Perkin-Elmer Lambda-2
Ultraviolet/Visible Absorption Spectrophotometer

This instrument is controlled by the Gateway 2000 166MHz Pentium-based computer running the Perkin-Elmer UV WinLab (v.2.70.01) software. The instrument must first be configured to communicate with the computer as described in the paragraph below. Note that both the *Lambda-2 Instrument Operation* and the *UV WinLab Software Reference* manuals are located to the left of the instrument.

Note: the instrument has been configured to start in **SuperUser** Mode without having to hold down the **1 5** and **–** keys while turning on the instrument.

To Configure the Instrument to Communicate with the External Computer: Press the **STOP** key. Use the left and right arrow keys until the word **Configuration** appears in the command window. Press the **PARAM** key twice; use the arrow keys until the message **METH 12 Port Usage** appears. Press the **PARAM** key once; use the arrow keys until the word **Computer** appears. Press the **START** key. The instrument is now configured to communicate with the external data acquisition computer. If this procedure is completed successfully the message **Remote Standard** will appear when the UV WinLab software starts.

Important Note: If you forget to change the Port Usage as described above before starting the UV WinLab software, the program will fail to recognize the instrument and display the message **Instrument not found**. If you turn off the instrument, please **wait at least two minutes** before restarting. This cool-down period is required extend the lifetime of the deuterium (UV) lamp installed in the instrument.

Perkin-Elmer UV WinLab Software

See the various UV WinLab manuals (located to the left of the instrument) for a full description of the software. The following is a brief description of several of the commonly used commands.

The software is started by double clicking the **PE Lambda-2** icon on the desktop or through the Windows **Start** menu by selecting **Programs**, **PE Applications** and **Lambda-2**. After the software starts and checks the computer/instrument communications a methods form will appear containing a list of filenames containing data collection methods. Select the tab at the bottom of the page for the desired operation. The table below indicates the choices and their association operation:

Tab label	Operation	Description
Scan	Wavelength Scan	Programmed wavelength scan
Td	Time Drive	Single wavelength kinetics run
Wp	Wave Program	Make discrete measurements at up to 8 wavelengths
Conc	Concentration	Create a calibration curve & analyze unknowns
Others	Miscellaneous	Miscellaneous operations

Select the desired operation and double click on an available method file to access a method form with several tabbed pages. The **Scan** method will be used to illustrate the operation of the instrument.

Scan Method: The scan method contains three tabbed pages labeled **Scan**, **Inst** and **Samples**. On the **Scan** page under the heading **Scan** you set the **Start wavelength**, **Stop wavelength**, **Data interval** and **Number of cycles** (for slow kinetics experiments). In the middle of this form under the heading **Output** you can select whether **Autosave**, **Autoprint** and **Autolist** are on or off; you also set the **Ordinate maximum**, **Ordinate minimum** and **Display type** (serial or overlay). You may also specify an application that is run once a data file is collected and enter a text string identifier that describes the method. Once these choices are made you click the **Inst** (Instrument setup) tab where you select the **Ordinate mode** (transmittance, absorbance, etc.), **Scan Speed** (in nm/min), **Smooth** (width in nm) and whether the **UV** and **Visible** lamps are on or off. Remember to select a scan speed that is no more than ten times faster than the width of the narrowest peak in nm to avoid skewing the spectral peaks. After the instrument is configured you set up the sample list by clicking the **Sample** tab. Here you enter the **Result Filename** (for textual information), **Calculation factor**, and **Number of samples**. Once you specify the number of samples you can enter the specific sample information in the table at the bottom of the form. There are columns for **Sample identity**, **Factor**, and a **Sample info** text string (which is stored with the data file). Once all of the method information is entered you can start the data collection by clicking the **Start** button at the top of the form. The program should call for a Blank to be run before your samples. This background scan should be performed with distilled water (or your chosen solvent) in both the sample and reference cuvettes. If the background scan is not called for first it can be invoked manually by clicking the **Auto-zero** button. After the Blank sample is finished the program will prompt you to change the sample and perform the runs specified in the sample list. When a spectrum is collected a **Graph Window** will pop up containing the data. It can be maximized or minimized using the standard Windows controls. The textual results of any calculations performed will appear in the **Results Window**, while the **Data Region** will give a list of data files collected during this software session.

Exporting data to GRAMS AI: Data can be exported in **JCAMP** format to be read using the GRAMS AI (Thermo Galactic, Inc., Salem, NH) data analysis program. When you want to save a data file, pull down the **File** menu, select **Save As** and set the file type as **JCAMP**. The file will be saved automatically with the **.DX** file extension. Alternatively you can save the file in either the default Data Manager (.**SP** extension) or ASCII format (.**ASC** file extension) to read into Excel.

Printing Data: Data can be printed on either the Hewlett-Packard 2300 Laserjet or HP694C color ink-jet printer networked to the computer by pulling down the **File** menu and selecting **Print**.

Manuals Available

UV WinLab Software Guide: For Use with Lambda Series Instruments
UV WinLab Tutorials for New Users
UV WinLab Software Package for UV/Vis/NIR Spectroscopy: Operations Guide
UV WinLab Report Builder Users Guide
UV KinLab Software Guide

Important Reminder:

If you turn the instrument off, please wait at least two minutes before restarting. This cool-down period will greatly extend the lifetime of the Deuterium lamp installed in the instrument.

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