Confirm your device is detected by searching for the **NI ELVISII** hardware.
- If it is not listed, press <F5> to refresh MAX.
- If the device is still not recognized, refer to the following resource for troubleshooting tips: ni.com/support/daqmx
- Right-click the **NI ELVISII** device and select **Self-Test**.
- When the self-test finishes, a message indicates either successful verification or an error occurred.
- If an error occurs, again refer to ni.com/support/daqmx for more information.

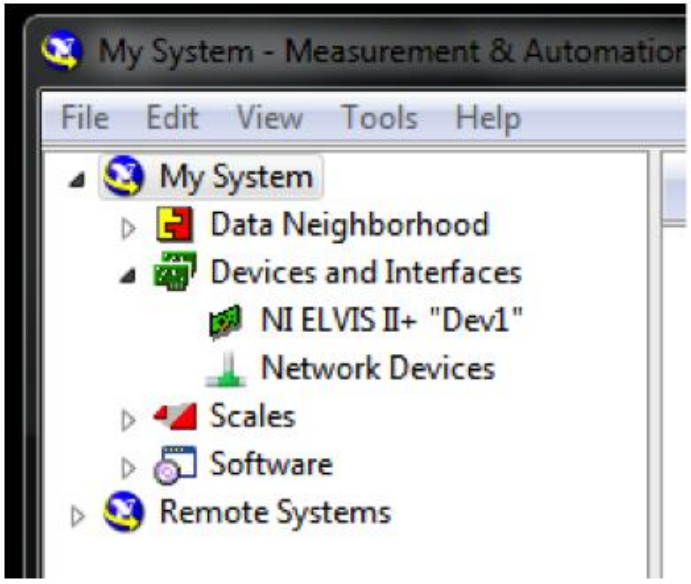

Figure 6 - Measurement and Automation interface

4. Step 4 - Take Your First Measurement

To verify that the NI ELVIS II Series is properly configured, complete the following steps:

- Connect a BNC cable between the FGEN and SCOPE CH 0 BNC connectors on the left side of the NI ELVIS II workstation.

Figure 7 - BNC cable connection

- Connect wires on the prototyping board between **FGEN** and **AI 0+.**
- Connect wires on the prototyping board between **AIGND** and **AI 0–.**

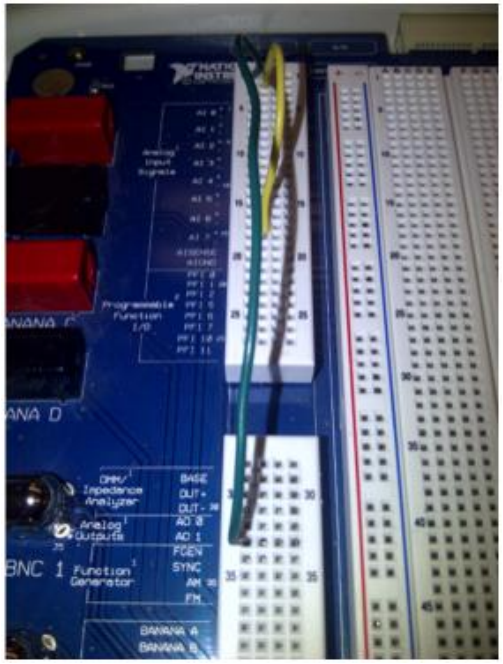

Figure 8 - Wire up the connections

- Start the NI ELVISmx Instrument Launcher by selecting **Start»Programs»National Instruments»NI ELVISmx for NI ELVIS & NI myDAQ»NI ELVISmx Instrument Launcher.**

Figure 9 - NI ELVISmx Instrument Launcher

- Select the Function Generator **(FGEN)** instrument in the Instrument Launcher
  - Configure the FGEN to output as follows:
    - Function: **Sine**
    - Frequency: **100 Hz**
    - Amplitude: **2.00 Vpp**
    - Signal Route: **FGEN BNC**
- Click **Run** to start the function generator.
- Select the oscilloscope **(Scope)** instrument instrument in the Instrument Launcher
  - Configure the Scope as follows:
    - Channel 0 Source: **SCOPE CH 0**
    - Channel 0 **Enabled**

    - Channel 0 Scale Volts/Div: **1 V**
    - Timebase Time/Div: **5 ms**
- Click **Run** to start the oscilloscope. You should see a 100 Hz sine wave on the scope display as in figure 10.

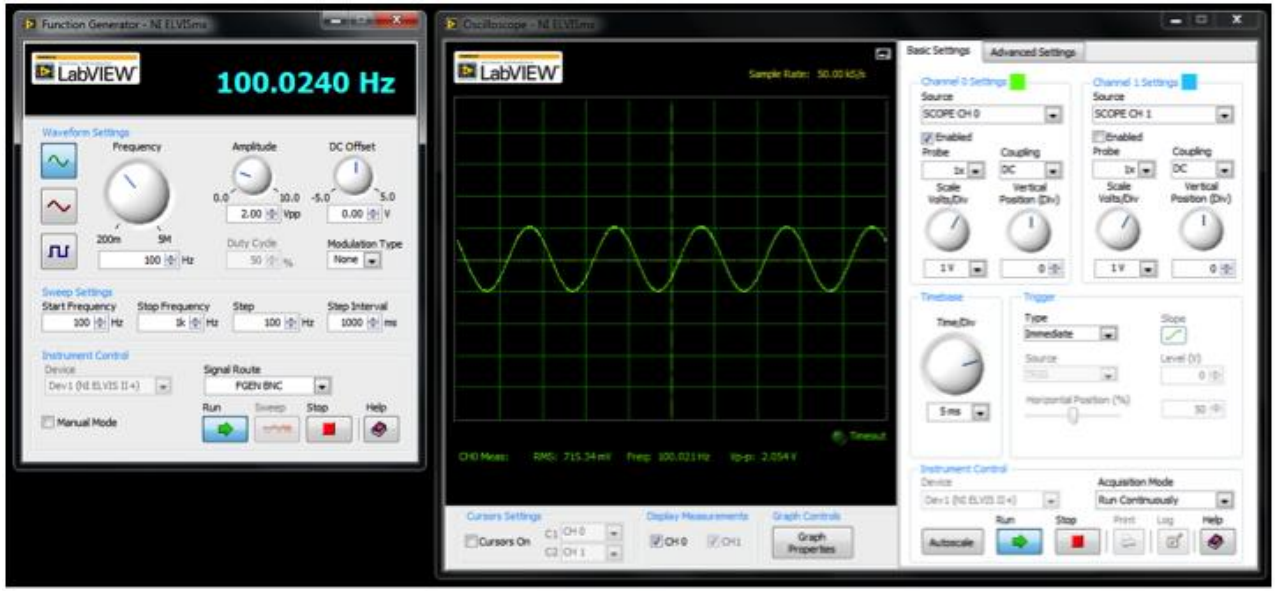

Figure 10 - FGEN and Scope

- Next, on the NI ELVISmx Function Generator SFP, change the **Signal Route** from **FGEN BNC** to **Prototyping Board**
- On the NI ELVISmx Oscilloscope, change the **Source** from Scope **CH 0** to **AI 0**.
- You should see a 100 Hz sine wave on the scope display (figure 11)

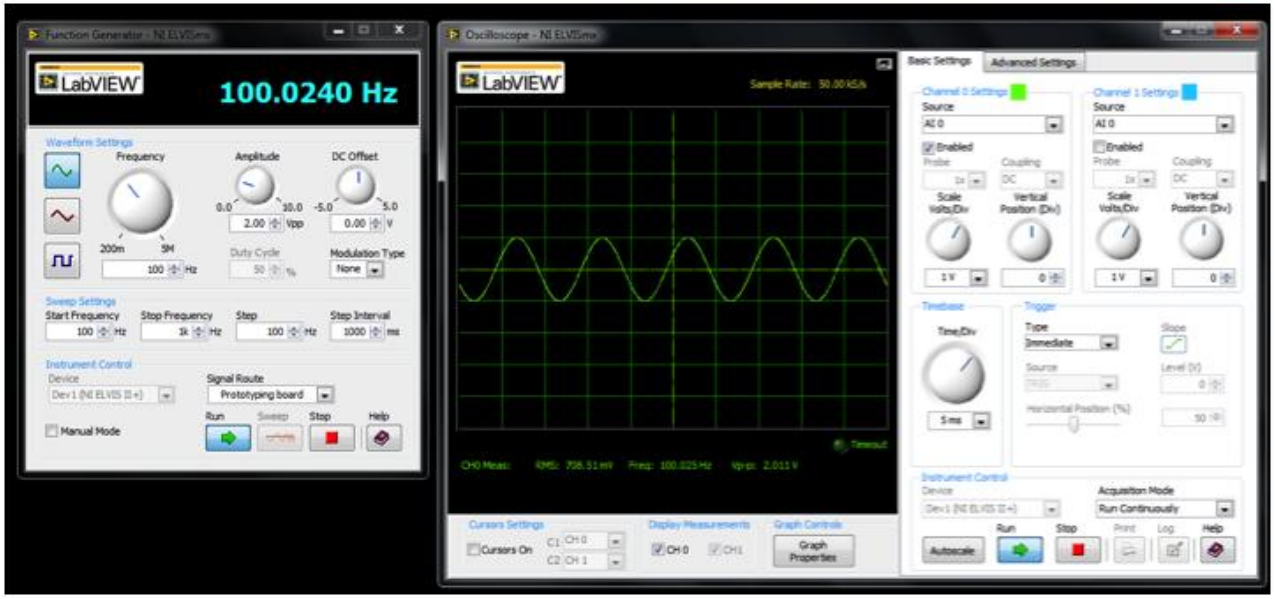

Figure 11 - FGEN and Scope 2

5. Troubleshooting

If you have problems installing your software, go to ni.com/support/daqmx. For hardware troubleshooting, go to ni.com/support and enter your device name, or go to ni.com/kb to search for documentation addressing your problem.

Refer to the NI ELVISmx Online Help and NI Educational Virtual Instrumentation Suite II Series (NI ELVIS II Series) Hardware User Manual for more information about using the NI ELVIS II Series instruments within LabVIEW, SignalExpress, or NI Multisim, or for more information about NI ELVIS II Series features.