

Using the Capture and Process software for Lab 1 ECE1270

Required files:

scope2matlab.exe (located on the class website or in the documents folder of lab computers). Note: there is also a file of extension .vi of the name scopetomatlab.

Getting Started

The capture software listed above is a way to capture data from the scopes provided at the ECE student labs benches into the Matlab® environment for processing. This functionality is provided by a LabVIEW® application called a VI (Virtual Instrument). The virtual instrument file has been compiled to form the stand alone application scope2matlab.exe. (*Do not close the Matlab window or the application will have to be close and restarted*).

Using the file scope2matlab.exe will launch the interface required to perform experiments. If you would like to see what is under the application in LabView®, launch the file with the .vi extension and choose *Show block diagram* from the *Window* menu.

The Interface

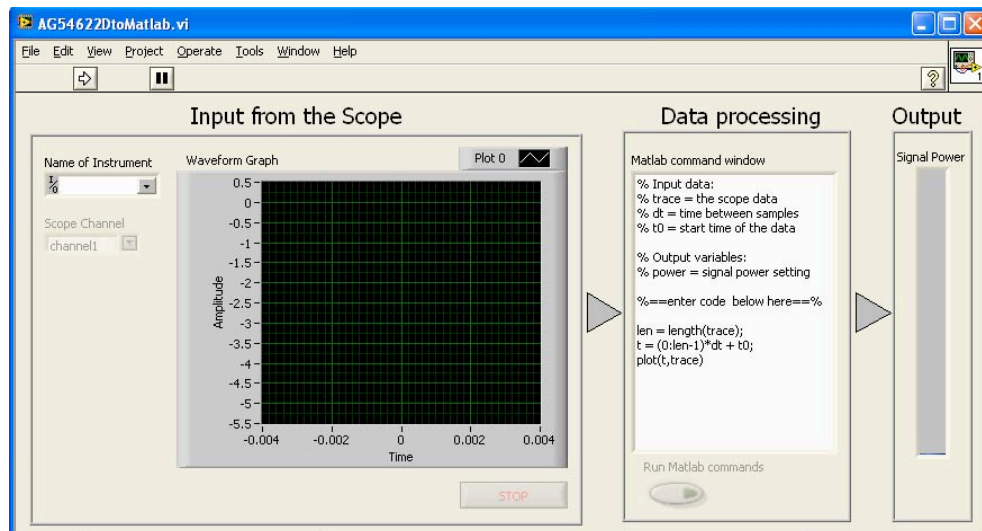


Figure 1 – Capture Interface

The interface will look approximately like Figure 1 (depending on version). Before capture is started you should set up the oscilloscope to the setting for capture manually. Things like the time base of the signal, type of coupling and amplitude scaling should be set to capture the most important parts of the signal on the display of the scope.

To start capture:

1. Set the Name of Instrument by using the drop down list that corresponds to the scope at the bench.

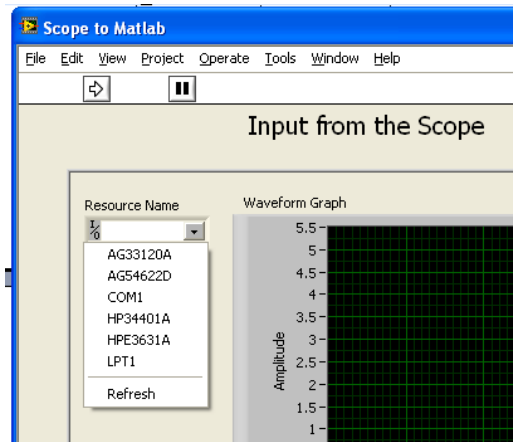
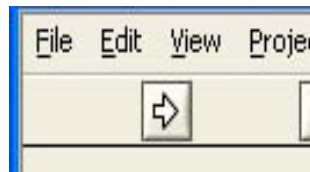


Figure 2 – Naming the instrument

2. Click Run .



3. Select the channel to capture from the scope

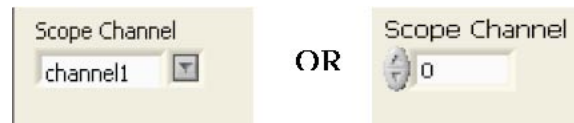


Figure 5 – Channel Selection The waveform graph should now be updating in the application about every second.

Processing captured data with Matlab®

With the application running and setup to capture a desired channel, the data can be processed in Matlab. A Matlab scripting window is integrated in to the application so that you can process the trace data without jumping between applications.

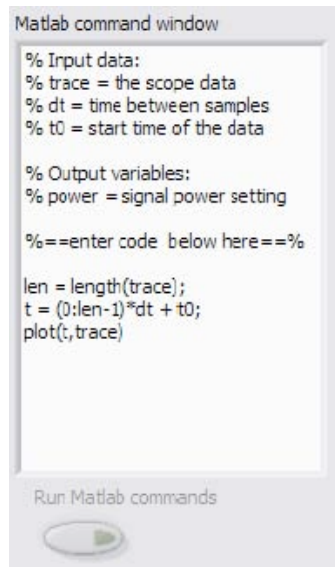


Figure 6 -Matlab script window

Any standard Matlab commands are available from this interface but all output is suppressed. Also note that some of the routines that require dialogs would not function.

Update the code in the command window to include any operation that are needed for the lab and then click the “Run Matlab commands”. The comments outline variables that are created by the capture function of the scope (ie.. trace, dt, and t0) and the system defaults to plot the data in a figure window.



Figure 7 – power scale

If you would like, a power calculation can be outputted back to the interface to control the meter at the right edge using the variable “power”. The scale of the meter is set from 1 to 100 so a multiplier must be used to represent the max and min of the scale per your system. If a line is added to the set “power” the meter will update each time the “Run Matlab command” button is clicked.