NI ELVIS II

National Instruments Educational Laboratory Virtual Instrumentation Suite

NI ELVIS II

Educational design and prototyping platform for teaching circuit circuits design, control, instrumentation, telecommunications, and embedded/MCU experiments

- 12 integrated virtual instruments
- Hi-speed USB plug-and-play
- Customizable with LabVIEW graphical system design environment
- Partner plug-in boards and curricula
- Complete integration with Multisim for circuits and electronics

Hardware Specifications

Oscilloscope

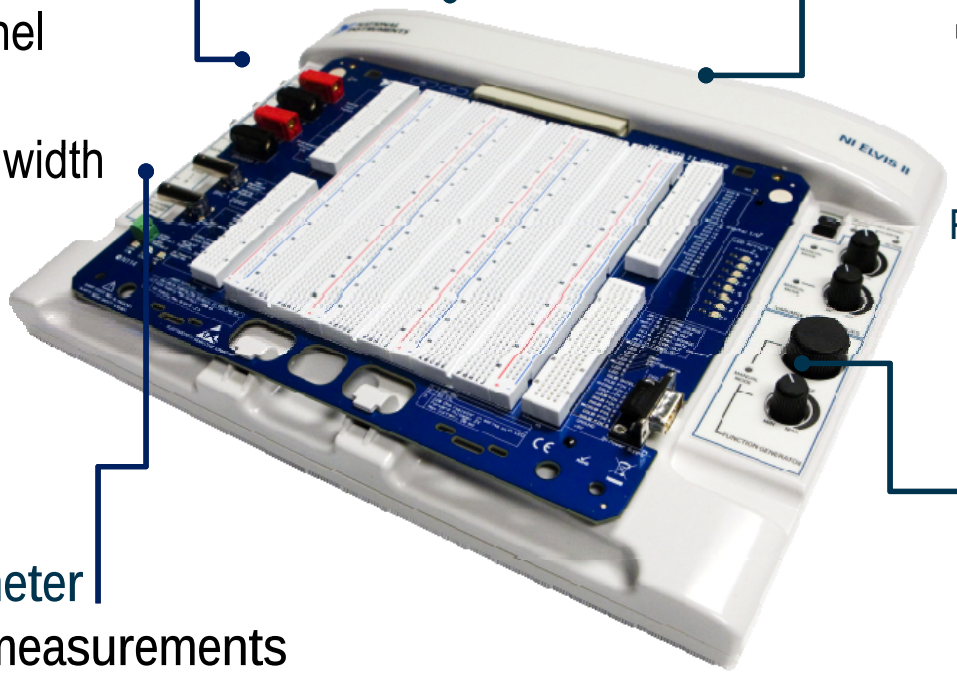
- 16 bit resolution
- 1.25 MS/s single channel, 500kS/s two channel aggregate
- 1 to 1.5 MHz Bandwidth
- 1x and 10x probe
- ±10 V input range
- AC/DC coupling
- BNC connection

Internal Circuit Protection

- Resettable fuses

USB Connectivity

- Plug-and-play capability
- USB 2.0 Connection



Function Generator

- 10-bit
- ±5V range
- 0.2 Hz to 5 MHz Sine
- 0.2 Hz to 1 MHz Triangle/Square
- Software or manual control
- BNC or prototyping board connection

Digital Multimeter

- Isolated measurements
- 5 digit resolution
- 60 VDC, 20Vrms, 2 ADC, 2 Arms, 100MΩ

Hardware Specifications

Integrated DAQ

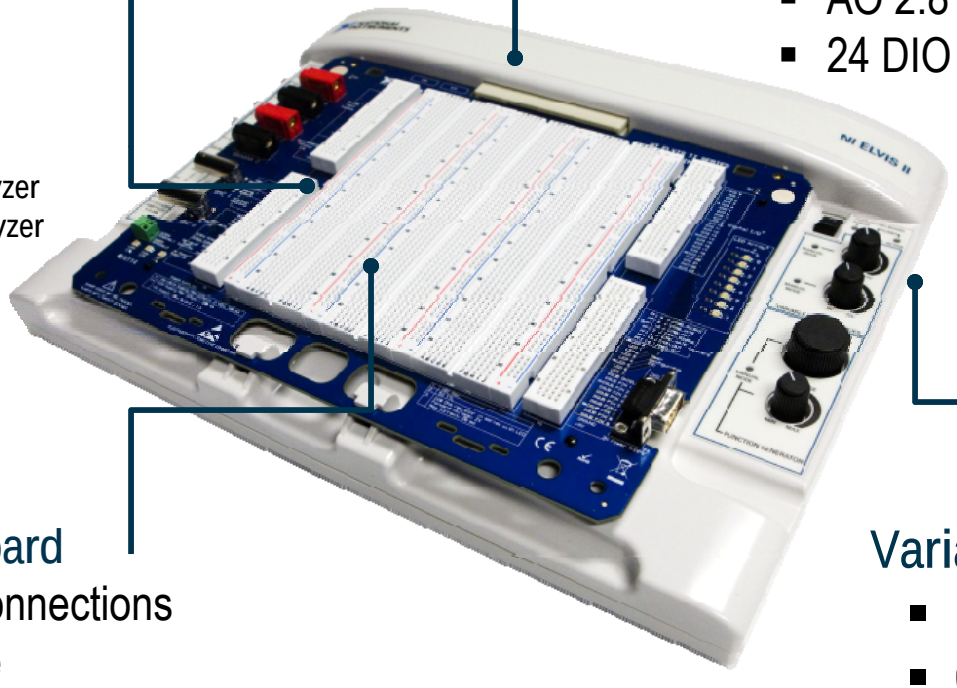
- AI sampling rate 1.25 MS/s single channel, 500kS/s two channel
- 16 bit resolution
- AO 2.8 MS/s update rate
- 24 DIO lines, 15 PFI, 2 CTR

Impedance Analyzer

- 0.2 Hz to 35 kHz Range
- NPN, PNP, Diode

Other Analyzers:

- Bode Analyzer
- 2-wire Current Voltage Analyzer
- 3-Wire Current Voltage Analyzer



Prototyping Board

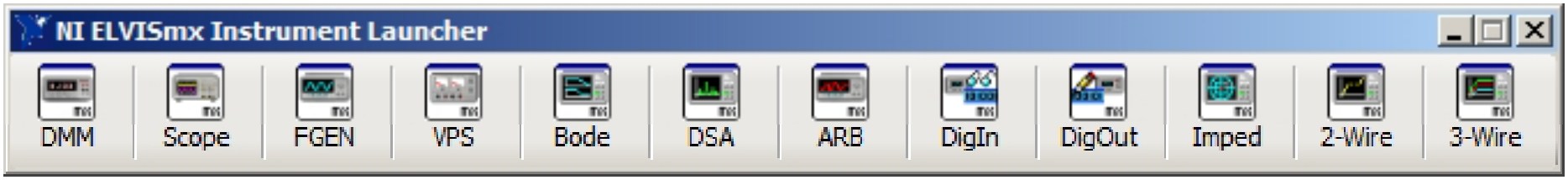
- Updated connections
- Detachable
- User-defined Banana Plugs, BNC, D-Sub connectors

Variable Power Supply

- 10 bit resolution
- 0 to +12V, 0 to -12V
- 500 mA current range

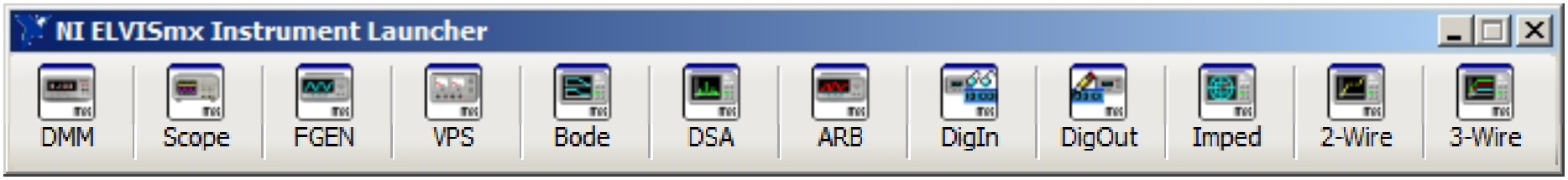
NI ELVISmx Instrument Launcher

- Digital Multimeter (DMM)
- Oscilloscope (Scope)
- Function Generator (FGEN)
- Variable Power Supplies (VPS)
- Bode Analyzer (Bode)
- Dynamic Signal Analyzer (DSA)

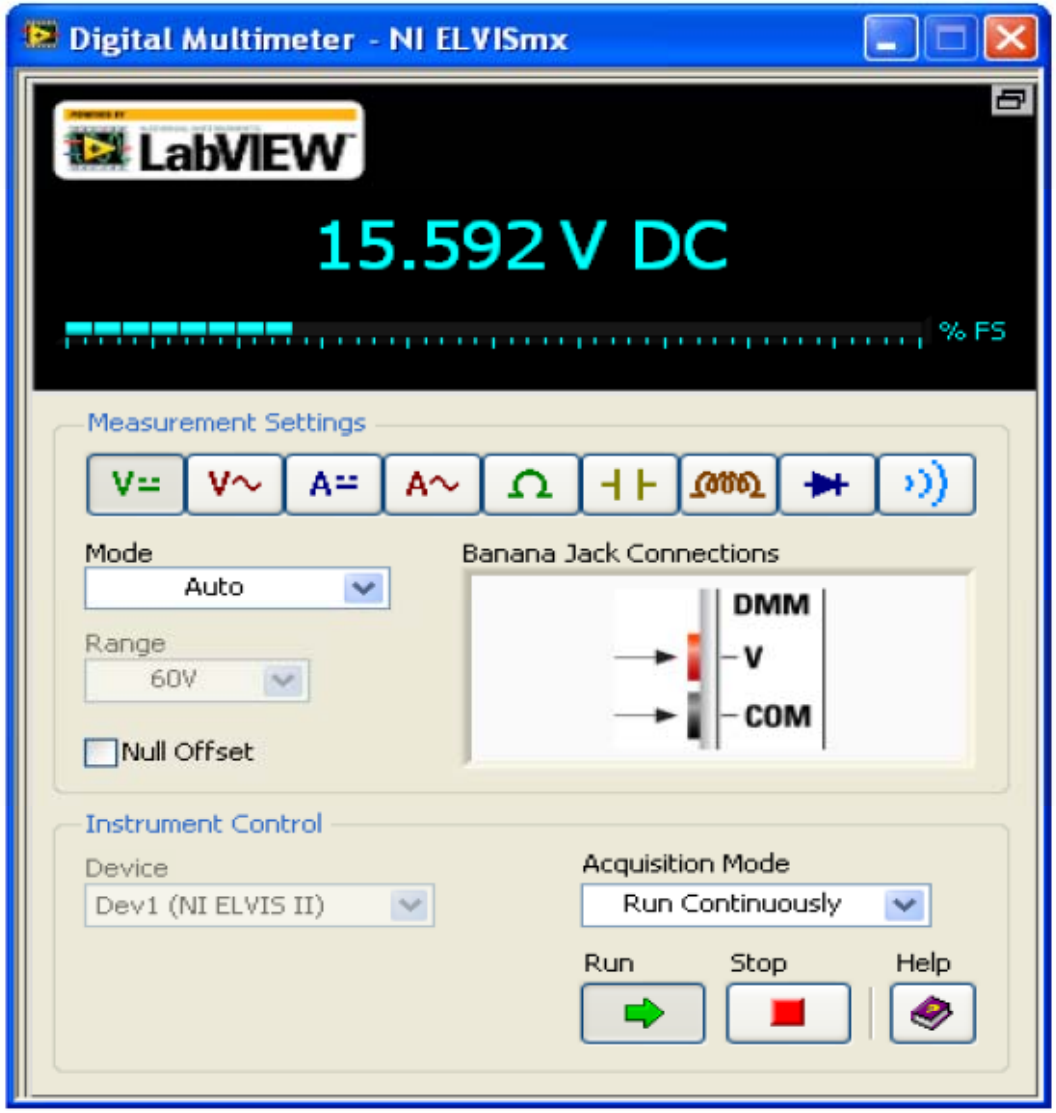


NI ELVISmx Instrument Launcher (cont)

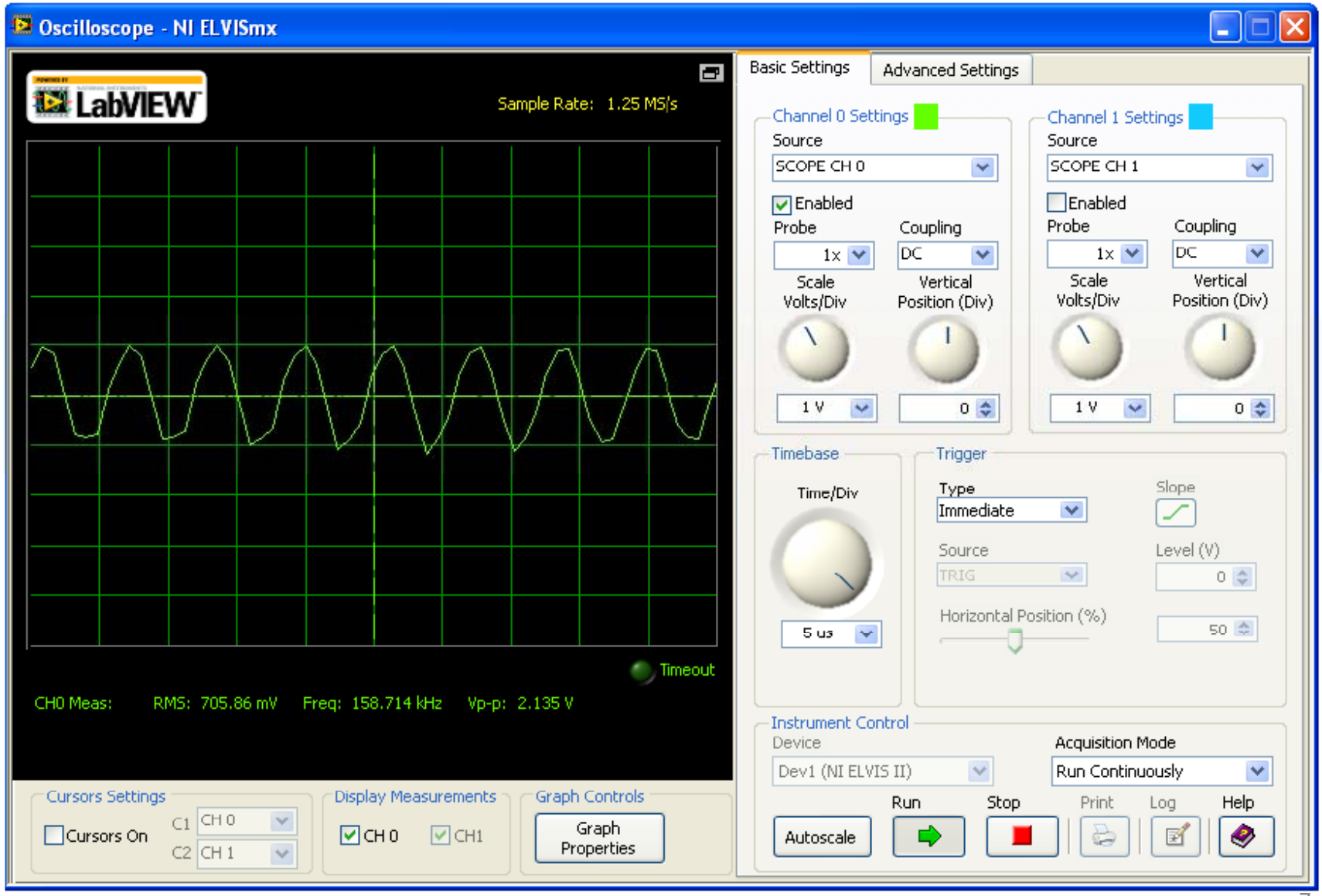
- Arbitrary Waveform Generator (ARB)
- Digital Reader (DigIn)
- Digital Writer (DigOut)
- Impedance Analyzer (Imped)
- Two Wires Current Voltage Analyzer (2-Wire)
- Three Wires Current Voltage Analyzer (3-Wire)



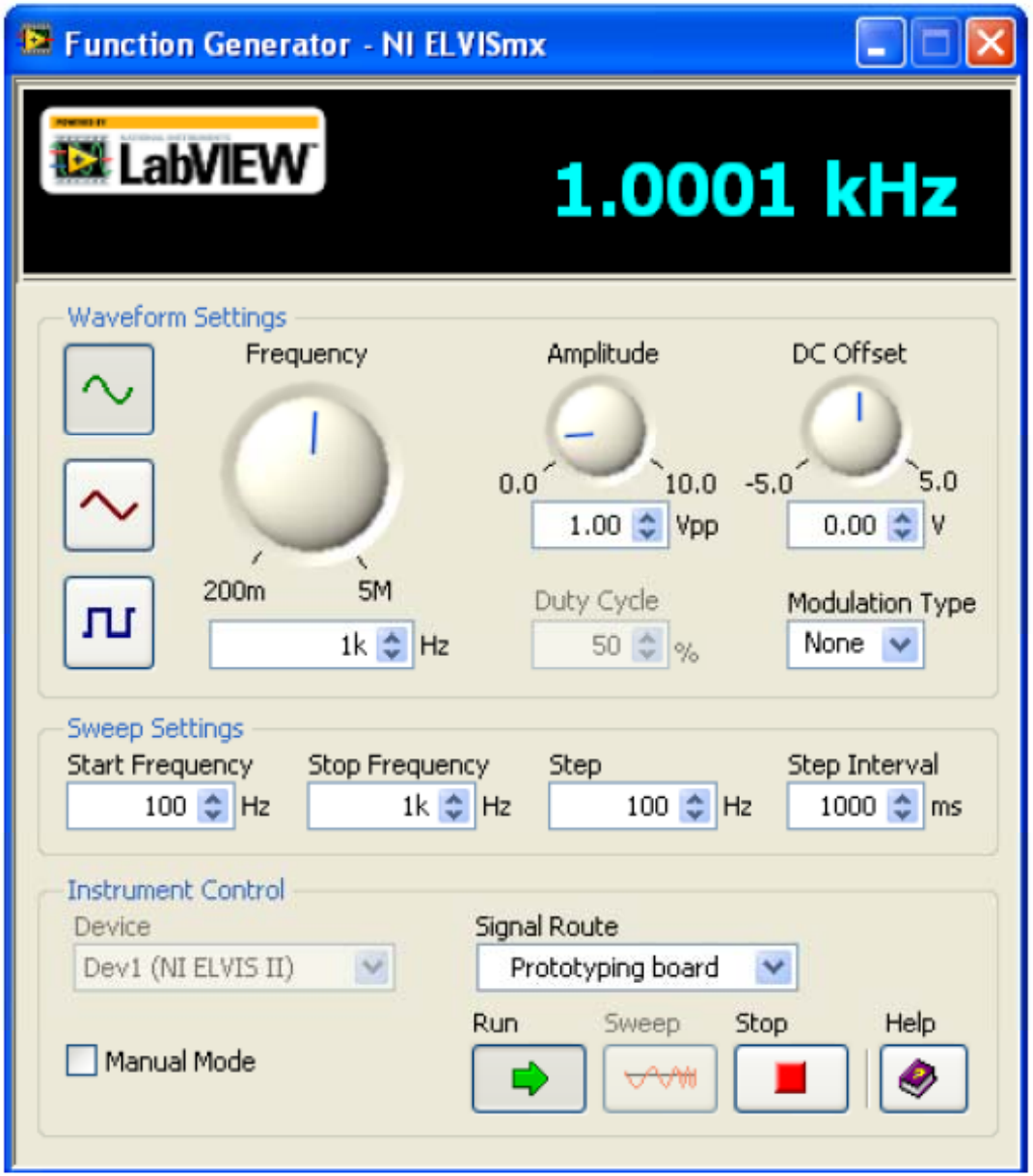
Digital Multimeter (DMM)



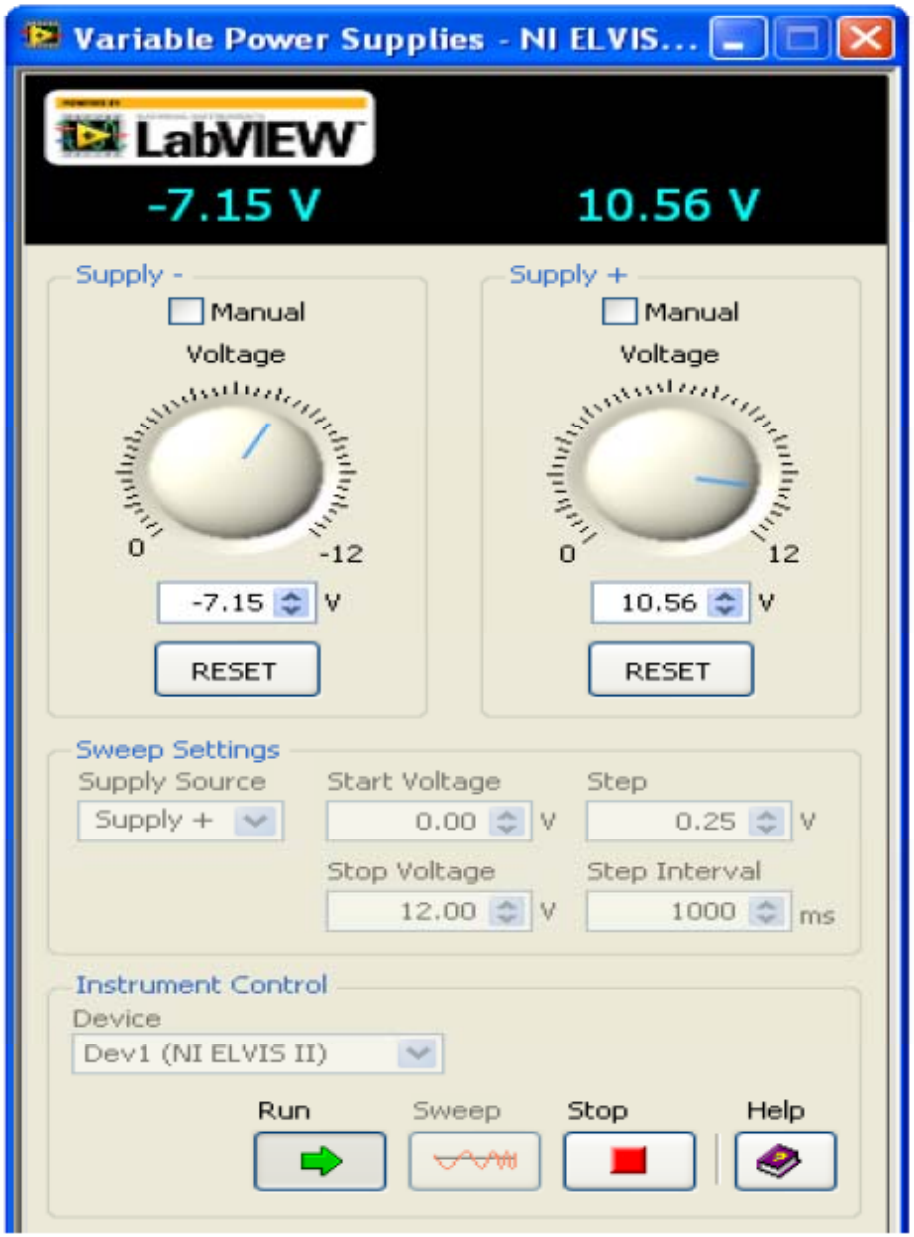
Oscilloscope (Scope)



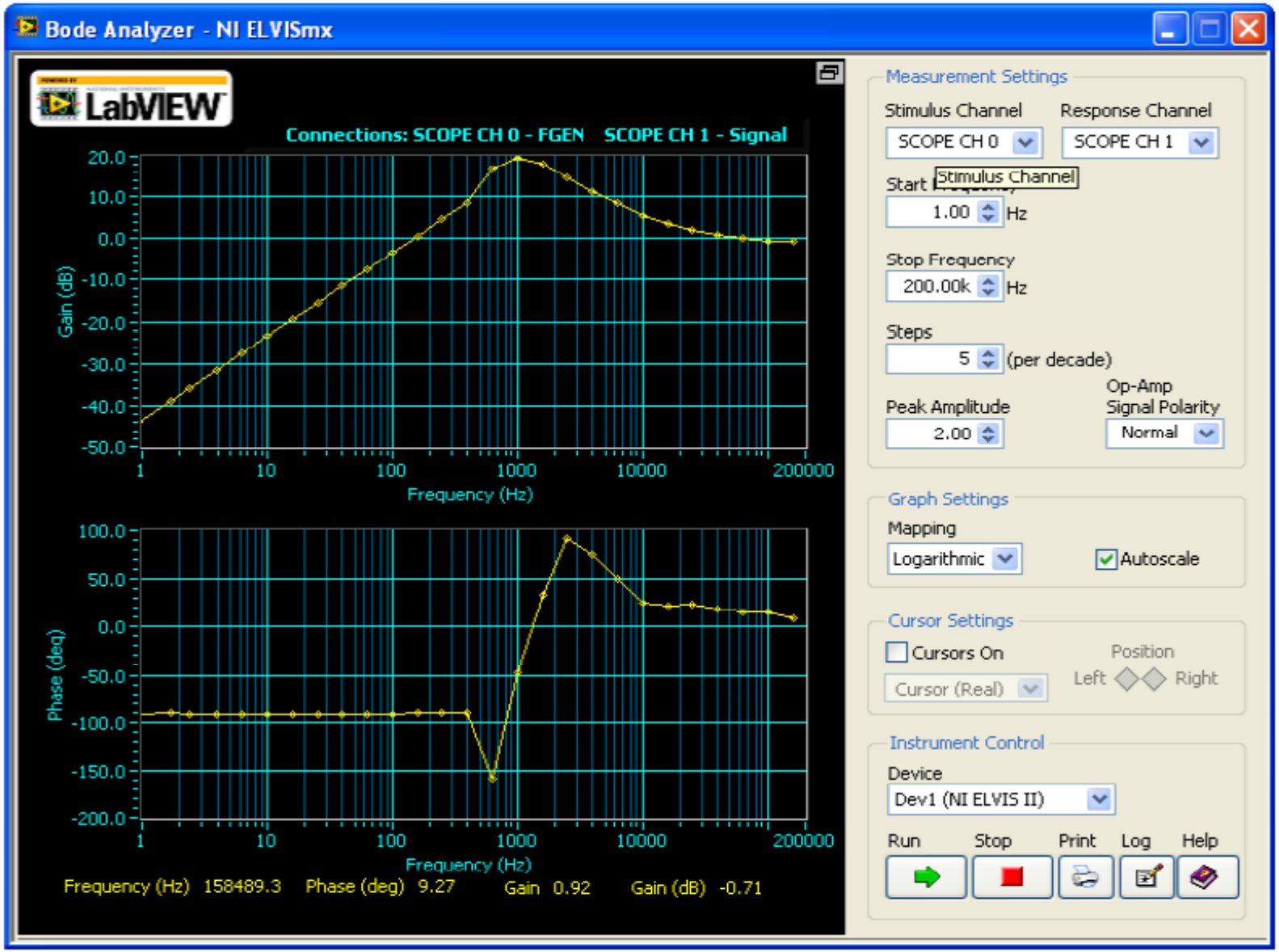
Function Generator (FGEN)



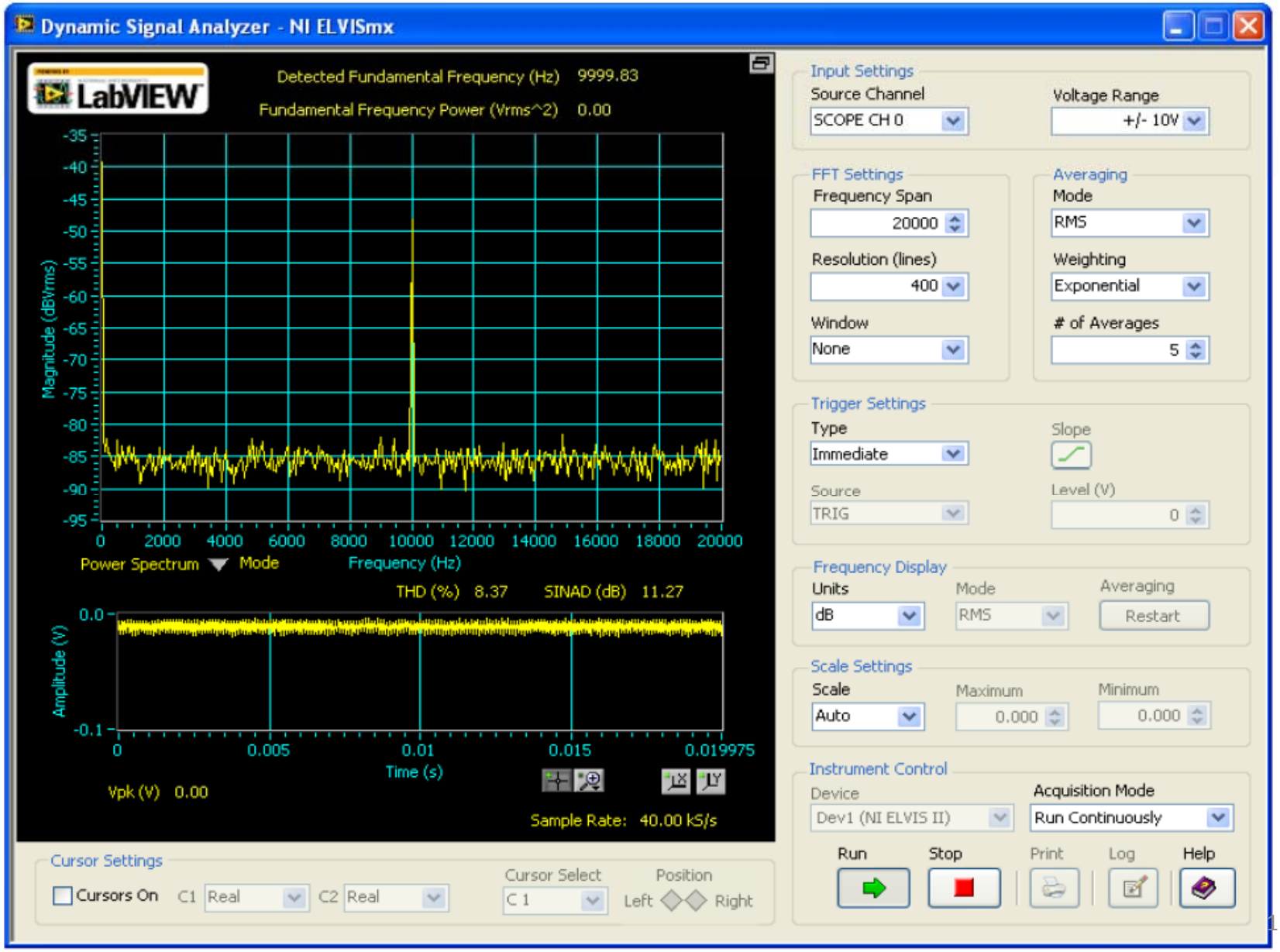
Variable Power Supplies (VPS)



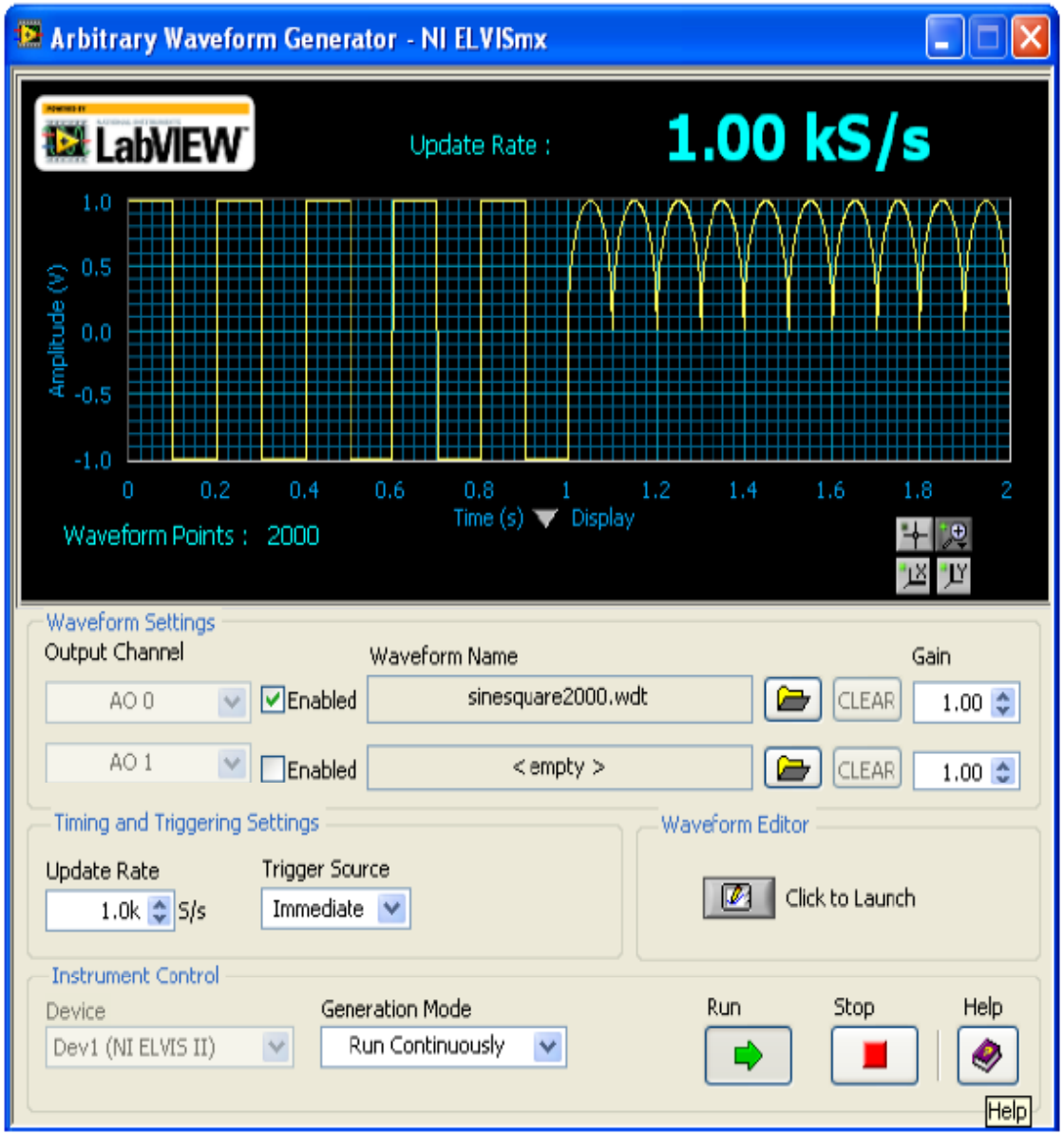
Bode Analyzer (Bode)



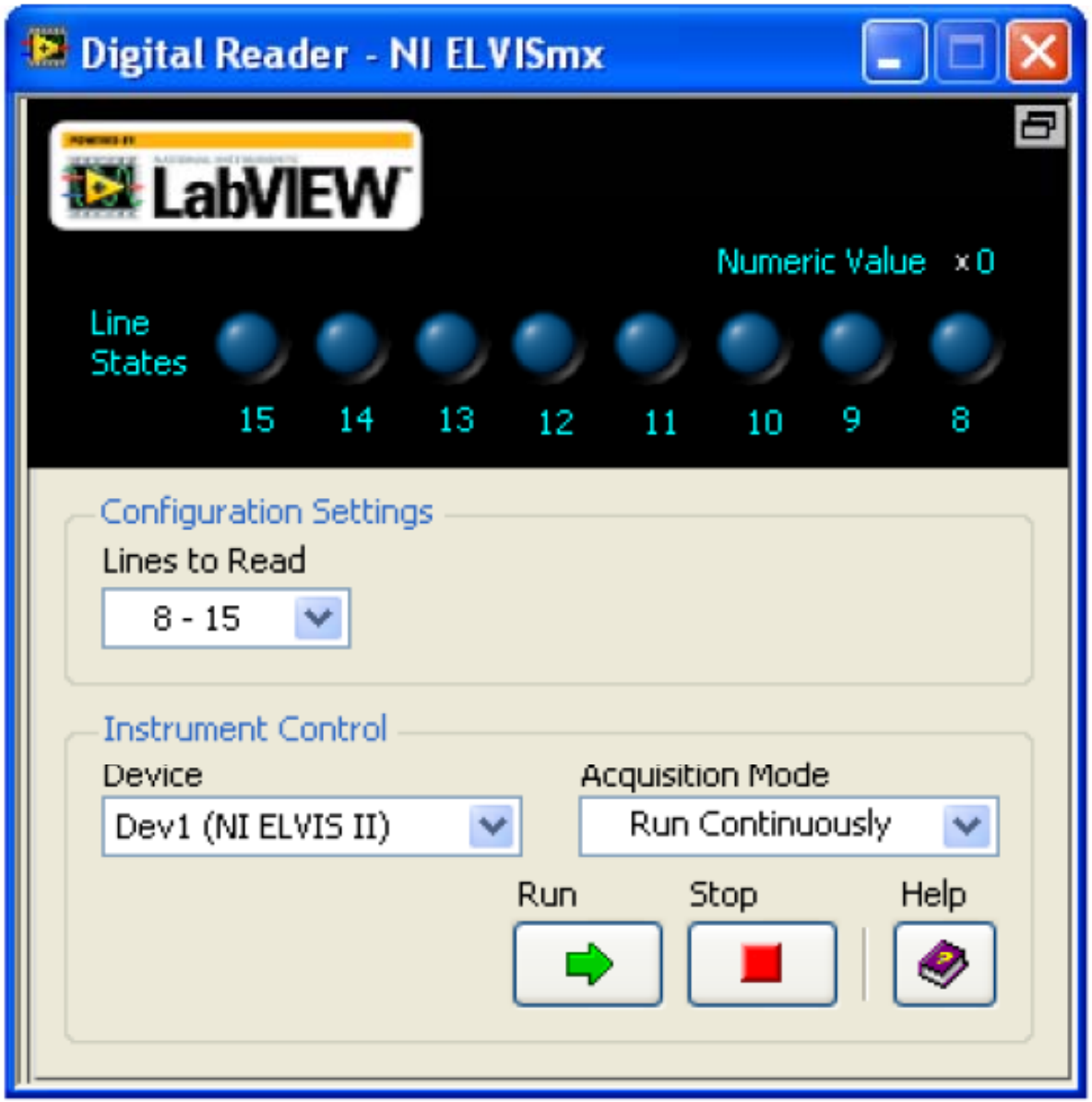
Dynamic Signal Analyzer (DSA)



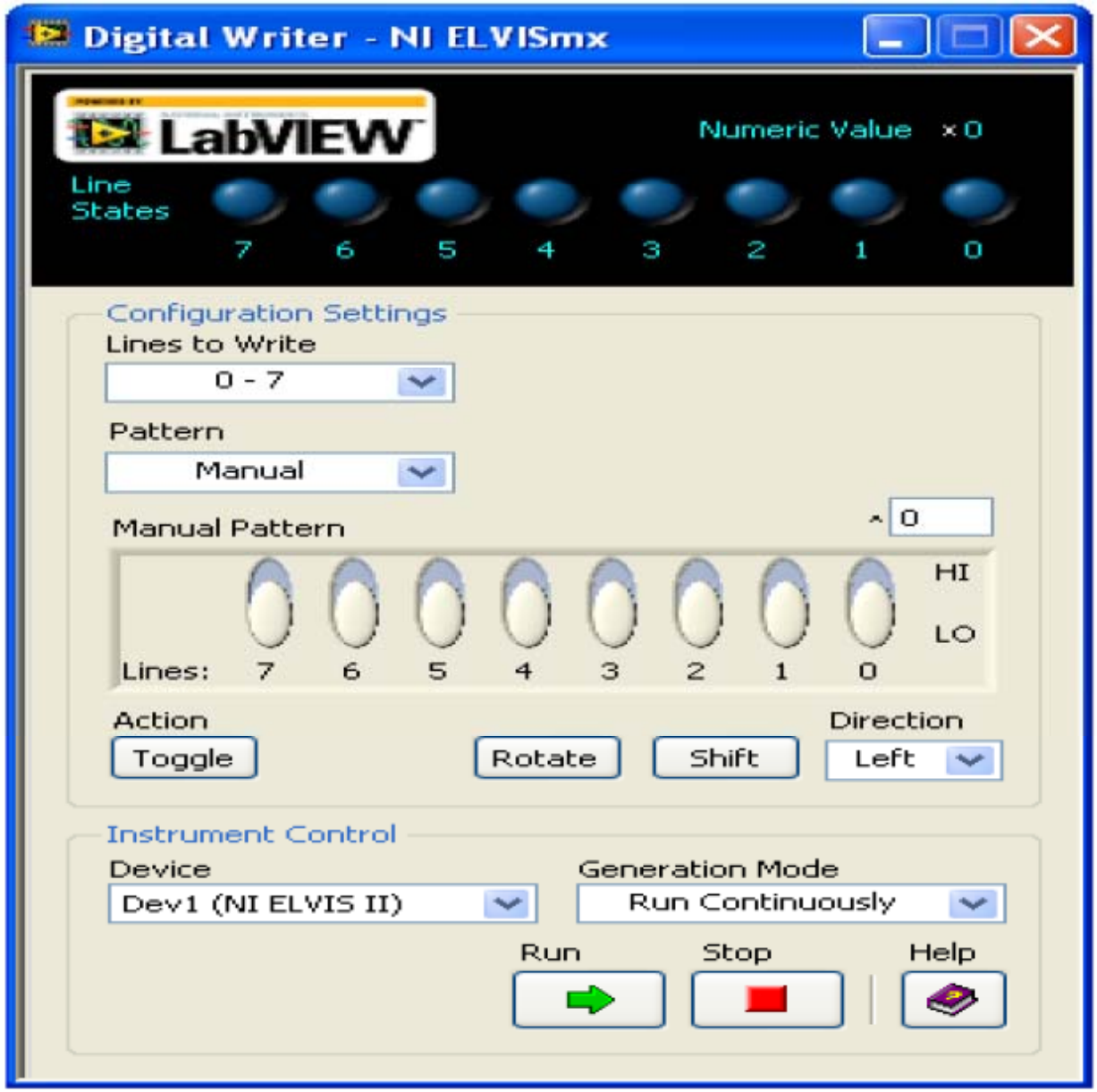
Arbitrary Waveform Generator (ARB)



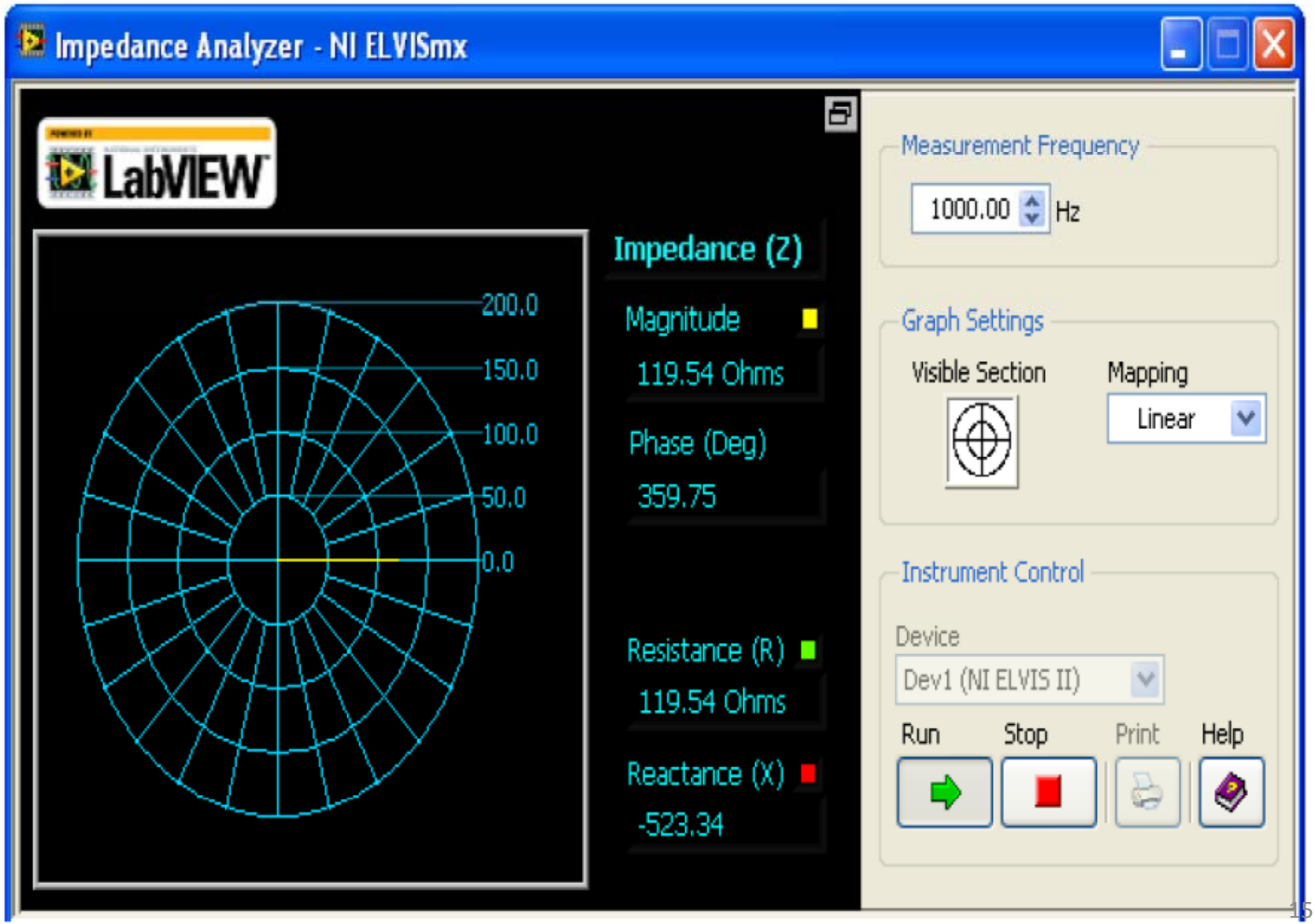
Digital Reader (DigIn)



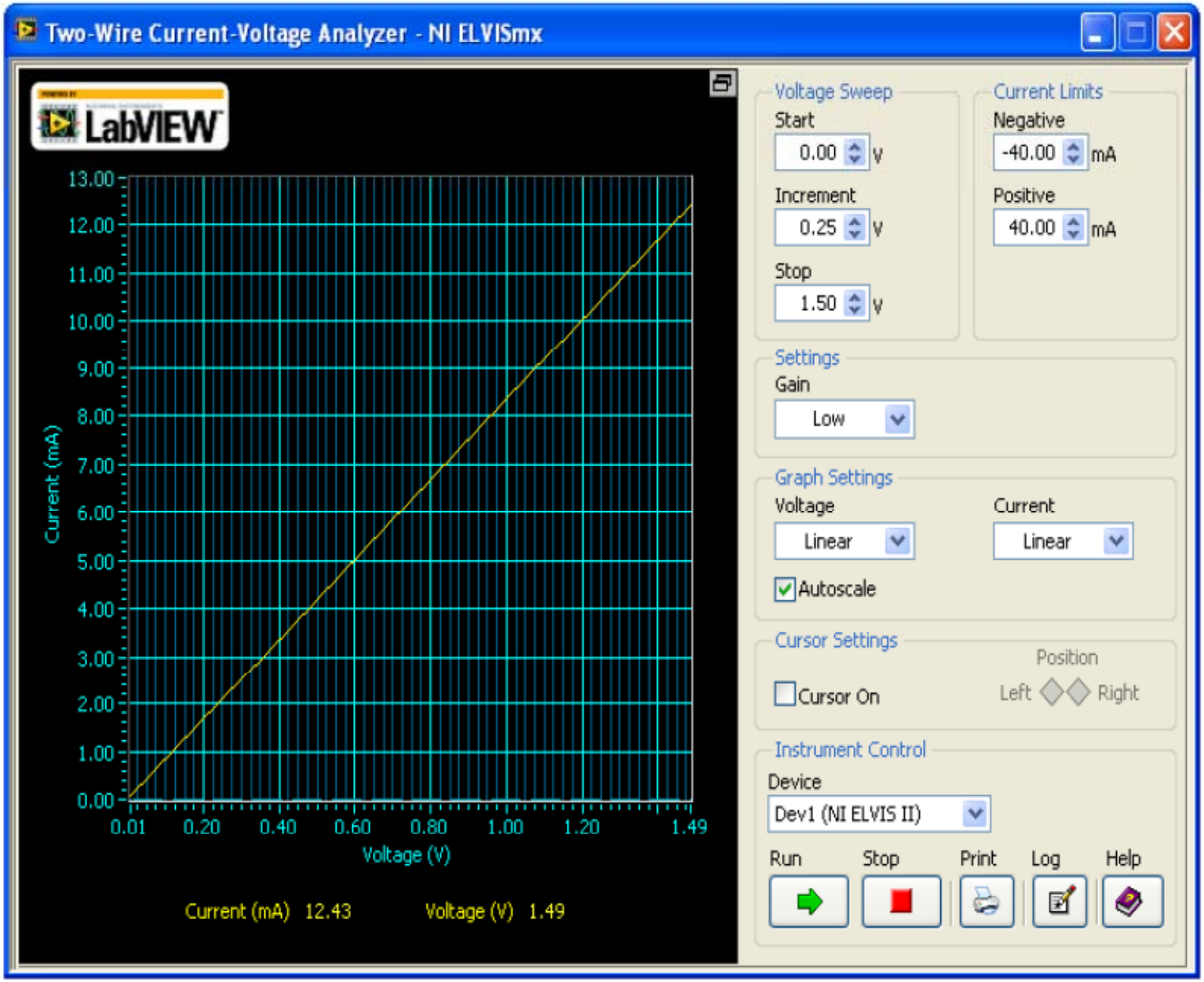
Digital Writer (DigOut)



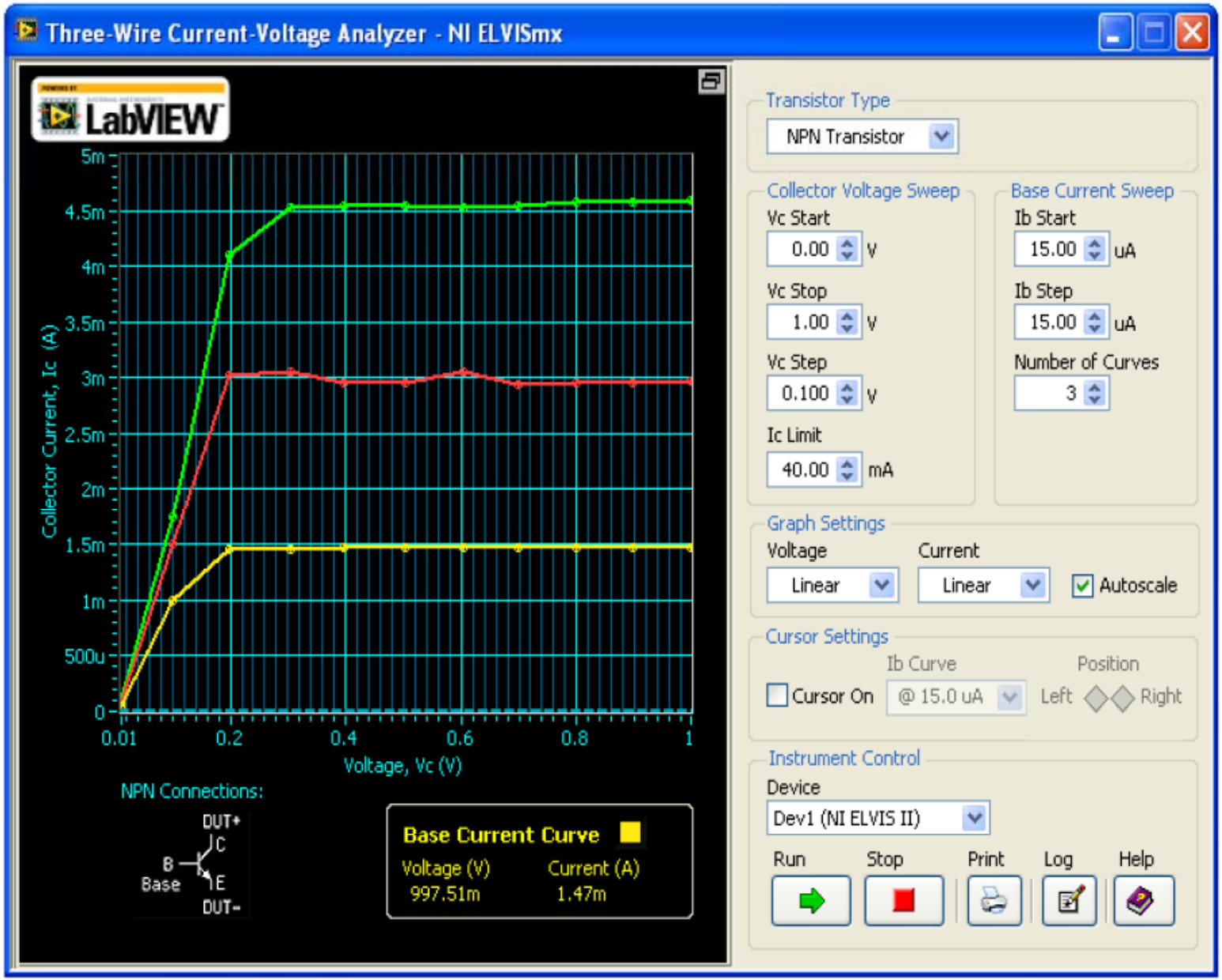
Impedance Analyzer (Imped)



Two-Wire Current-Voltage Analyzer (2-Wire)

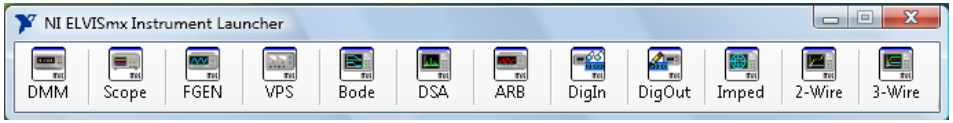


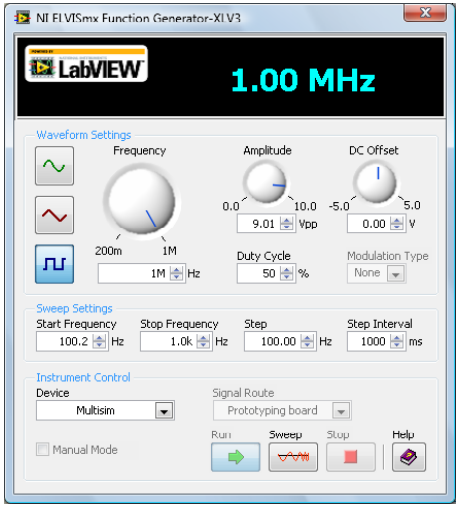
Three-Wire Current-Voltage Analyzer (3-Wire)



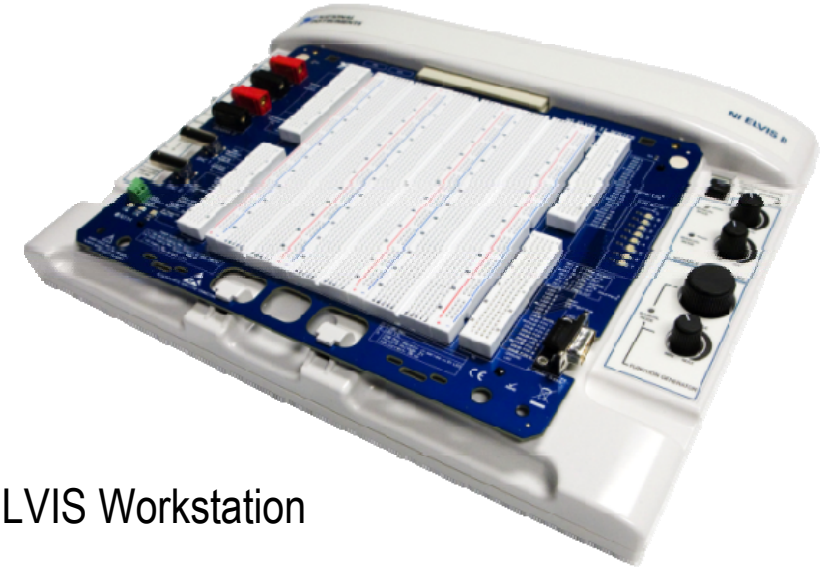
Prototyping with NI ELVIS

- 12 computer-based LabVIEW Virtual Instruments
- Hi-speed USB plug-and-play connectivity
- Prototyping Breadboard

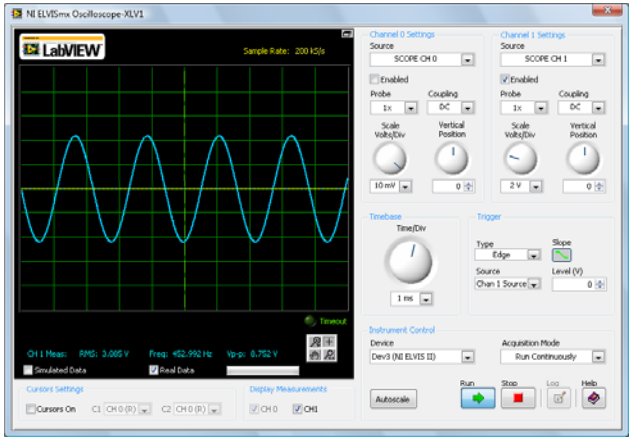




Function Generator



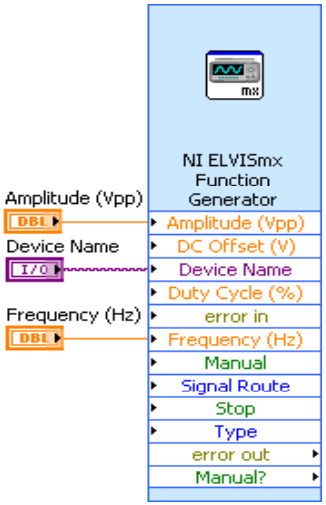
NI ELVIS Workstation

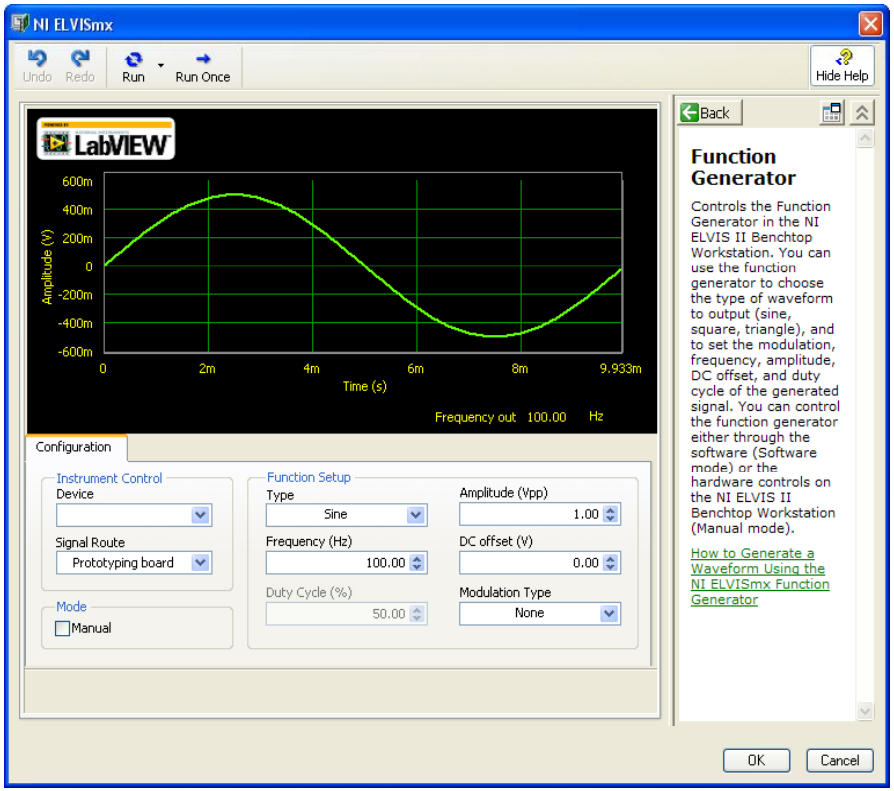


Oscilloscope

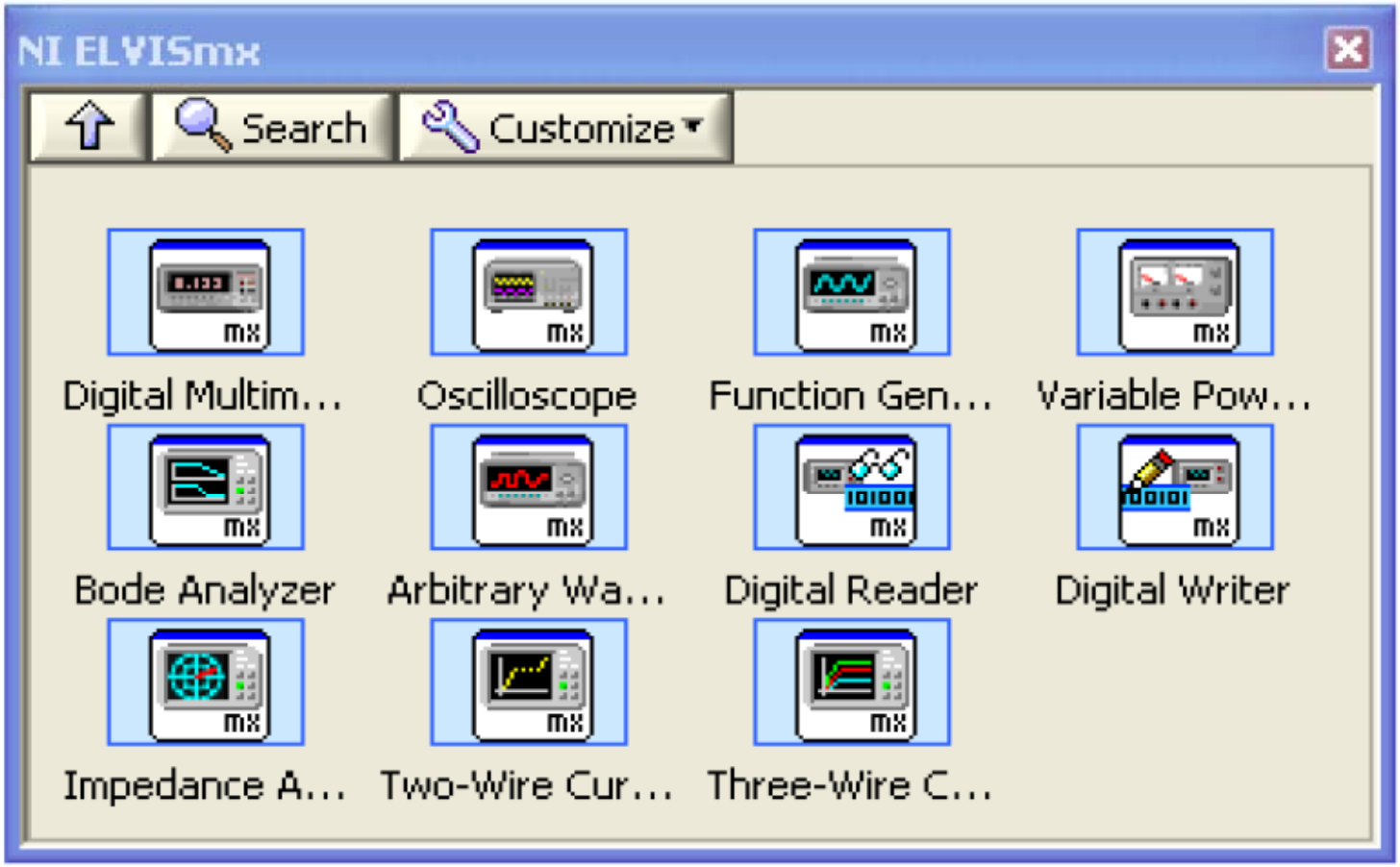
NI LabVIEW and NI ELVISmx

- NI ELVISmx Express Virtual Instruments
- Analyze and generate data from LabVIEW
- Place on block diagram
- Utilize user interface or programmatic controls

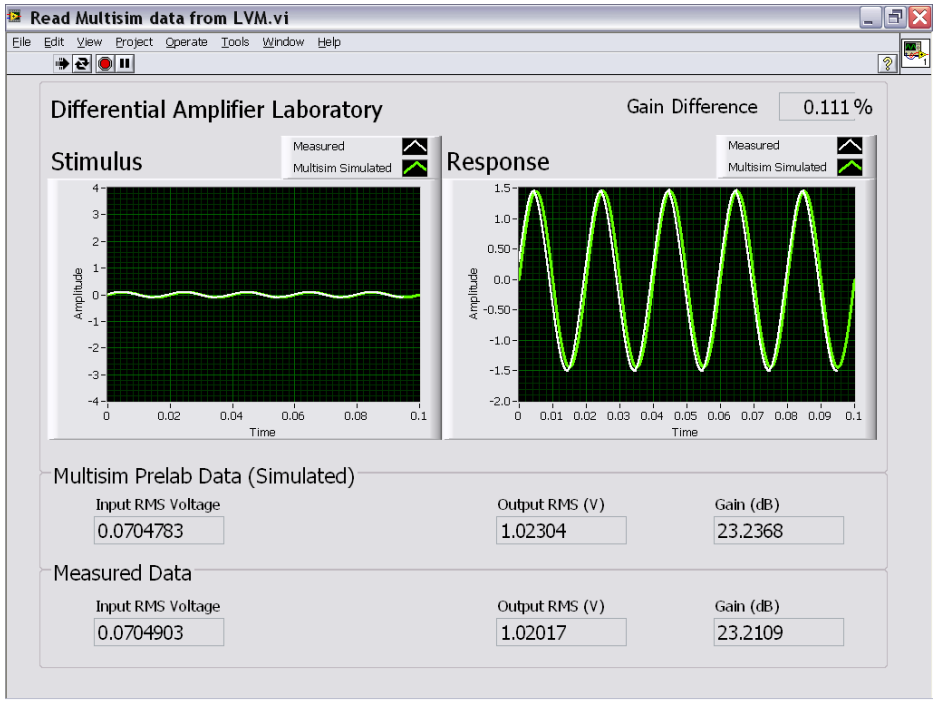




NI ELVISmx Express VIs

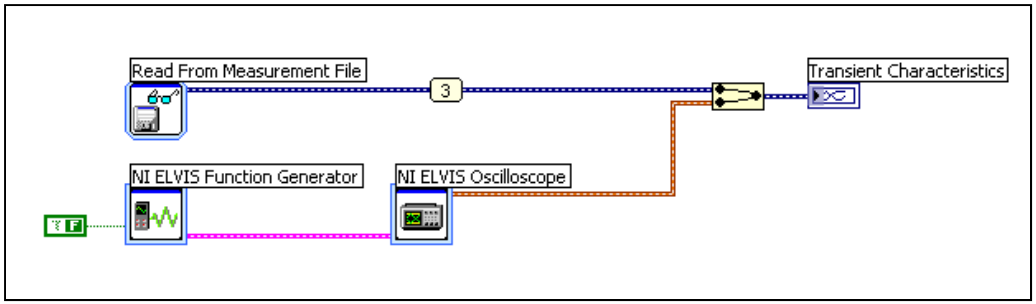


LabVIEW Integration



- Overlay simulation data with measurement results
- Automate testing and validation of design
- Verify simulation model accuracy

LabVIEW Integration



Exercises

Prototyping, Measurements and DAQ

Objective:

Use NI ELVIS hardware to test and measure.

Use DAQ assistant to output and input.