

Shimadzu 160U UV/Vis Spectrometer

Updated November 14, 2017

Instrument instructions can be found at:

<http://academic.bowdoin.edu/chemistry/resources/instructions.shtml>

If you have any problems with the instrument or would like to get trained, please contact

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Using UV without Computer

1. Protocol

- a. **Read instructions carefully before using instrument.** Reading the bold sentences in each category will tell you what you need to know to run the instrument.
 - i. Bullets are under the bold sentences when more detail is required.
 - ii. At the end of the instructions is a frequently asked questions/troubleshooting section.

2. Startup Procedure

- a. Turn on instrument.
- b. When initialization is finished, proceed to next step.
- c. Go to “Startup Procedure” in the section “Using UV with Computer” and do steps b and c.
- d. Go to Configure>PC Configuration and select “1” in “Optical Bench Serial Port”. Click OK. Go to Acquire Mode>Utilities and select “Off” and click OK. This will allow you to give control to the instrument from the computer.
- e. Hit “Mode” to take control of the instrument.

3. Create/Edit Method

- a. Enter scan type (Press 2 and then Enter for spectrum scan).
- b. You will be asked if you would like to change parameters, press the Yes button.
- c. Adjust parameters (enter the option number and press Enter).
- d. Enter new value(s) and press Enter.
- e. Every time you enter a value, you will be asked if you would like to change parameters. Continue to hit Yes until you are finished.
- f. When finished, click No. It will now tell you to “Set Sample, Press Start Key”.

4. Collect Spectrum

- a. Insert sample (front) and reference (back).
- b. Press the Start/Stop button.
- c. When scan is complete, remove sample and reference from compartment.

5. Analyze Spectrum

- a. After scan, you will be asked if you want to enter Data Processing mode.
 - i. If you press Yes:
 1. Press 2 to adjust scale (2 Exp).

2. Press 3 to pick peak (3 Peak).
 3. Press 6 to plot (6 Plot).
- ii. If you press No:
1. Manually view the peaks and record peak points and absorbencies.
 2. Use arrow keys to move line cursor along spectrum. Current wavelength and absorbance will be displayed above the graph.

6. Print Spectrum

- a. Pressing the Copy key will print out what is on the screen.

7. Shutdown Procedure

- a. Turn off instrument.

Using UV with Computer

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2. Startup Procedure

- a. **Turn on instrument.**
- b. **Turn on computer and login** (use your Bowdoin account).
 - i. First time users only.
 1. Configure a network printer and set it as default.
 - a. Make sure you are connected to the Bowdoin network.
 - b. Go to Start > Run.
 - c. Type in the location of the printer.
 - i. Second floor – “\\bradbury\dahlia”.
 - d. Click OK.
 - e. Set printer as default.
 - i. Start > Printers and Faxes.
 - ii. Right click on printer you just added.
 - iii. In the menu, select “Set as Default Printer”.
- c. **Open PC160pls** (Start > All Programs > PC160PLS).
 - i. If you do not see the program on the start menu, go to C:\PC160PLS\UV160U software\application\PC160PLS.EXE.
 - ii. If you can't access it, have an administrator (IT) give domain users full control of the PC160PLS folder. After doing this, verify PC160PLS.EXE also has full control.

- d. **Give control of the instrument to the computer.**
 - i. Go to Configure > PC Configuration and select “1” in “Optical Bench Serial Port”.
 - ii. Click OK.
 - iii. Go to Acquire Mode > Utilities and select “On”.
 - iv. Click OK.
- e. **Wait until the initialization is finished before proceeding.**

3. Create/Edit Method

- a. **Set up run parameters** (Acquire Mode > Spectrum). A parameters popup window will open. If popup window doesn't appear, go to Configure > Parameters Ctrl+P.
- b. **Enter scan parameters.**
- c. Click OK.

4. Collect Spectrum

- a. **Autozero instrument** (hit the Autozero button located near the bottom of the screen).
- b. **Collect baseline** (hit the Baseline button located near the bottom of the screen).
- c. **When baseline is finished, insert sample (front) and reference (back).**
- d. **Start run** (hit the Start button located near the bottom of the screen).
 - i. The spectrum will appear on the instrument and then be transferred to the computer.
- e. **Enter name for spectrum and click Save button.**
- f. **Save data** (Files > Save File).
 - i. Select file(s) you want to save and click OK.
- g. **Remove sample and reference from compartment.**

5. Analyze Spectrum

- a. **Peak pick** (Manipulate > Peak Pick).
 - i. Select file, click OK.
 - ii. Change threshold (in Peak Pick results window, go to Options > Change Threshold).

6. Print Spectrum

- a. **Select graphics printer.**
 - i. Configure > PC Configuration.
 - ii. Click Change button.
 - iii. Select printer from the list.
- b. **Print spectrum** (Presentation > Plot).
 - i. Select type of printout (graph or parameters).
 - 1. Select file (if necessary), click OK.
 - ii. Click OK.

7. Shutdown Procedure

- a. **Disconnect computer from photometer** (Acquire Mode > Utilities).
- b. **Select “Off”, click OK.**
- c. **Hit “Mode” a couple of times on the instrument to get control of the instrument.**
- d. **Turn off instrument and log off of computer.**