

INITIALIZING THE INSTRUMENT:

- Turn on the computer. When prompted type the password **cary100**.
- Turn on the instrument power switch located on its left front corner. The lamp should be allowed to warm up for at least 15 minutes before running the instrument.
- Start the software by double-clicking on the SCAN icon on the desktop.
- Once the instrument is initialized, the screen should have the **Start** and **Stop** buttons at the top center. If **Connect** appears in place of **Start**, press **Connect** in order bring the instrument online.



Figure 1. Scan Toolbar.

SETTING UP THE EXPERIMENT:

- Press the **Setup** button a dialog box with several tabs will appear.
- On the **Cary** tab, enter in your wavelength units and range (the instrument scans from *high to low* wavelengths), **y range** units and values (the program will autoscale, so these numbers aren't crucial), **average time** (like an integration time, longer values give higher signals), and **data interval** (how closely spaced are your data points, smaller intervals give larger data files). Select **Cycle** if you want to run multiple scans of the same sample.
- On the **Options** tab, enter in the **SBW** (bandwidth, which is usually good to leave at 2 nm unless you're looking for fine structure in your spectrum) and **lamp crossover** wavelength (leave at 350 nm unless expecting important features in the spectrum at that wavelength, and then only move it no more than 10 nm one way or the other).
- On the **Baseline** tab, select **Baseline Correction** if doing a scan with a dilute sample, as the baseline and lamp switching will have a negative effect on the spectrum.

- On the **Reports** tab, enter **Operator Name**. To automatically label peaks on the spectrum, select **Maximum Peak** or **All Peaks** options. The peak threshold limit and labeling options are altered by pressing the **Peak Information** button.
- On the **Auto Storage** tab, select whether to save the scans before or after a run. Selecting after the run (not the default choice) will avoid saving bad data.

| | Stop | VARIAN |
|--|--|-------------------------------|
| No. | | 1××++1 0. A |
| Setup Setup Secure Landsen 1 / Advances | | |
| 1/2 General Statement Annotante 1 Annotante 2 Anno | X | Setup |
| Constructions Constru | des 2 Accessicales 2 5 angles Reports Auto State | Cary Options Baseline Assesso |
| Held Recently of Held Area 1000 | YMak | 2 Minde |
| State BDB 0 State ABB 0 or - Lock | Mode ZBm 💌 Factor 1.0000 | Mode Navastes 🛩 |
| | Yes 115 Yes 110 | Start RUE III on Stars 200 |
| - Cele - Cele rook - Cele roo | | |
| Cycle room | | Cale mode |
| Cycle fore 1.00 mm | | Girle mure |
| ScarCenter | | Cycle fine 1.00 |
| | | Scan Controle |
| Arctinopi L100 | | Ave tend (a) |
| Scannake/mm/hinj 600.000 Temporalure Monitor | Tenposiure Honio | Scan take (nm/hin) 6 |
| Hariw Black w | Maria Black w | |
| | | |
| Show Statut Display CK: Cancel Help | OK. Carcel Hep | Show Status Display |
| | | |

Figure 2. Set up Dialog Box.

DATA COLLECTION:

- If running a baseline, insert a blank solvent cuvette in both the reference (rear) and sample (front) cell holders. Press the **Zero** button, then the **Baseline** button to run the baseline. Upon completion of the scan, press the autoscale **Y** button (_) to see the baseline. A red baseline should appear in the number box at the upper left corner of the screen, indicating a valid baseline is in memory.
- Place your sample in the sample cell holder and press the **Start** button. You will be asked for a sample name (other than the file name), then the spectrum will start running. Again, **autoscale** the spectrum if it goes offscale. Once the run is completed, a save file box will be presented to allow naming the file. Any peak information will be printed in the report box (the bottom half underneath the plot).
- Text can be added to the plot by pressing the **A** button. When running multiple scans in one session, pressing the traces button (the farthest left button in the toolbar) to select individual data sets can be selected and made visible in the current plot. Please note that all data plots (including any baselines) are still accessible through the 'Graph' menu, and all will be printed out when printing the data. In order to omit any data set, right click on the graph with that data and select **Remove Graph**.



Figure 3. Right Click Menu.

- In order to manually mark a certain point on a spectrum, right click at that point and select **Print x-y Point**. The coordinates will be printed in the report window. Text can be added or changed in the report window by selecting **Edit Report** on the **Edit** menu and manipulating the text as needed. Double clicking on the report window will allow to expand it to full size.
- To save the session as-is, including the report window contents and alterations made to the scans, select **Save Data As**... from the **File** menu and enter the name for the *batch file*. In order to export some of the data for use in other programs, click on the graph of that data, select **Save Data As**...from the **File** menu, and select **Spreadsheet ascii** (*.CSV) from the **Save Files As** box.



Figure 4. Peak Labels.

SHUT OFF:

- Close the **SCAN** software.
- Make sure cuvette holders are empty and any spills are cleaned up. Turn off the instrument and the computer.

SAMPLE SETTINGS:



| Cany Up | phons | Baveline | Accessories 1 | Accessuies 2 | Accessuies 3 | Samplers | Reputs | Auto Store |
|-------------------------|------------------|-----------|---------------|--------------------|--|----------|--------|------------|
| dvanced 9 - SBW/En | Bellings Bray | | | Sic | gnal-to-Noice | node | | |
| SB₩ | (nm) | | 2.0 | | f a secondaria C d | | 00.00 | |
| Enorg | emode R | | 1.00 | | 5/N timeout (s | 0.10 | 00.00 | |
| Gource Auto Iz UV | •mps of / | Vis | UVA | <u>р</u> і. Уіс | splay Options Individual data Overlay data | | | |
| Source | e chang | eover (nn |) 350.00 | | | | | |
| | | | | | | | | |

| Cary Opt | iuns Be | oeline | Access nies 1 | Arc resonies 7 | Autoecanies 3 | Samplers | Hoports | Auto Sho |
|--|---|--------------|---|---|--|---|------------|----------|
| coorts Entry | and Sele | ctions | | | | | | |
| Operator | | | | | | | | |
| Name | YUUR | NAME | | | | | | |
| - | - | | | | | | | |
| Connent | Type o | l equei | 111971 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Uphone | | | | | | | | |
| AutoPri | nt | | 🛛 Company Logo | 0 | | ~ | | |
| | | | | | | | ALL LIACES | : |
| 🔽 User Dr | ata Form | | Crach 10 | 0 % Pare | Height | - | | |
| User Da | sta Form | | Craph 10 | 0 % Page | Height | ۲ | Focused 1 | Trace |
| Viser Da | sta Form tors | | Z Graph 10 | 0 % Page | Height | ۲ | Focused 1 | l race |
| User Do Harand Peaks Tal | sta Form tors ile | | Craph 10 | 0 % Page | Height A' Pairs Table — | ٢ | Focused 1 | Trace |
| User Do Haramo Peaks Tal | sta Form ters ile | | Craph 10 | 0 % Page n <u>2</u> | Height A' Paix Table Tholudo X'Y Par | e lablo | Focused 1 | Trace |
| V User Do Haramo Peaks Tal All Peak | sta Form tors ile is | E L | Craph 10 Peak Information | 0 % Page | Height A' Paix Table Tholude X'Y Par | e labic | Focused 1 | Trace |
| User Da Haramo Peaks Tal All Peak | sta Form tors ile is m Poals | Pro Pro | Craph 10 Peak Information k Type: Peaks k threshold: 0.0 | 0 % Page | Height A' Paix Table Include X'Y Par Use Actual Inter Use Internation | es l'able val | Focused 1 | Trace |
| ✓ User De ✓ Harame Peaks Tal ✓ All Peak ✓ Maximu | ata Form tore ile is m Poak | Prov Pea | Z Graph 10 Peak Information & Type: Peaks ak threshold: U.U ak Labek: No lab | 0 % Page n 2 n 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | Height A' Pains Table Includo X'Y Par Use Actual Inter Hise Interpolatio | Is Lable val n Interval | Focused 1 | Trace |
| ✓ User De Parame Peakx Tal ✓ All Peak ✓ Maximu | sta Form tors ile is m Poak | Prov Pres | Z Graph 10 Peak Information Ik Type: Peaks Ik threshold: U.U Ik Labels: No lab | 0 % Page | Height A' Pains Table Include X'Y Pau) Use Actual Inter) Use Interpolation | Is Lable val n Interval | Focused 1 | Trace |
| User De Parame Prakes Tal All Peak Maximu Autoconve | sta Form tore ille is m Poak et | Prov Pres | Peak Information k Type: Peaks ak throshold: U.U ak Labels: No lab | n | Height A' Pairs Table Includo X'Y Par Use Actual Inter Use Interpolatio | IS Lable val n Interval | Focused 1 | |
| User De Paramo Peaks Tal All Peak Maximu Autoconve | sta Form tors ile is m Poak it None | Prov Pres | Croph 10 Peak Information Atrophet Reaks Atrophet Reaks Atrophet Ru | 0 % Page n 2 NUU pets elect for ASCII (| Hrághi A' Paius Tahle Includo XY Par U Se Actual Inter I Dae Interpretation | I able val Interval for ASCII (e | Focused 1 | |
| ✓ User Do Paramo Peakx Tall ✓ All Peak Maximu Autoconve | sta Form tors ille is m Poak ert None | Pro- Pea | Croph 10 Peak Information A Tyrer Peaks Kthroshold: UU k Labels: No lab Si | 0 % Paye | Height Af Peius Teilte Include XY Peiu I Use Actual Inter I Use Integridation Cov) Select | IS LADIC Val Interval for ASCII (c | Focused 1 | Trace |
| Viser De Peaks Tal All Peak Maximu Autoconve | sta Form tors ile is m Poak ert None | Piera Pea | Croph 10 Peak Information Ar Typer Peaks Ak Typer Peaks Ak throshold: UU Ak Labels: No lab St | 0 X Page | Height M Pains Tallie Tincludo X Y Par Use Actual Inter Dae Integratedin Cov) Select | IS I able val for ASCII (c | Focused 1 | Trabe |