

UNIVERSITY *of* CALIFORNIA • IRVINE



Laser Spectroscopy Facility

Perkin Elmer Lambda 900
UV-Vis-NIR
Absorption Spectrometer

Operation instructions

Turning on

1. Turn on the power switch located at the top right side, make sure that sample compartment is empty, and the lid is closed. Let the instrument warm up for ~ 5 minutes before starting.
 2. Double click on UV Winlab icon. After the instrument initialization Methods window appears, program also loads the Results, Data, and the Graph icons at the bottom of the screen. The Results icon contains information on the recorded spectrum. The Data icon contains a list of recorded files, and the Graph icon displays the plot.
 3. A list of existing methods in the Methods window appears. Absorption readings should appear at the bottom of the screen.
 4. Select a Method. The Method editor window opens. There are three tabs at the bottom. (Scan, Inst, Sample).
 5. Click on **Scan** tab (first page), edit your scan parameters:
 - Start wavelength: max is 3300.0 nm
 - End wavelength: min is 175.0 nm (you need N2 purging for 185-175nm)
 - Autosave: On/Off
 - Ordinate: min=0.000nm, max=1.000nm
 - Display: Single/Overlay
 6. Click on the **Inst** tab:
 - Ordinate mode: A, %T,
 - Baseline Filename
 - Data interval.
 - UV/Vis integration time, limits: 0.04-10s (this determines the scan speed.. for example: 240nm/min) ; Grating for UV/Vis is 1440 lines/mm
 - Slit : enter value (0.05-5nm)
 - NIR lamp integration time (this determines the scan speed.. for example: 240nm/min); Grating for NIR is 360 lines/mm
 - UV Slit: controlled by Gain=1
 7. Click on **Sample** tab:
 - Results Filename: enter a filename to store results
 - Number of samples: to measure only one sample enter 1.
 - Fill out table: Sample identity (enter your sample filename to store Data)
 - Factor=1, (concentration factor)
-

8. To save your Method, make sure the method editor is still open, go to **File** menu, and click on **Save As**. Select the **Autozero** on restore option; this automatically performs a background correction before the actual measurement. You can also select **Use Next Autoinc. Filename**; this automatically increments the filename.
9. Click **Start** button, a background correction is requested. Place two matching Quartz cuvettes with blank solution in the reference and sample cell holders. The direction of the marking on the sample cuvette should be maintained for all subsequent sample measurements. Close the cover. Click **OK**, a background scan will start.
10. The sample solution is requested, place quartz cuvette containing sample in sample holder (near user). Click **OK**.
11. When scan is complete, the spectrum is displayed in the **Graph** window. To zoom-in, left click the mouse button and drag a rectangle around the part of spectrum. Double click into the rectangle.
12. To find peaks, click on **Peak** icon then **Find Peaks**, a dialog box appears, for labeling select Peak, and adjust threshold. Click **OK**. Peaks will be labeled (you can also drag and annotate labels). The numerical results are also displayed in the Results window.
13. To save file, the **Graph** window must be active, open the File menu and click on **Save as**. Select file type.

Turning off procedure

1. Close the Methods window.
2. Exit UV Winlab.
3. The Data window appears, and data created during the session are listed. If you have not saved your data at this point, select your files and click **Save Selected**. Files that are not selected will be lost when you exit UV Winlab. The UV Winlab will be closed.
4. Remove samples.
5. Switch off the spectrometer