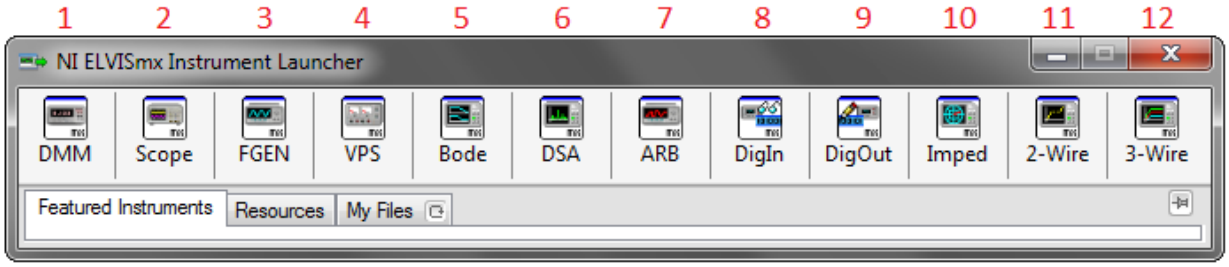
Introduction to myDAQ

Watch the video https://www.youtube.com/watch?v=oe8_GUMVFfU (Getting Started with NI myDAQ). You can also find helpful information from the myDAQ user guide http://www.ni.com/pdf/manuals/373060g.pdf and the specifications http://www.ni.com/pdf/manuals/373061g.pdf.

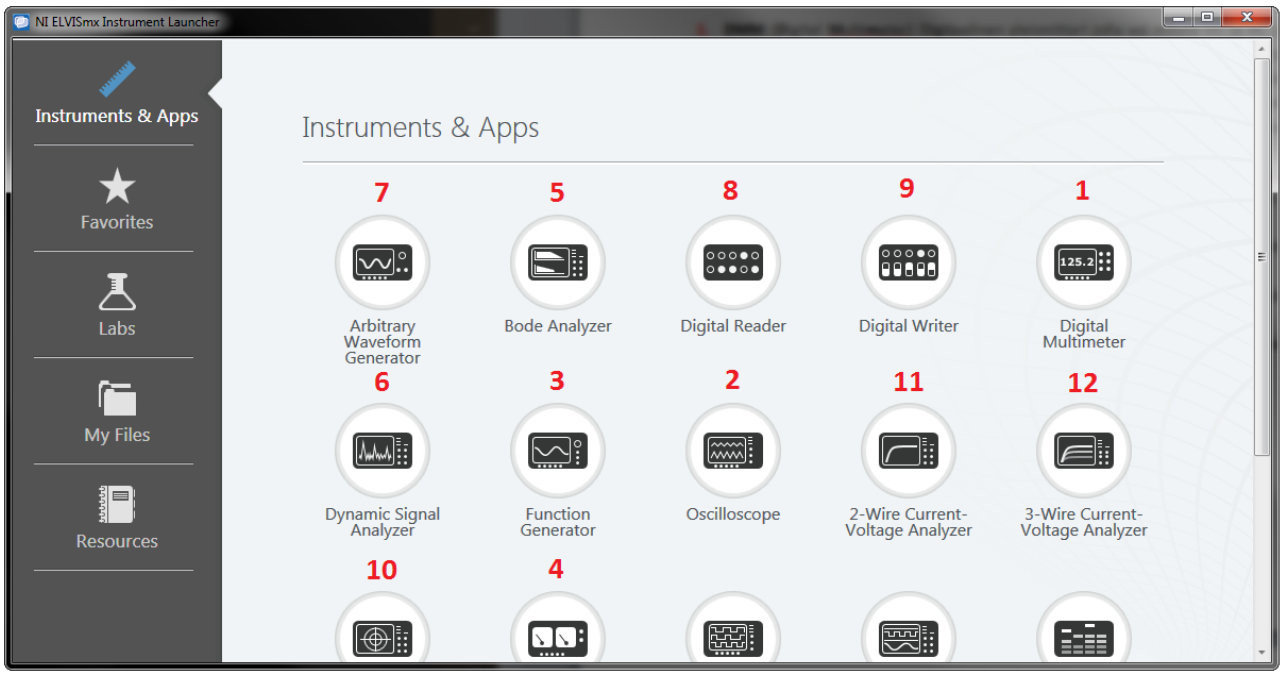
Using the myDAQ measurement instruments requires installing the necessary software. See the Moodle file "TUNI_installation_NI2017_software.pdf" in this folder.

Install the black terminal connector as indicated in the video.

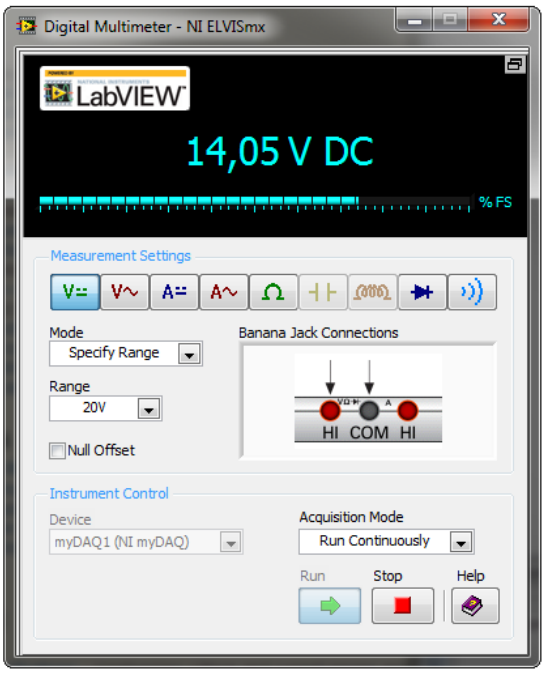
After installing the software, connect myDAQ with the USB cable. The NI ELVISmx Instrument Launcher may appear. If it doesn't, start it from Start menu -> All programs -> National Instruments -> NI ELVISmx for NI ELVIS & NI myDAQ -> NI ELVISmx Instrument Launcher. If you haven't updated the Instrument Launcher with NI Update Service, Instrument Launcher may look like this:



Or if you have updated, Instrument Launcher may look like this:



1. **Digital Multimeter**. Functions: voltage, current and resistance measurement, diode test and circuit continuity test. Voltage limits: DC: 60 V, AC: 20 V (rms), (Measurement Category I).



Safety information (from myDAQ specifications):
Caution *Do not use this device for connection to signals or for measurements within Measurement Categories II, III, or IV.*

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.

Example: Measuring resistance

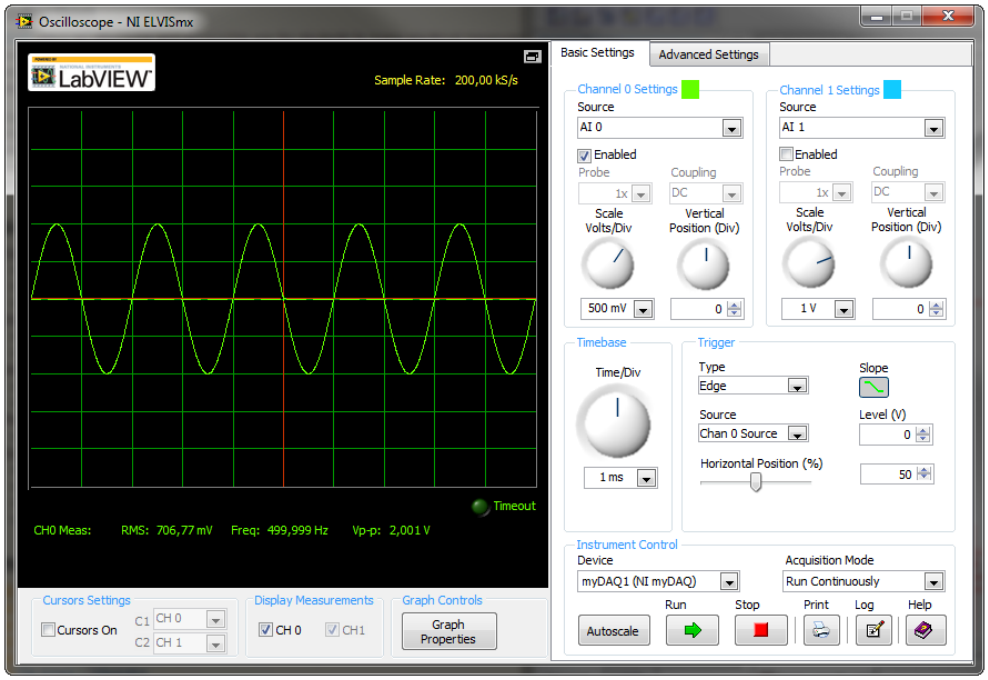
1. Select the resistance measurement function (5 in the figure below).

2. Connect the measurement leads to myDAQ as indicated in the Banana Jack Connections diagram of the multimeter window.
3. **Mode menu**: You can specify the range or use the Auto setting. Measuring with the Auto setting is somewhat slower.
4. **Acquisition mode**: Select Run Continuously for continuous measurements. Run Once stops the measurement automatically.
5. Press Run to start the measurement.

6. Connect the measurement leads to the resistor and wait for the reading. When using the Auto setting, the measurement may take 5 seconds.

2. **Oscilloscope**

The oscilloscope allows measuring signals as a function of time.



The oscilloscope function uses the analog input block (denoted with AI).

From the myDAQ user guide:

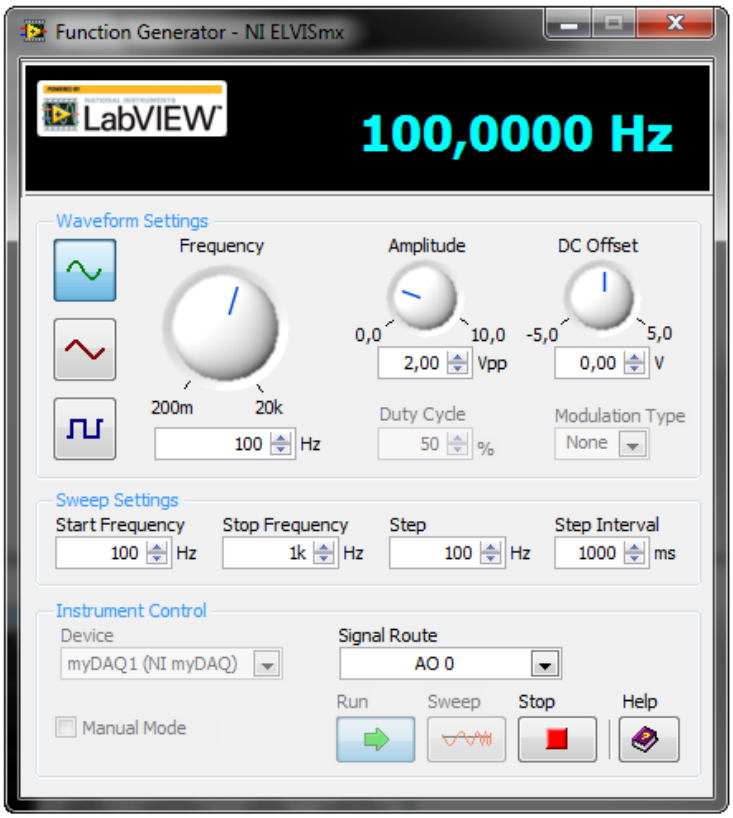
"**Analog Input (AI)**

There are two analog input channels on NI myDAQ. These channels can be configured either as general-purpose high-impedance differential voltage input or audio input. The analog inputs are multiplexed, meaning a single analog-to-digital converter (ADC) is used to sample both channels. In general-purpose mode, **you can measure up to ±10 V** signals. In audio mode, the two channels represent left and right stereo line level inputs. Analog inputs can be measured at **up to 200 kS/s per channel**, so they are useful for waveform acquisition. Analog inputs are used in the NI ELVISmx Oscilloscope, Dynamic Signal Analyzer, and Bode Analyzer instruments."

(emphasis added)

3. **Function Generator**

The function generator allows generating sine, triangle and square waves from 200 mHz to 20 kHz. It uses the AO block.



From the myDAQ user guide:

"**Analog Output (AO)**

There are two analog output channels on NI myDAQ. These channels can be configured as either general-purpose voltage output or audio output. Both channels have a dedicated digital-to-analog converter (DAC), so they can update simultaneously. In general-purpose mode, you can generate up to ±10 V signals. In audio mode, the two channels represent left and right stereo outputs."

During the course several examples are covered (from the very basics onwards) and guidelines are given in the Moodle area.