6850
PRISM PC Software

JENWAY

Operating Manual

Bibby Scientific

REV A/06-12

Contents

SECTION 1 – Introduction

1.1 PC SOFTWARE DESCRIPTION

The Prism PC software allows the user to fully control the functionality of the Jenway 6850 variable bandwidth, double beam UV/visible spectrophotometer. The software replicates all functions from the instrument interface and adds additional functionality, extensive post-measurement tools, unlimited results storage and allows the easy export of data to other PC software packages. The Prism PC software has measurement modes for photometrics, concentration, multi-wavelength, spectrum scanning, quantitation, kinetics, DNA and protein analysis.

1.2 REQUIRED PC SPECIFICATION

- Pentium processor or above;
- CD-ROM drive;
- USB Port.
- 32MB Memory minimum (256MB or greater recommended);
- 50MB free hard disc space;
- Microsoft Windows 2000/XP/Vista/7.

SECTION 2 – Installation

2.1 UNPACKING

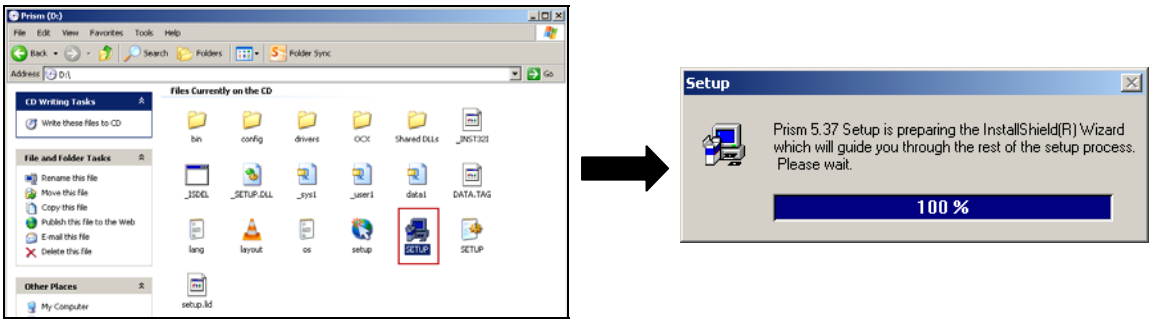
Remove the 6850 from the packaging and ensure the following items are included:

1. PC software CD and USB security dongle (685 035)
2. USB Cable

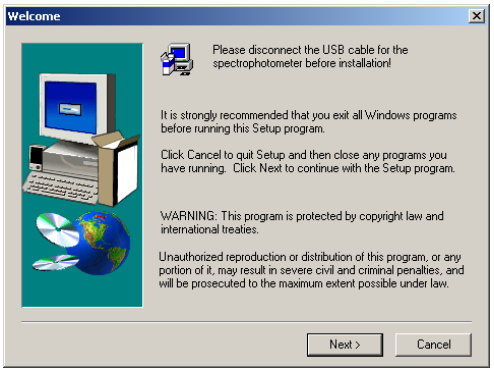
2.2 INSTALLATION

Please disconnect the USB cable connecting the installation PC and the 6850 instrument. Please also ensure that the USB security dongle is not attached to the PC.

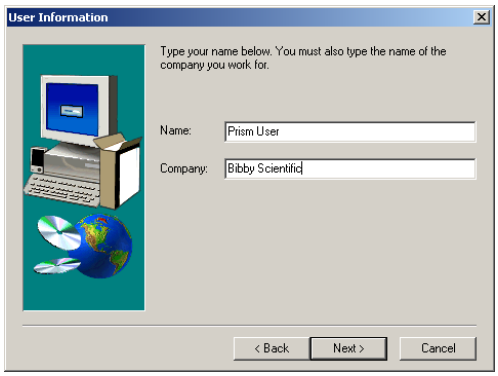
1. Insert the Prism software disc in the CD-ROM drive of your PC.
2. Navigate to the CD-ROM drive directory and double click on the Prism software icon to open the CD-ROM, and then double click **Setup.exe** to start the software installation.



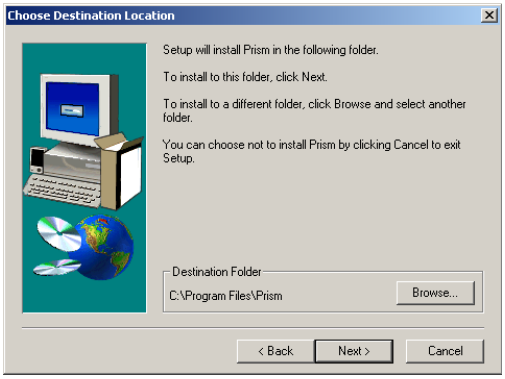
3. Select **Next**.



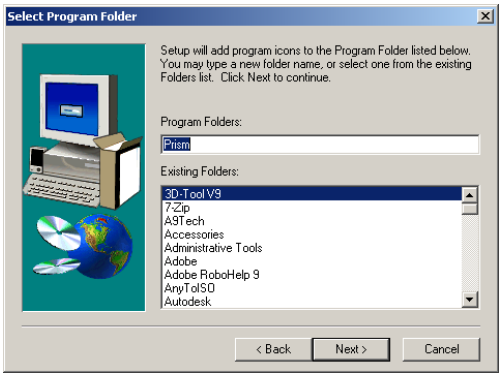
4. Enter the requested user information and select **Next**.



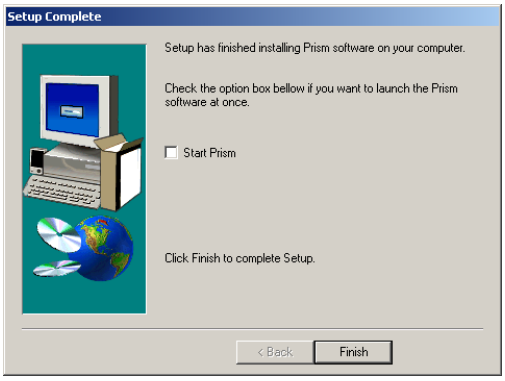
5. Choose install path, then select **Next**.



6. Choose a program folder, then select **Next**.



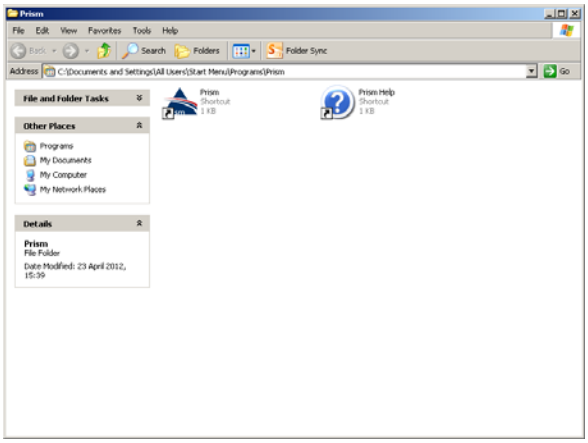
7. Click **Finish** to finish the installation.



8. Connect the PC and Spectrophotometer with the USB Cable.

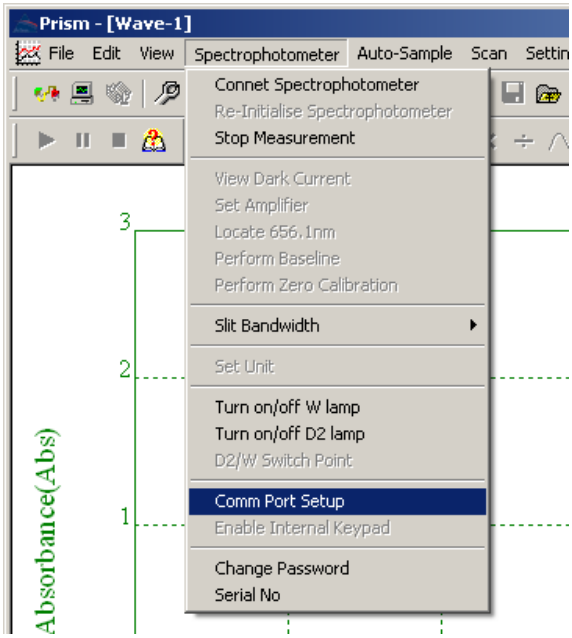
2.3 INITIALISATION

The Prism PC software uses a USB security key to provide a licence to enable the software to run on the installed computer. Please ensure that the USB security key is inserted into a USB port of the computer at all times, when running the application.

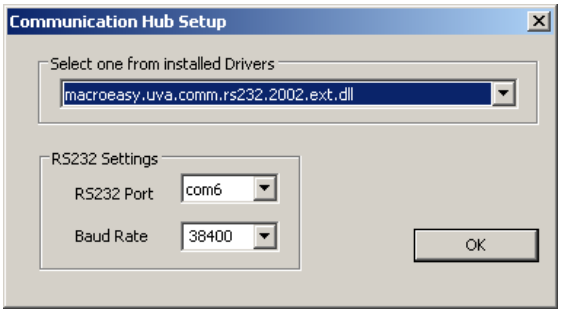


When the Prism software is installed the application shortcut will be displayed in the Start Menu folder. Double click on the Prism icon to start the application.

2.4 SETUP COMMUNICATION PORT



Select the Spectrophotometer menu and open the Comm Port Setup option.



In the Communication Hub Setup window select the RS232 port being used to connect to the instrument from the available options and set the Baud Rate to 38400. Select **OK**.

SECTION 3 – PRISM SOFTWARE INTERFACE

3.1 MAIN WINDOW

The Main Window is made up of four main areas.

1. Menu Bar
2. Toolbar
3. Data Window
4. Status Bar

The information contained in each area is explained further in the following sections.

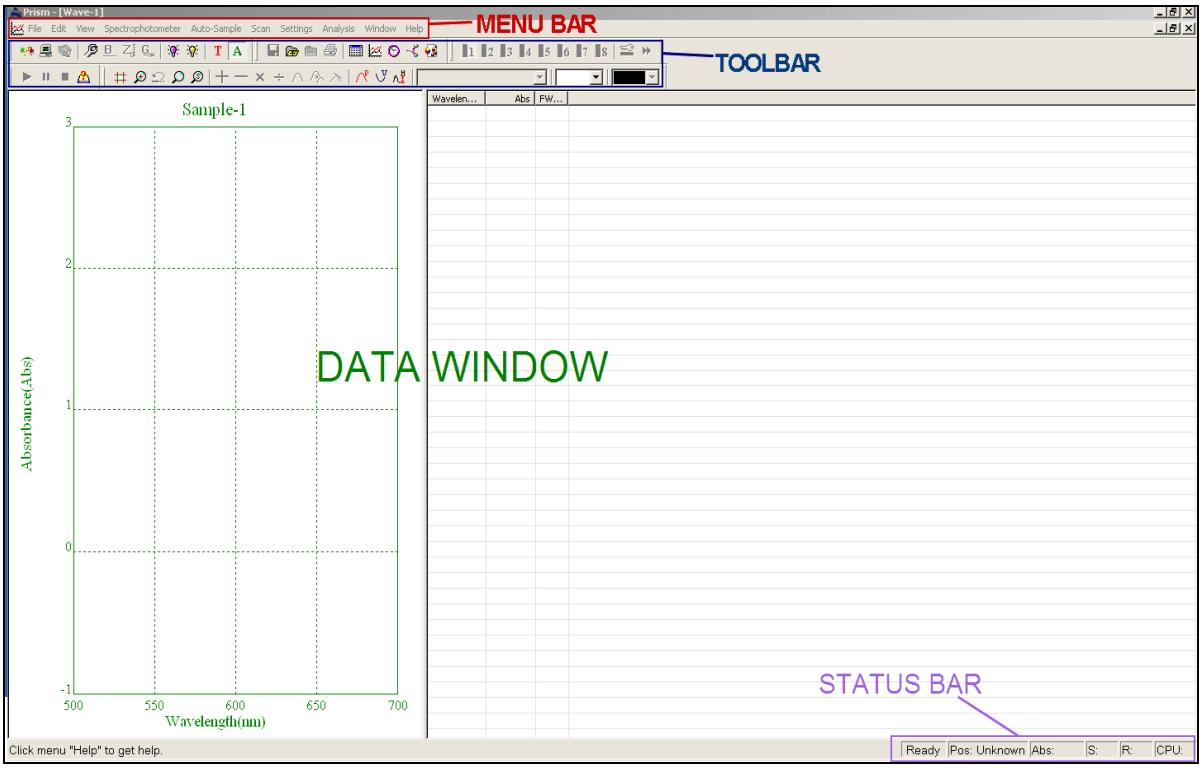


Figure 3.1 Prism Main Window

3.1.1 Menu Bar and Toolbar Options

Menu Bar Option	Sub Menu Option	Toolbar Icon	Function
File	New		New Multi Wavelength Measurement
			New Spectrum Scan Measurement
			New Kinetics Measurement
			New a DNA/Protein Measurement
			New Instrument Validation Measurement
	Open…		Open a result file
	Close		Close the current measurement window
	Save		Save current measurement
	Save As…		Save current measurement as a new file name
	Open file from Spectrophotometer		Open a file saved on the instrument
	Export		Export data or method
	Print…		Print test report
	Print Setup…		Setup printer options
	Exit		Exit Prism
View	Status Bar		Display/Hide status bar
	Status of Spectrophotometer		Display status of spectrophotometer

	Status font		Setup font of status bar
	Customize		Display Setup
	Peaks		Identify Spectrum Peaks
	Valleys		Identify Spectrum Valleys
	Zoom		Activate the Zoom function
			Undo Zoom function
	Reset		Return to the default display settings
	Search		Search peak/valley one by one
Spectrophotometer	Connect to Spectrophotometer		Connect to the instrument
	Re-Initialise Spectrophotometer		Restart the instrument
	Stop measurement		Stop current measurement
	View dark Current		Refresh and display system dark current
	Set Amplifier		Not Applicable
	Locate 656.1nm		Perform wavelength Calibration
	Calibrate System Baseline		Re-measure system baseline
	Blank Measurement		Reset Zero/Blank
	Slit Bandwidth		Set the bandwidth option (0.5, 1.0, 2.0, 4.0, 5.0)

	Set Unit		Select concentration unit
	Turn on/off W lamp		Turn on/off Tungsten lamp
	Turn on/off D2 lamp		Turn on/off Deuterium lamp
	D2/W Switch Point		Set switch point of Deuterium and Tungsten lamps
	Comm. Port Setup		Setup communication port
	Change Password		Set/Change login password
Auto-sample	Select Cell Position **		Move cell (1-8) into the light path
	Setup Multicell **		Setup Multicell accessory
	Autorun **		Measure multiple samples automatically
Scan	Start		Start a measurement
	Pause		Pause a measurement
	Stop		Stop a measurement
	Service		Measure spectrum and scan energy
Settings	Display Range		Setup scan display parameters
	Set Threshold		Define peak/valley threshold
Analysis	Add		Add two spectrum
	Subtract		Subtract one spectrum from another
	Multiply		Multiply two spectra

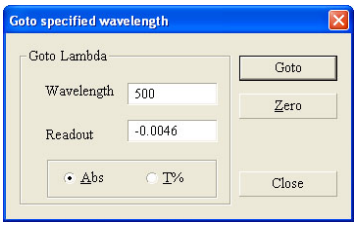
	Divide		Divide one spectrum from another
	Savitzky-Golay Smoothing Filter		Smooth a spectrum with the Savitzky-Golay method filter
	Derivate		Display the derivative of a spectrum
	Remeasure		Remeasure a spectrum
Window	New Window		Opens a new measurement window the same as currently displayed
	Cascade		Multiple windows are displayed in a cascade on screen
	Tile		Multi windows are tiled on screen
	Arrange Icons		Arrange all icons minimized
	Split		Split display area
Help	Help Topics		Displays the Help information for the Prism PC software
	Maintenance and Replacement		Displays service information for the 6850 spectrophotometer
	Step by Step Teaching		Displays tutorials on the software measurement modes.
	About Prism		Displays version information

3.1.1.1 Toolbar and Measurement Mode Options

	Setup measurement parameters		Display Instrument CPU information
	Modify a measurement result		Delete current Spectrum
	Delete results selected		Display %T value
	Goto wavelength		Display Abs value

SECTION 4 – PHOTOMETRIC MEASUREMENT

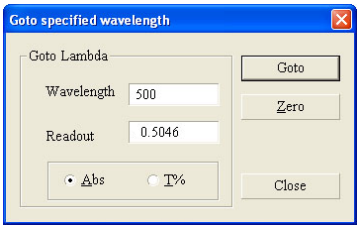
4.1 WAVELENGTH SELECTION



A single wavelength photometric measurement is made by firstly selecting the Goto Wavelength icon from the Toolbar.

A window will open that allows the selected wavelength to be entered. Once the wavelength has been entered, select the Goto button.

4.2 SAMPLE MEASUREMENT

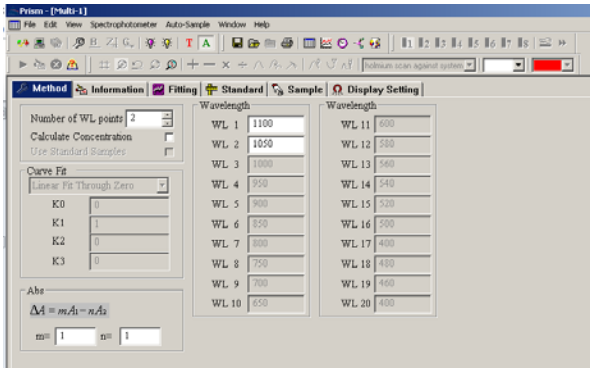


If required, select the Zero button to reset the Readout value to 0 Abs or 100%T, then insert the blank and sample cuvettes into the sample chamber of the instrument. The sample's photometric reading will be displayed in the Readout field.

SECTION 5 – MULTIWAVELENGTH / QUANTITATION

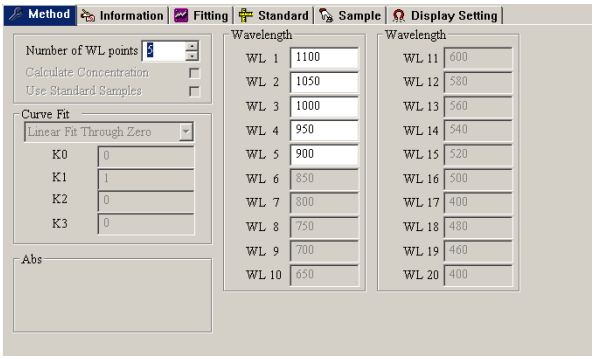
The multi wavelength and quantitation measurement mode enables measurements of absorbance, % transmittance and concentration to be performed. In this measurement mode it is possible to perform a photometric measurement at up to 20 separate wavelengths. This mode also allows the concentration of an unknown sample to be determined against a calibration curve or a known concentration factor at up to three separate wavelengths.

5.1 MENU SCREEN



Select the New Multi Wavelength Measurement icon  on the toolbar. This menu screen enables multi wavelength measurement parameters to be changed and standard and sample information to be entered.

5.2 MULTIWAVELENGTH MEASUREMENT METHOD SET UP



The method tab allows the number of wavelengths, wavelength values, quantitation settings and factors to be edited.

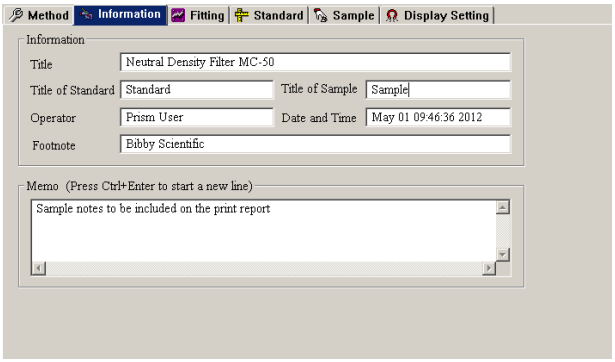
5.2.1 Number of Wavelengths

The number of wavelengths can be specified by entering the value into the “Number of WL points” field or using the Up and Down arrows in this field to adjust the displayed value.

5.2.2 Entering the Measurement Wavelengths

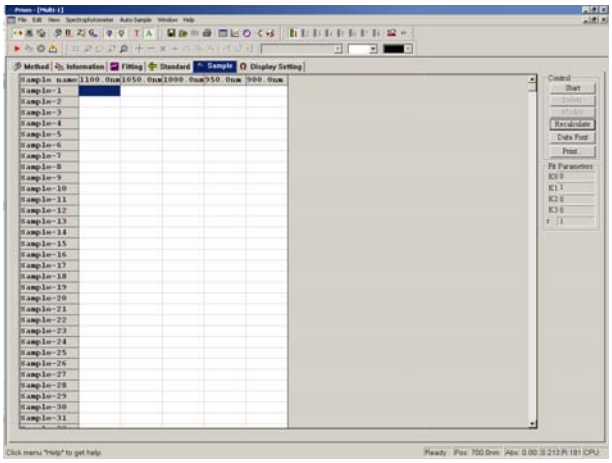
The measurement wavelengths can be specified by entering the values into the available WL 1, WL 2 etc. fields.

5.3 SAMPLE INFORMATION



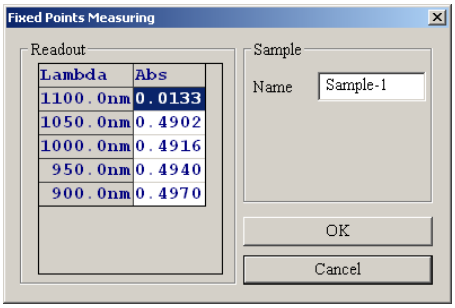
The Information tab allows the user to enter sample and standard information. Additional notes can be entered into the Memo field if required.

5.4 SAMPLE MEASUREMENT AND DISPLAY OPTIONS



The Sample tab contains a result window and a Control window. The Control window contain options to Start, Delete, Modify, Recalculate, change the Data Font and Print.

5.4.1 Control Window – Start



Select the Start button to initiate a multiwavelength measurement. A new window will open that displays the measured photometric values. Once complete, select OK to finish. The result window will be updated with the measured values.

5.4.2 Control Window – Delete

Select the Delete button to delete a completed sample measurement.

5.4.3 Control Window - Modify

Select the Modify button to re-measure a sample's photometric values. The updated values will over-right any previously recorded data.

5.4.4 Control Window – Recalculate

Select the Recalculate button to re-evaluate the concentration result when the Quantitation mode is enabled.

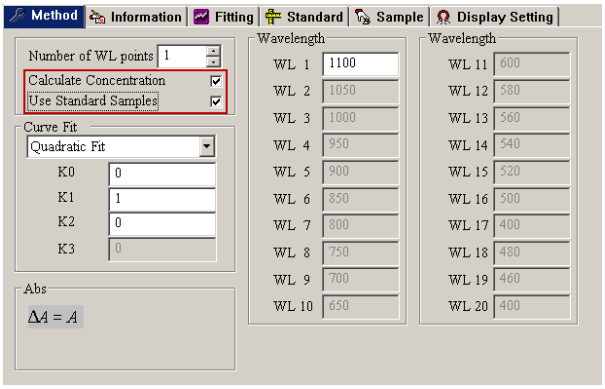
5.4.5 Control Window – Data Font

Select the Data Font button to format the result data.

5.4.6 Control Window – Print

Select the Print button to generate a report of the recorded data. The user will be asked to confirm if the report should include the text entered into the Information tab fields and the data contained in the result window.

5.5 QUANTITATION MEASURMENTS



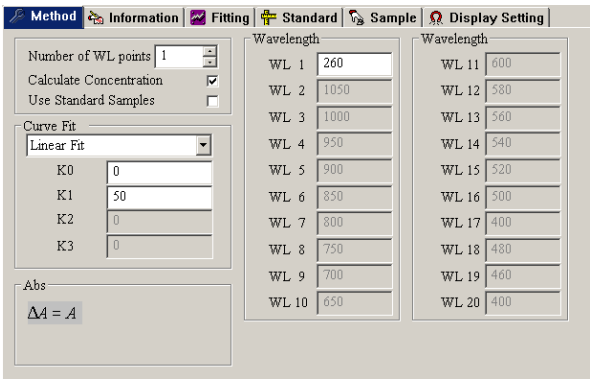
The Quantitation measurement mode is enabled by selecting the Method tab and checking the tick box besides the Calculate Concentration option. If standard solutions are to be used to construct a new calibration curve, check the tick box besides the Use Standard Sample option.

No more than 3 wavelengths can be measured when the Quantitation mode is enabled.

5.5.1 Using a Concentration Factor or Pre-defined Calibration Curve

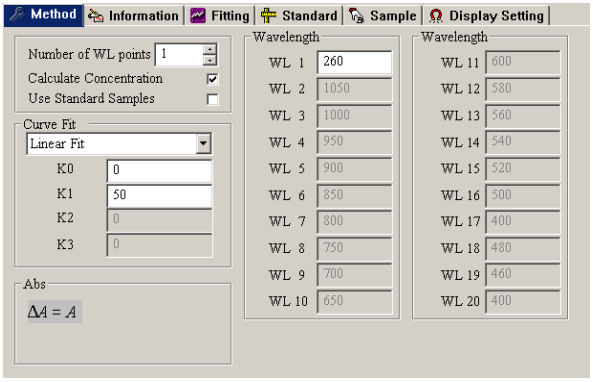
If the concentration factor or the calibration curve constants are already known, these values can be entered into the method settings to allow an unknown sample to be quantified.

5.5.1.1 Entering a Known Concentration Factor



The Use Standard Samples checkbox should be clear and the Curve Fit option should be set to Linear Fit. The concentration factor should then be entered into the K1 field.

5.5.1.2 Entering Known Calibration Curve Constants

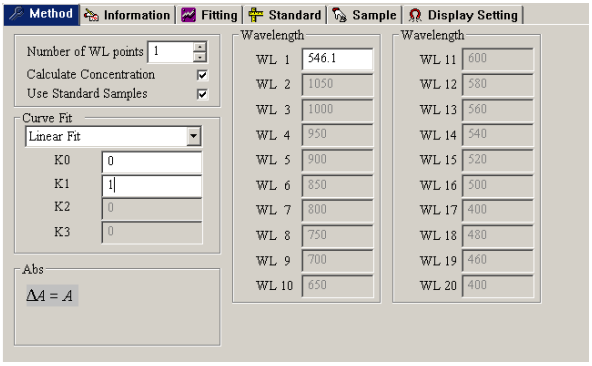


The Use Standard Samples checkbox should be clear and the Curve Fit option should be set to the appropriate option. The known calibration curve constants should then be entered into the appropriate K0 – K3 fields where:-

$$\text{Concentration} = (K3*X^3)+ (K2*X^2)+ (K1*X) + K0$$

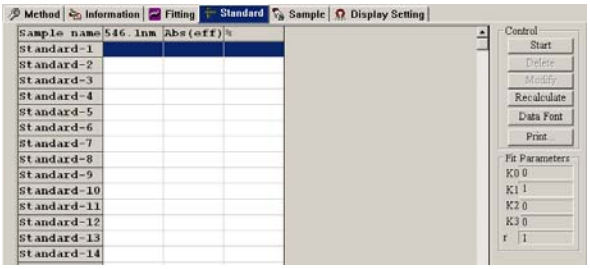
X = Photometric value of the sample

5.5.2 Constructing a New Calibration Curve



To construct a new calibration curve the user must ensure that they check the tick boxes beside the Calculate Concentration and Use Standard Sample options.

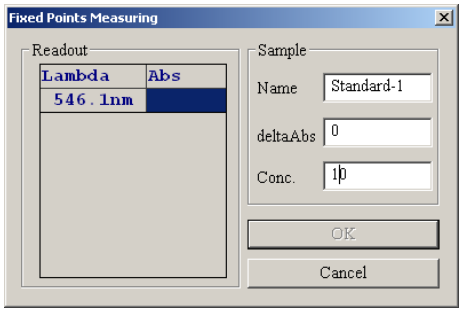
5.5.2.1 Measuring Standard Samples



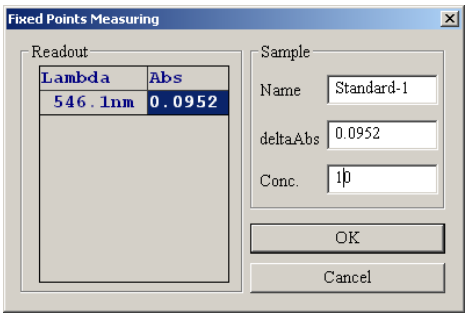
Select the Standard tab.

Insert the first standard into the sample position in the sample chamber and the reference into the reference position in the sample chamber.

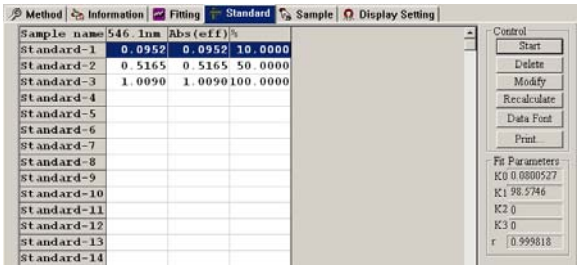
Select the Start button to initiate the measurement



A new window will open allowing the Standard name, final photometric reading and concentration to be edited. The actual photometric reading of the standard will be displayed in the Readout window and this value will default to the deltaAbs field.

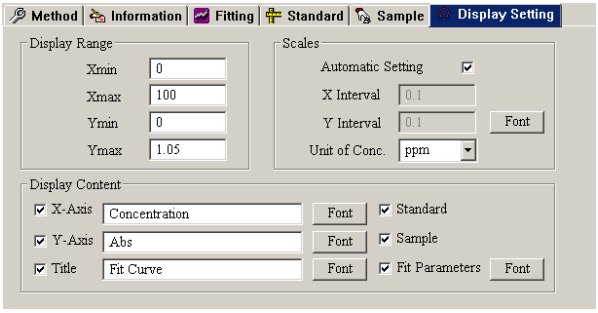


Once the standard measurement is complete and the name and concentration information has been entered, select OK to transfer the information to the main standard tab.



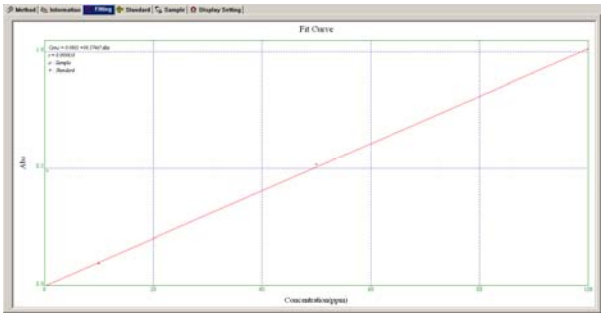
Repeat this procedure for each standard sample.

5.5.2.2 Calibration Curve Settings and Display



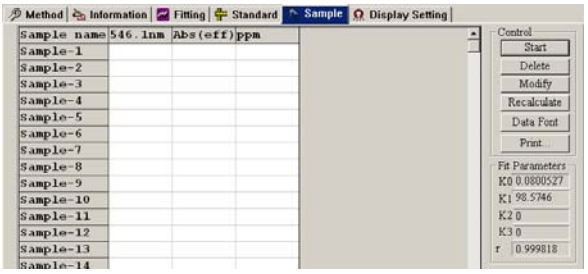
The calibration curve display settings are edited by selecting the Display Setting tab.

The calibration curve's labels, axis range and interval values and concentration units can be edited in this tab.

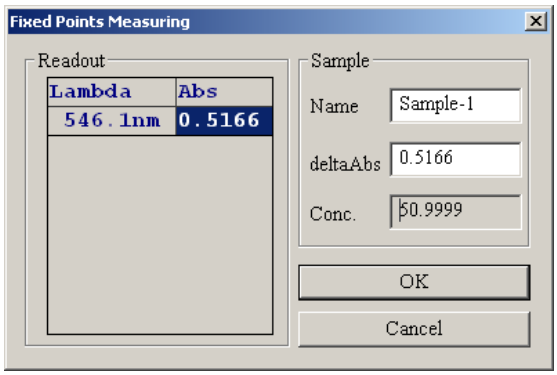


The calibration curve is displayed by selecting the Fitting tab.

5.5.3 Sample Measurement

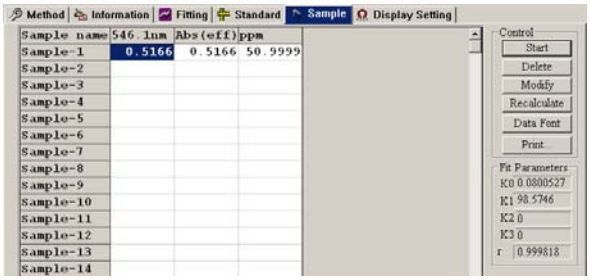


To quantify an unknown sample select the Sample tab and select the Start button.



A new window will open allowing the sample name and final reported photometric reading to be edited. The actual photometric reading of the standard will be displayed in the Readout window and this value will default to the deltaAbs field.

Select OK to transfer the data to the sample result table.

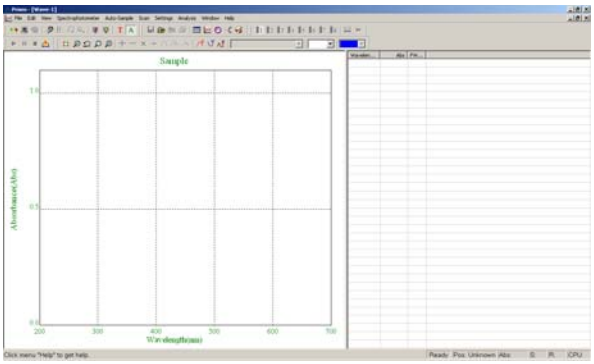


The sample result table will display the measured absorbance value, the final reported absorbance value and the calculated concentration value.

SECTION 6 – SPECTRUM

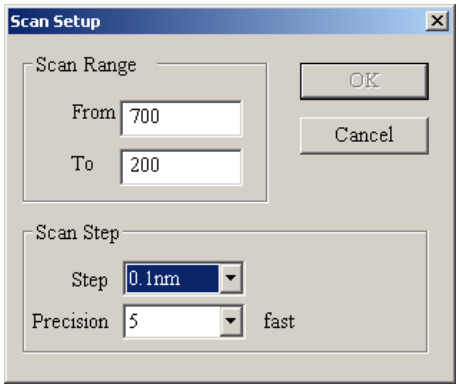
The spectrum measurement mode enables measurements of absorbance or % transmittance over a range of wavelengths to be performed. The absorbance or % transmittance at each wavelength is plotted graphically. Post measurement tools such as peaks/valleys, derivatives and spectral points analysis can be performed. This operating mode can be used to partially characterise a sample.

6.1 SPECTRUM MODE SCREEN



Select the Spectrum Measurement icon  on the toolbar. The Spectrum measurement window will open.

6.2 METHOD SETUP



The spectrum scan settings can be edited by selecting the settings icon  in the toolbar. The options that can be changed are:-

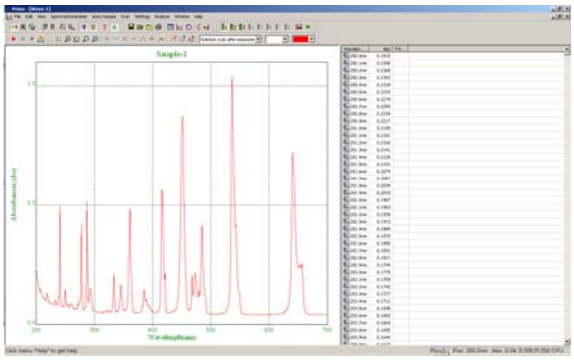
1. Scan from (Highest Wavelength)
2. Scan to (Lowest Wavelength)
3. Scan Step (0.5, 1.0, 2.0, 4.0, 5.0nm)
4. Scan Precision (5, 10, 30, 50)

The required options can be entered directly or selected from the available options via the drop down lists. Select OK to confirm.

6.3 SELECTING THE MEASUREMENT MODE

The required measurement mode can be selected from the available options of Abs and %T by selecting the  or  icons on the toolbar.

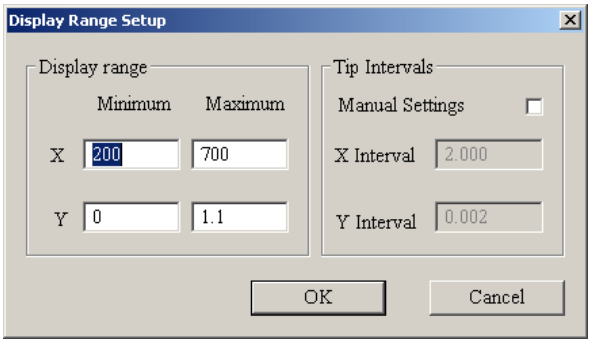
6.4 SAMPLE MEASUREMENTS



Insert a cuvette containing the blank solution into the reference position in the sample chamber and insert the cuvette containing the sample solution into the sample position. Close the instrument lid and select the Start a measurement icon  on the toolbar. Once the measurement is complete the measured spectrum scan will be displayed on the screen. The scan can be cancelled by selecting the Stop a measurement icon  .

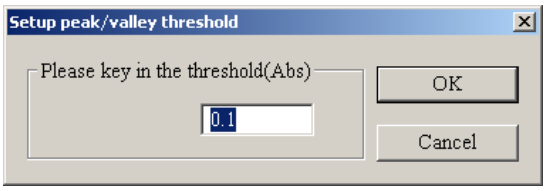
6.5 POST MEASUREMENT TOOLS

6.5.1 Adjusting the Displayed Scan Range

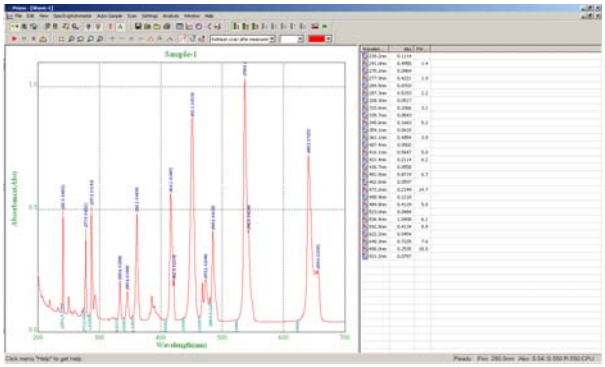


Select the Setup display spectrum icon  from the toolbar. Enter the required display settings and select OK to confirm.

6.5.2 Spectrum Peaks and Valleys



Select the Peak/Valley Threshold icon  from the toolbar. Enter the required absorbance (peak height) threshold and select OK to confirm.

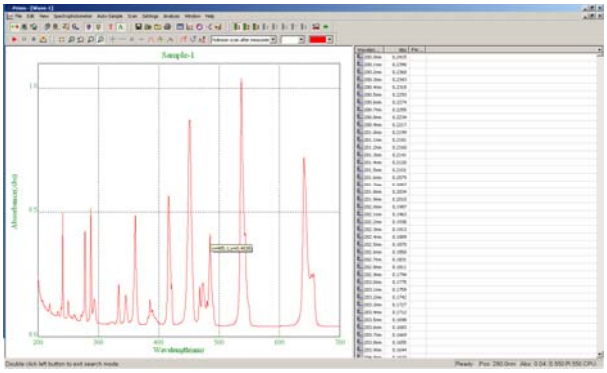


Select the identify spectrum peaks icon  from the toolbar to list the peaks information and select the identify spectrum valleys icon  to list the valley information.

6.5.3 Spectrum Zoom Function

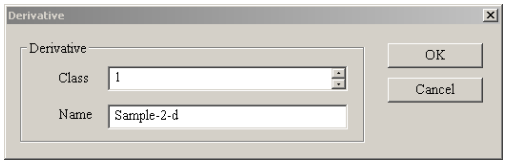
Select the Zoom function icon  from the toolbar. Position the cursor in the upper-left corner of the area you want to select. Hold the left mouse button to drag the cursor to outline the spectrum area you want to enlarge. Release the mouse button. The part of the spectrum which is displayed within the outlined area will be enlarged. Select the undo zoom icon  to restore the previous view settings. Select the Zoom function icon again to exit the zoom function.

6.5.4 Spectral Points Analysis



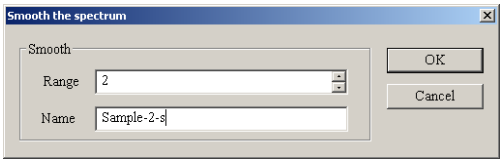
Select the Scan spectrum icon  from the toolbar. Move the cursor over the spectrum display to trace the scan and display the scan data. Select the Scan spectrum icon again to exit the spectral points analysis mode.

6.5.5 Spectrum Derivative



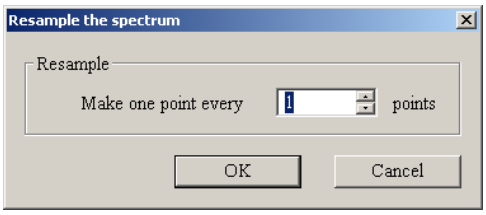
Click  on the toolbar. A dialogue box appears allowing the user to select the derivative function required (1-10) and enter a name for the calculated derivative spectrum. Select OK to confirm. The derivative spectrum will be displayed as an overlay on the original.

6.5.6 Spectrum Smooting



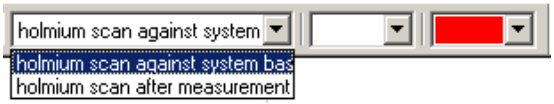
Click  on the toolbar. A dialogue box appears allowing the user to select the range of the smoothing function (2-100) and enter a name for the smoothed spectrum. Select OK to confirm. The smoothed spectrum will be displayed as an overlay on the original.

6.5.7 Remeasure (Re-plot) Spectrum



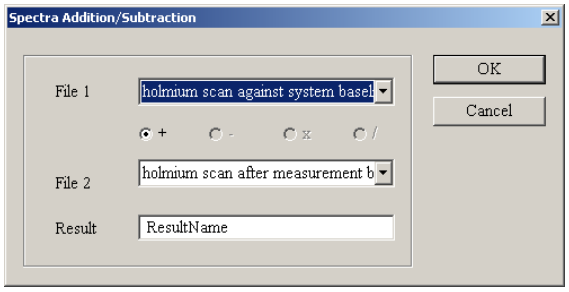
Click  on the toolbar. A dialogue box appears asking the user to specify the frequency of the data points in the re-plotted spectrum. Select OK to confirm. The re-plotted spectrum will be displayed.

6.6 OVERLAY SPECTRA



The Prism Pc software can display multiple spectrum scans simultaneously on the screen by either measuring additional samples or loading stored data. The active spectrum is selected from the drop down menu on the toolbar. The colours of the selected spectrum's background and photometric trace can be selected using the palette options on the toolbar.

6.6.1 Spectrum Addition, Subtraction, Multiplication and Division

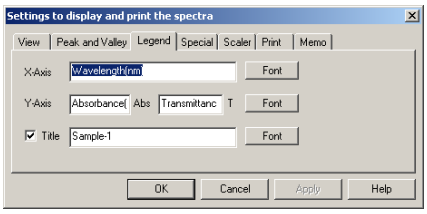


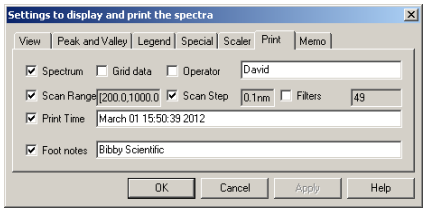
Click  , ,  or  on the toolbar. A dialogue box will appear asking the user to specify the files to be used in the calculation and enter a name for the calculated spectrum. Select OK to confirm. The calculated spectrum will be displayed.

6.6.2 Delete Displayed Spectrum

Select the spectrum to be deleted in the active spectrum drop down box (see 6.6). Click  on the toolbar to remove the spectrum from the display.

6.7 SPECTRUM DISPLAY AND PRINT OPTIONS



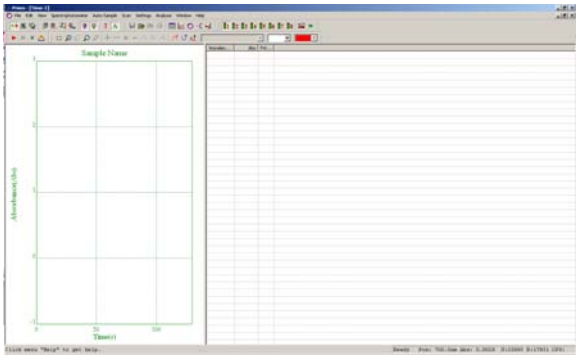


The display and print options for the selected spectrum can be accessed by selecting the  icon on the toolbar. The display range, peak and valley labels, axis legends, spectrum title, display colours, print information options and printout notes can be edited in the dialogue box that appears.

SECTION 7 – KINETICS

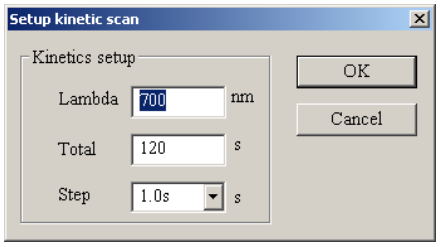
The kinetics measurement mode enables the absorbance or % transmittance of an active molecule to be measured over a period of time; for example enzyme analysis of horseradish peroxidase. The absorbance or % transmittance is measured at regular time intervals at a set wavelength over a period of time. The results are plotted on a graph to show the change in absorbance or % transmittance over time. Following sample measurement statistical analysis of all or part of the experiment can be performed.

7.1 KINETICS MODE SCREEN



Select the Kinetics Measurement icon  on the toolbar. The Kinetics measurement window will open.

7.2 METHOD SETUP



The kinetics scan settings can be edited by selecting the settings icon  in the toolbar. The options that can be changed are:-

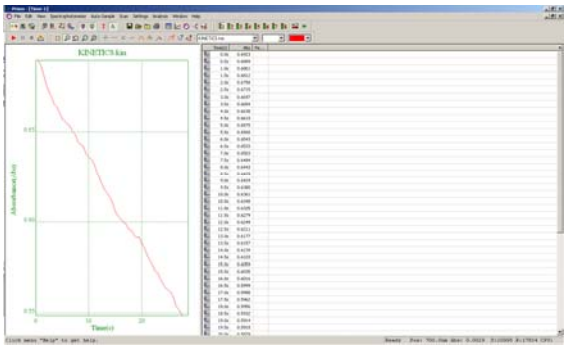
1. Scan wavelength
2. Scan time (max 100000s)
3. Scan Step (0.1, 0.2, 0.5, 1.0, 2.0, 5.0, 10.0, 30.0, 60.0s)

The required options can be entered directly or selected from the available options via the drop down lists. Select OK to confirm.

7.3 SELECTING THE MEASUREMENT MODE

The required measurement mode can be selected from the available options of Abs and %T by selecting the  or  icons on the toolbar.

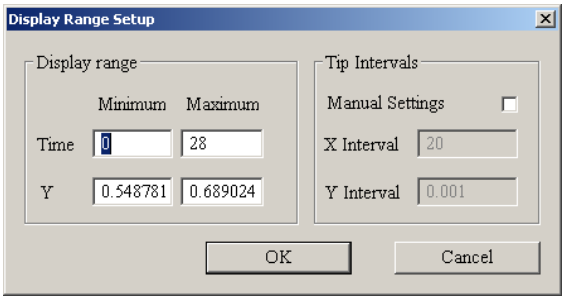
7.4 SAMPLE MEASUREMENTS



Insert a cuvette containing the blank solution into the reference position in the sample chamber and insert the cuvette containing the sample solution into the sample position. Close the instrument lid and select the Start a measurement icon  on the toolbar. Once the measurement is complete the measured spectrum scan will be displayed on the screen. The scan can be cancelled by selecting the Stop a measurement icon  .

7.5 POST MEASUREMENT TOOLS

7.5.1 Adjusting the Displayed Scan Range

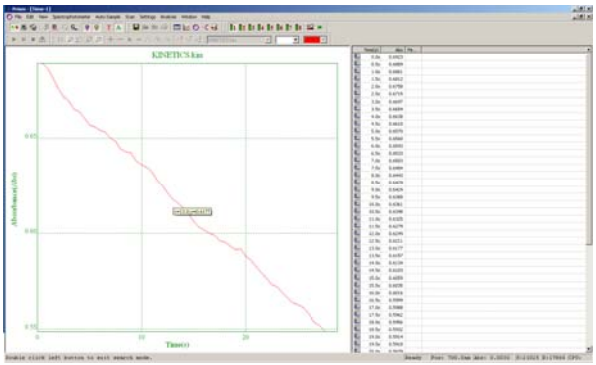


Select the Setup display spectrum icon  from the toolbar. Enter the required display settings and select OK to confirm.

7.5.2 Kinetics Zoom Function

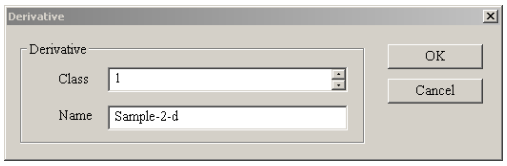
Select the Zoom function icon  from the toolbar. Position the cursor in the upper-left corner of the area you want to select. Hold the left mouse button to drag the cursor to outline the scan area you want to enlarge. Release the mouse button. The part of the scan which is displayed within the outlined area will be enlarged. Select the undo zoom icon  to restore the previous view settings. Select the Zoom function icon again to exit the zoom function.

7.5.3 Spectral Points Analysis



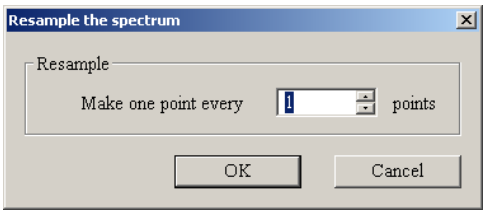
Select the Scan spectrum icon  from the toolbar. Move the cursor over the kinetics spectrum to trace the scan and display the scan data. Select the Scan spectrum icon again to exit the spectral points analysis mode.

7.5.4 Kinetics Derivative



Click  on the toolbar. A dialogue box appears allowing the user to select the derivative function required (1-10) and enter a name for the calculated derivative spectrum. Select OK to confirm. The derivative spectrum will be displayed as an overlay on the original.

7.5.5 Remeasure (Re-plot) Kinetics Scan

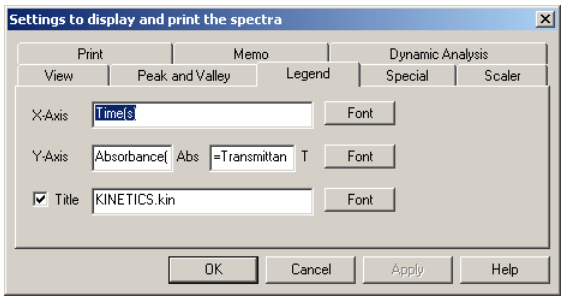


Click  on the toolbar. A dialogue box appears asking the user to specify the frequency of the data points in the re-plotted kinetics scan. Select OK to confirm. The re-plotted kinetics scan will be displayed.

7.6 OVERLAY SCANS

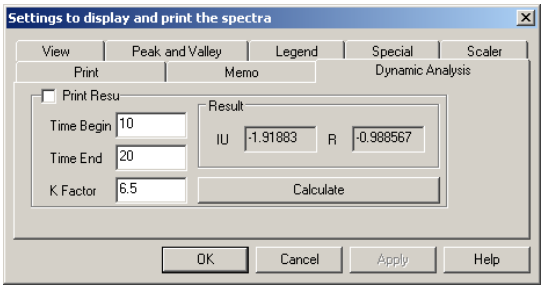
The Prism Pc software can display multiple kinetics scans simultaneously on the screen by either measuring additional samples or loading stored data. The active kinetics scan is selected from the drop down menu on the toolbar. The colours of the selected scan's background and photometric data can be selected using the palette options on the toolbar.

7.6.1 Kinetics Display and Print Options



The display and print options for the selected scan can be accessed by selecting the  icon on the toolbar. The display range, peak and valley labels, axis legends, spectrum title, display colours, print information options and printout notes can be edited in the dialogue box that appears.

7.6.2 Calculate Rate of Change



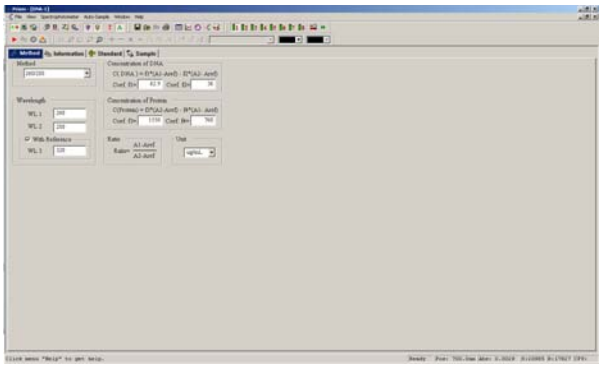
The rate of change for the selected kinetics scan is calculated by selecting the Display and Print settings icon  on the toolbar. The display range, peak and valley labels, axis legends, spectrum title, display colours, print information options and printout notes can be edited in the dialogue box that appears.

SECTION 8 – DNA/PROTEIN

The DNA/Protein measurement mode allows the user to measure multi-wavelength absorbance ratios, such as 260nm/280nm and 260nm/230nm, which are commonly used to estimate a protein or nucleic acid sample's purity. The mode also includes calculations that can be used to estimate the concentration of the protein or nucleic acid sample.

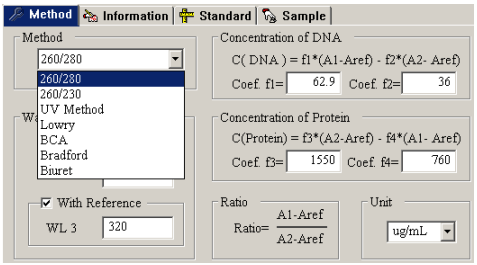
Four commonly used protein assay methods are pre-loaded in this measurement mode. The available protein assay methods are Direct UV, Lowry, Bradford, Biuret and BCA.

8.1 DNA/PROTEIN MODE SCREEN



Select the DNA/Protein Measurement icon  on the toolbar. The DNA/Protein measurement window will open.

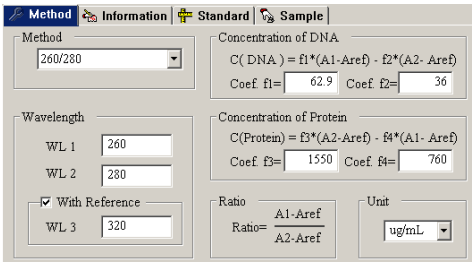
8.2 METHOD SETUP



The DNA/Protein method options are selected from the Method drop down box. The methods that are available are:-

1. 260/280
2. 260/230
3. UV Method
4. Lowry
5. BCA
6. Bradford
7. Biuret

8.2.1 Adjusting the Method Parameters

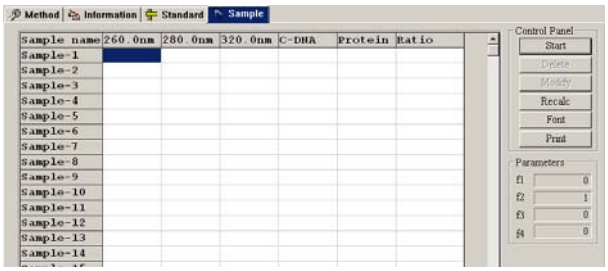


Select the DNA/Protein Measurement field to edit and enter the required wavelength or concentration factor. The displayed concentration unit is selected from the Unit drop down menu.

8.3 DETERMINATION OF NUCLEIC ACID CONCENTRATION

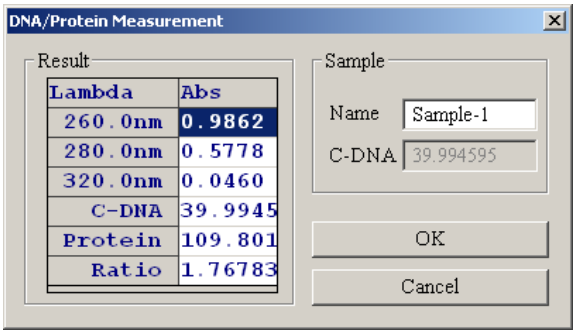
Select the required method parameters as in 8.2.

8.3.1 Sample Measurements



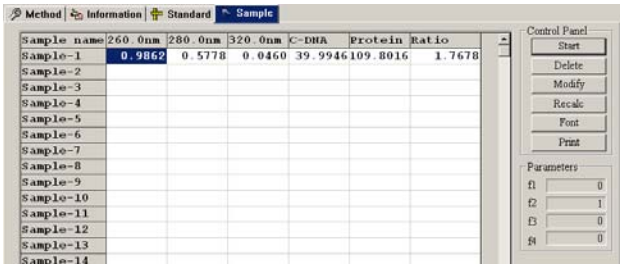
To quantify an unknown sample select the Sample tab. Insert the sample cuvette into the sample cuvette holder and the blank solution into the reference sample holder.

Select the Start button.



A new window will open allowing the sample name to be edited. The actual photometric readings of the sample will be displayed in the Readout window along with the results of the calculations specified in the method settings.

Select OK to transfer the data to the sample result table.



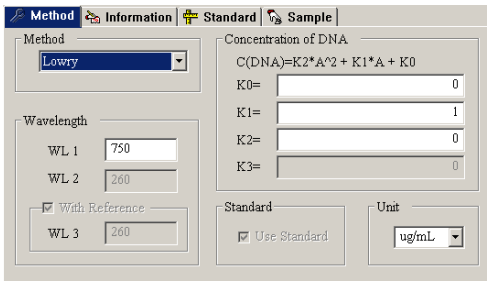
The sample result table will display the measured absorbance values and the final calculated concentration and ratio values.

8.4 DETERMINATION OF PROTEIN CONCENTRATION

Select the required method parameters as in 8.2.

8.4.1 Using a Concentration Factor or Pre-defined Calibration Curve

8.4.1.1 Entering Known Calibration Curve Constants



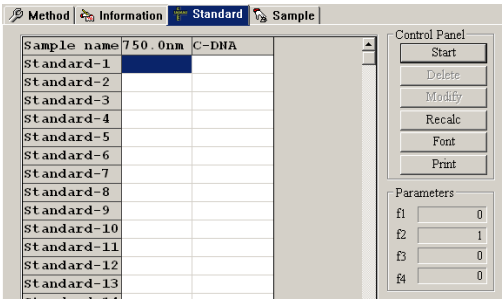
The known calibration curve constants can be entered into the appropriate K0 – K2 fields where:-

$$\text{Concentration} = (K2*X^2)+ (K1*X) + K0$$

X = Photometric value of the sample

8.4.2 Constructing a New Calibration Curve

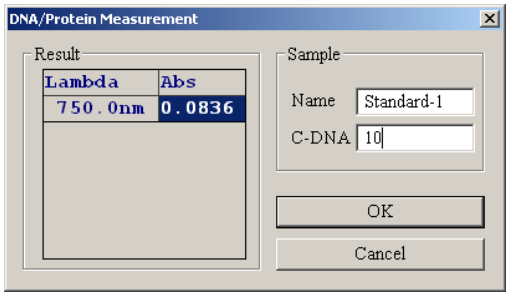
8.4.2.1 Measuring Standard Samples



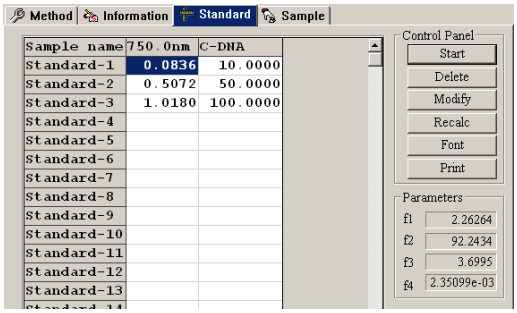
Select the Standard tab.

Insert the first standard into the sample position in the sample chamber and the reference into the reference position in the sample chamber.

Select the Start button to initiate the measurement

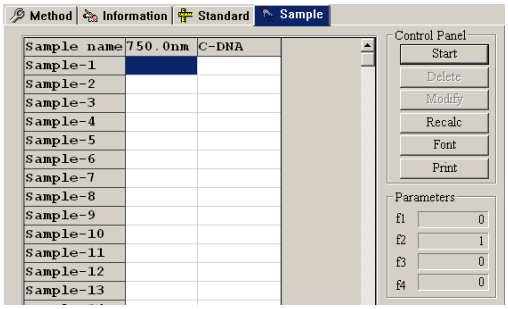


A new window will open allowing the Standard name and concentration to be edited. The actual photometric reading of the standard will be displayed in the Readout window. Select OK to transfer the information to the main standard tab.

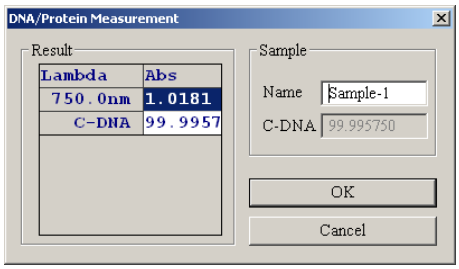


Repeat this procedure for each standard sample.

8.4.3 Sample Measurement

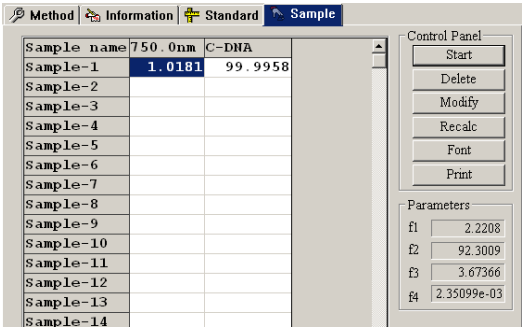


To quantify an unknown sample select the Sample tab and select the Start button.



A new window will open allowing the sample name to be edited. The actual photometric reading of the standard will be displayed in the Readout window and this value will default to the C-DNA field.

Select OK to transfer the data to the sample result table.



The sample result table will display the measured absorbance value and the calculated concentration value.

SECTION 9 – APPENDIX

The multicell accessory measurement mode allows the user to measure a sample's photometric absorbance or %transmittance at up to 10 wavelengths. Following sample measurement, the photometric readings are displayed on the multi-wavelength mode screen.

9.1 CALCULATIONS IN QUANTITATION MODE

Single Wavelength Method	: Abs.=A_1
Double Wavelengths Method	: Abs.=m*A_1-n*A_2
Three Wavelengths Method	: Abs.=A_1-(WL1-WL2)*(A_2-A_3)/(WL2-WL3)-A_3

9.2 CALCULATIONS IN DNA/PROTEIN MODE

260/280:

CDNA =(A1-Aref)*f1-(A2-Aref)*f2
CProtein =(A2-Aref)*f3-(A1-Aref)*f4
Ratio =(A1-Aref)/(A2-Aref)

A1=A260nm, A2=A280nm, Aref=A320nm (Optional)
f1=62.9, f2=36.0, f3=1550, f4=760.0

260/230:

CDNA =(A1-Aref)*f1-(A2-Aref)*f2
CProtein =(A2-Aref)*f3-(A1-Aref)*f4
Ratio =(A1-Aref)/(A2-Aref)

A1=A260nm, A2=A230nm, Aref=A320nm (Optional)
f1=49.1, f2=3.48, f3=183, f4=75.8

SECTION 10 – TECHNICAL SUPPORT

10.1 TECHNICAL SUPPORT

Jenway have a dedicated Technical Support team made up of experienced scientists who are on hand to help with any applications advice and questions you may have about our products and how to use them. If you require any technical or application assistance please contact the team at:

E-mail: jenwayhelp@bibby-scientific.com.

Phone: +44 (0)1785 810433

Fax: +44 (0)1785 810405