AVIV 215 Circular Dichroism Spectrometer

User's guide

Starting the instrument:

1.	Purge the system with nitrogen for about 20 minutes.		
	The N_2 valve should be preset to 20 psi. This will result in the following		
	readings on the flowmeters:	- lamp	8 scFH
		- monochromator	19 scFH
		- polarizer	just off "0"
		- sample	2 scFH

- 2. Turn on the CD spectrometer using the lamp power and cooling switch (1st double switch).
- 3. As soon as you hear a click, the lamp power supply lights will come on. When the "lamp ready" light is on, fire the lamp by pressing the red start button.



4. Turn on the second switch (CPU and instrument power) to start the electronics. Press the switch labeled "4" for the computer and "5" for the cooling/heating unit.



 \leftarrow Turn up this switch to turn on the power supply for the spectrometer's electronics and the computer.

5. After Windows starts up, just o.k.. There is no password needed here.

Data acquisition

- 6. Before starting the software, make a directory under C:\DATA with your name (XYZ): C:\DATA\XYZ.
- 7. Start the software by double clicking the CD-215 icon on the desktop. You will see the following page.

Experiment Name	: Tachy14 : #31				_ 🗆 ×
<u>File</u> <u>C</u> onfigure Exper	riment <u>D</u> isplays	Math Operations	Control <u>P</u> anels	<u>Axis</u> Definitions	<u>H</u> elp
Experiment Type Wavelength	Data Collection Display				E
CD - PMT Signal: -68.22 m deg Dynode: 893.56 v PMT DC: 1.041 v	-				-
Fluorescence PMT Signal: N/A Dynode: N/A	-				-
Monochromator Wavelength: 559.15 nm Bandwidth: 1.00 nm Slitwidth: 0.044 mm	-	1 1 1		- 1 1 1	
Sample (Cell 0) 25.68 deg C	1000 -		Wavelength		
RUN EXPERIMENT	dynode Vdc 500 - 0 -	1 1 1		1 1 1	
Experiment is IDLE	Ready				

- 8. Click on the "Displays" menu, then click on "Data Browser". You will see the following page. Type the path to your folder in there and press Enter.
 - Do NOT just save all your files under C:\DATA!!!!
 - You must press the Enter key after changing any parameter or else the software will ignore the change.

Data Browser		x
Multi-Experiment Selection Export Data S	Set	
Options Select Data Set	Wavelength Experiments Stopped-Flow Experiments Kinetic Experiments	
Review Data Set	Temperature Experiments Titration Experiments PH Experiments	
Rename		
Read Data Set <- Disk		
Save Data Set-> Disk		
Return File Nam	ne : 1	
Default Dataset Path: d:/anmin	← Type your d	efault dataset path here.

Close the data browser.

9. Click on the "Configure Experiment" menu on the main page. The following screen will appear:

Configure Experiment Exit/Save Configuration Save Data Options Expe	siment Configuration	
Type you filename. \rightarrow	Instrument Status PMT Control Set Voltage	Type your sample description.
Type: Wavelength Scan Wavelength Stat: 250.00 nm Wavelength End: 190.00 nm Enter the bandwidth →	Time Constant : 100 ms Monochromator/Sits Wavelength : 559.15 nm. Bandwidth : 1.000 nm.	
Number of Scans : 4 Multi-Scan Walt : 0.00 seconds	Temperature Control Setpoint : 25.00 degC	← Be sure the Auto Slit Closure option is checked.
	Deadband: 1.500	

Enter a filename and the sample description. Set the bandwidth, usually to 1.0 or 1.5 mm. Be sure that the "Auto Slit Closure" option is checked. This will avoid photobleaching of your sample and extend the life span of the instrument's optics.

10. In the "Experiment Configuration" menu enter parameters such as the wavelength range and the number of scans.

ration		
th Start :	250.00	nm
gth End :	190.00	nm
e Every:	1.000	nm
ng Time :	1.000	seconds
Scans:	4	
Scans:	0.0000	seconds
ык [Cano	el 1
	nth Start : gth End : e Every : ng Time : f Scans : n Scans : DK	th Start : 25000 gth End : 190.00 e Every : 1.000 ng Time : 1.000 f Scans : 4 n Scans : 0.0000

Remember to press Enter after changing parameters, otherwise the software will ignore the changes.

Click on o.k. to close this window.

Click on the "Exit / Save Configuration" menu to save changes and exit.

1. On the main page, click on the sample temperature and the Temperature dialog box will appear. Here		Monochromator Vavelength: 559.15 nm Bandwidth: 1.00 nm Slitwidth: 0.044 mm	
you can set your desired temper	ature parameters.	Sample (Cell 0) 25.68 deg C	← click on temperature.
	Run experiment. \rightarrow	RUN EXPERIMENT	0
		Experiment is IDLE	Ready

12. Insert your sample and allow it to equilibrate. Start data collection by clicking on "Run Experiments" on the main page. When the data collection is finished, the software will prompt you to save the data. Be sure to save it to the data browser and to the computer's hard drive.

How to combine multiple scans to one averaged spectrum

13. On the main page, click on the "Axis Definitions" menu and then on "Data Average". The following page will appear:

)ala Average	
Check boxes of traces you would like to average. →	Left Axis Traces I = 140ct02NrUVCDH2P04pH6Blank = 140ct02NrUVCDH2P04pH6Blank = 140ct02NrUVCDH2P04pH6Blank	
Click on Average select	Resulting Data Set Experiment : 140ct02NrUVCDH2P04pH6Blank Data Set : Ave Results	
Traces. →	Average Selected Traces Save Average Trace Clear Average Trace	← save average trace.

14. Pleas note: this does not save the average trace to the hard drive. You must go to the data browser to do this. In the main menu click on "Displays" and then "Data Browser". When the browser page comes up, highlight the average results file and click on "Save Data Set to Disk".

Data Browser	X
Multi-Experiment Selection Exp	ort Data Set
Wavelength Experiment Options Select Data Set	140ct02NrUVCDH2P04pH6Blank : Ave Results
Review Data Set	Ave Results Ave Results Stopped-Flow Experiments Kinetic Experiments
Rename	 I Temperature Experiments Titration Experiments pH Experiments
Read Data Set <- Disk	
Save Data Set -> Disk	\leftarrow save data to hard drive.

Shutting down the instrument:

15. Exit from the software. You will be prompted to save any data that has not been saved to disk. Shut down Windows.

- 16. Turn off the computer and Spectrometer electronics switch.
- 17. Record your ending lamp hours.
- 18. Turn off the lamp and power switch.
- 19. Purge the system with N_2 for five minutes. Close the nitrogen values on the tank.