Interfacing Tektronics TDS3014B scopes with a computer

1. **Download the eScope.exe file** This executable file is designed to install a nice website into the folder of your choice. Some of the laboratory laptops will already have the website html files installed, in which case you can just use them for communicating with the scopes. Alternatively, you can download and run this file to install the website files on the computer of your choice. You can get the executable file from two places
    i. Online at http://www.tek.com/oscilloscope/tds3014b-software/escope-web-based-remote-control-sw-windows (free download, but you need to register with the tektronics website first.)
    ii. From the PHYS3330 website, under the "Useful docs" tab. Look for the link to the executable file and to the associated instructions.
2. **Run escope.EXE to install the TDS3014 communications software website.** Double-click on the escope.EXE file and it will unpackage all the html files and associated folders into the folder of your choice. These files allow your computer to communicate with the TDS3014B scopes in our laboratory via the internet by using any web browser software that you like.
3. **Turn on the scope you want to use and get its IP address**. Upon power up, the lab scopes bring up the scope screen and a dialog box that lists "DHCP Status" and then lists the Instrument IP Address. This address is four sets of digits of the typical form "128.138.96.XXX". Write down this IP address as you'll need it to communicate with the scope.
4. Find the folder that contains the website files that were unpackaged by the esope.EXE and double click on the index.html file. This action will open the communications website in the browser of your choice. You will likely see a dialog box that indicates the website is trying to run ActiveX control. Click to allow blocked content.
5. You should now see a dialog screen that asks for your scope's IP address, and the scope model. Enter your scope's IP address into the dialog box and select the scope model TDS3014B. Press the SUBMIT button. Communications with the scope should now be active. If you click on the 'control' tab at the top of the web page, you should see the scope screen appear in your web browser page, along with some control buttons at the bottom of the screen. You are now talking to the scope.
6. Click on the 'data' menu. You will see a screen that has a "Command:" area where you can type in commands to the scope, and a "Response:" box that shows you any response sent back from the scope in response to your Command. By using commands from the Programming Manual, you can control all aspects of scope operation, just as you can from the front panel knobs.
7. Now you need to tell the scope what source you want to use for the data, how the data is to be encoded, and then ask it to send you the data. For example, if you have a wave form on Channel 1, and you want to receive the data as simple readable ascii characters like you'd have in a text file, then you enter the following commands:

a. Enter, ":DATA:SOURCE CH1" into the command box, and press Send. This command tells the scope to get ready to send the contents of Channel 1.
b. Enter, ":DATA:ENC ASCI" into the command box, and press Send. This command tells the scope to get ready to send the data encoded as ascii characters. These are the characters that you use for readable (by a human) text files.
c. Enter, ":CURVE?" into the command box and press Send. This command asks the scope to send the contents of the data source using the requested encoding. In this example, it would send all the data points from Channel 1 encoded as ascii characters.

8. The Response box now has a list of numbers separated by commas. You can then cut and paste the contents of the box into a text file using Word or any other text editor and can then read the results into Mathematica or other programs for plotting or fitting.

Comments

- The 'data' tab is sometimes slow to actually show the Command and Response boxes. I've found that the first couple of minutes after launching the scope web browser is a slow time. The scope often is also trying to communicate with the printer during this period. Under the control menu, you will find simple controls to change the scope channel and sensitivity. If you click on some of these buttons, it often seems to wake the scope and get the communications running.