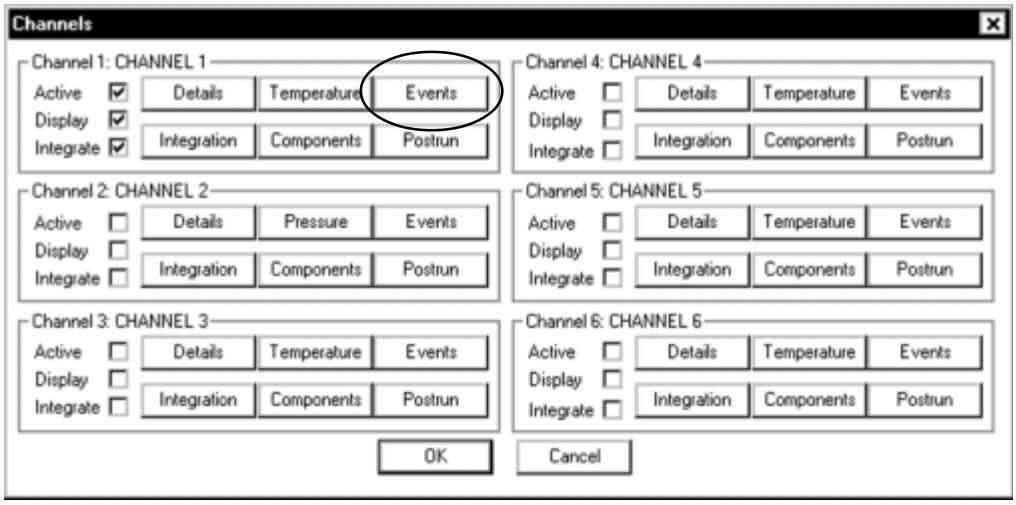
PEAKSIMPLE SOFTWARE
Events

Event Tables

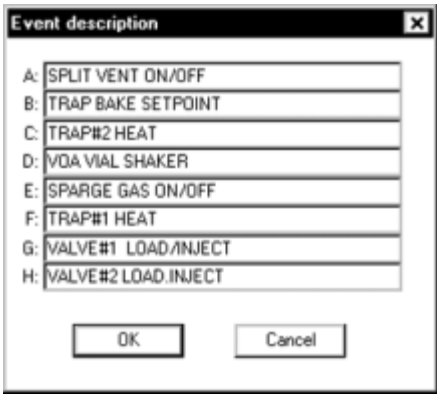


You can open the events table window from the Edit> Channels screen. Click on the Events button for channel 1. Or, right-click in the chromatogram window and select Events from the pop-up menu.

The event table window will open, either empty, or with whatever .EVT file was saved with the current control file (DEFAULT.CON, unless you have specifically opened another). At the bottom of the events table window there are several buttons for you to access event features.

Each channel has its own event table because of the signal processing type events that are available, such as Zero, Reverse, and Integration events. Hardware events may also be activated from any channel. SRI recommends entering hardware events only in the channel 1 event table to avoid confusion.

Click on the **Add...** button to add an event to the event table. The **Event details** screen will open, where you select the event and enter the time at which you want it to occur.



Type in your custom event descriptions.

Click on an existing event in the event table to select and highlight it, then click on the **Change...** button to edit the selected event. You can also simply double-click an event to open the **Event details** screen, from which you can edit any selected event.

Click on the **Remove** button to delete a selected event from the events table.

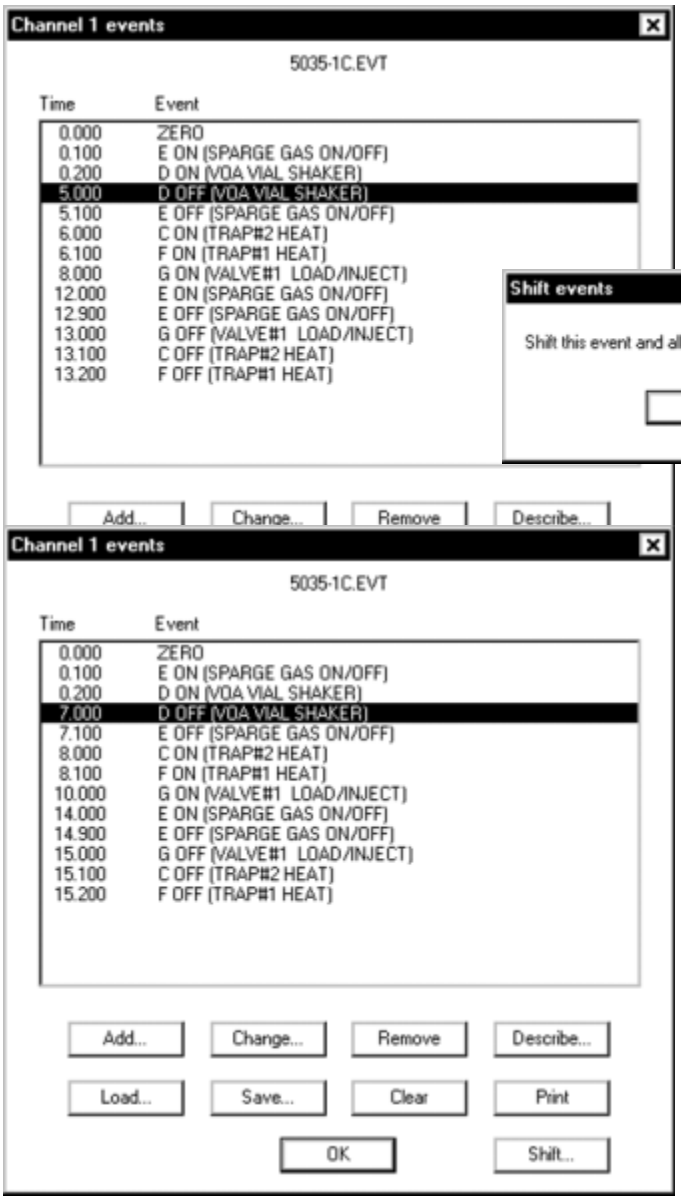
Click on the **Describe...** button to customize any or all of your eight relay (hardware) event descriptions.

Click the **Load...** button to open an existing event table. PeakSimple will open the program directory and display all .EVT files.

Click **Save...** to save the current event table shown in the window.

Click **Clear** to remove any and all events and .EVT files from the event table window (but not from the hard drive). PeakSimple will prompt you for confirmation before proceeding to clear the event table.

Click the **Print** button to send the current event table to the printer through the Windows print manager.



Click the **Shift...** button to shift the sequence of events following the selected event forward or backward in time.

In this example, we are shifting the highlighted event forward 2 minutes.

Now the selected event takes place at 7.00 instead of 5.000; all subsequent events have also been shifted forward two minutes.

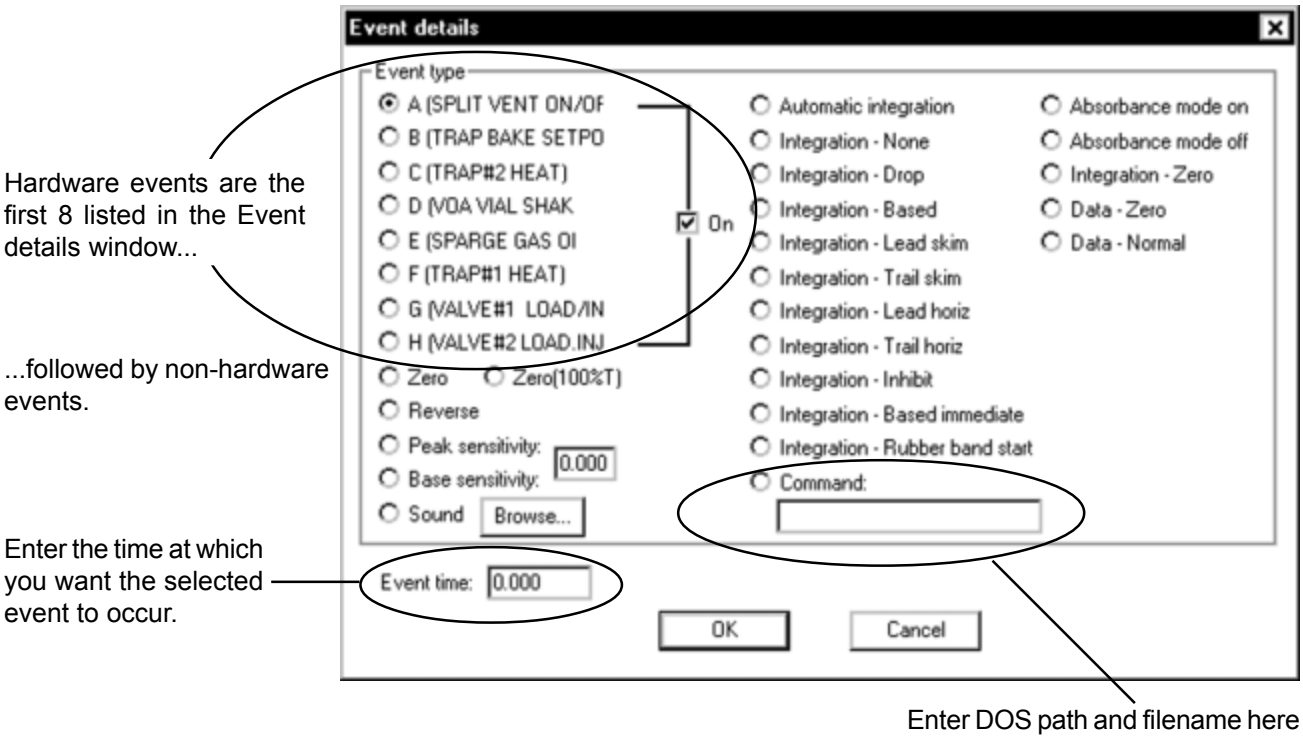
The **Shift...** button saves you having to re-type the entire event sequence.

Click the **OK** button to exit the events table window.

PEAKSIMPLE SOFTWARE
Events

The **Event details** screen opens when you click the **Add...** or **Change...** buttons, or when you double-click any single event in the list. In the **Event details** screen are listed all the events you can enter into an event table. Starting on the left, the eight relays are listed, followed by non-hardware events. Hold your mouse cursor over any event to read its ToolTips description.

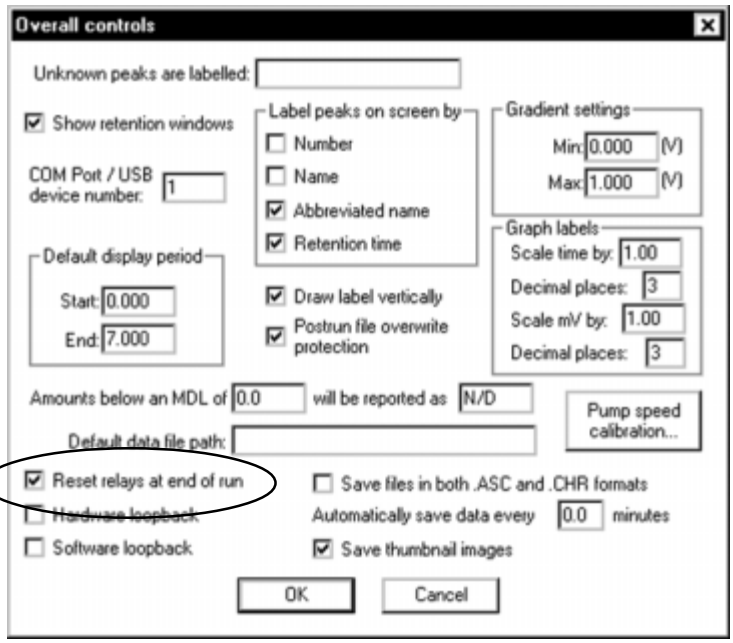
There is a checkbox labeled "On" to the right of the hardware events list. When the event is turning ON a relay, make sure this box is checked. Uncheck the box when the event is turning OFF a relay. Even though they control the same relay, ON and OFF are separate and distinct events in the timetable. On the bottom left of the Event details window is the Event time field. Enter the time at which you want the event to occur here. Typically, PeakSimple has a lot of tasks to perform at the beginning of an analytical run. Therefore, SRI recommends that you enter the first hardware event no earlier than 0.100 minutes (6 seconds).



PeakSimple also permits you to automatically execute a DOS command during the analytical run using an event table. A DOS command is the same as running an executable file. You may use this function to launch a macro to copy, rename the preceding file so the next file may be updated into a spreadsheet, or to copy the chromatogram data and results file onto a floppy or hard disk drive other than the destination to which it was originally saved. A DOS command may be executed at any time during the analytical run by typing in the DOS path and the filename of an .EXE, .COM, or .BAT file, and the time the event is to occur. To add a DOS command event: click the radio button next to "Command," and type in your DOS path and executable filename. Example: C:\Excel\Macro1.bat Next, type in the time during the run at which you want the command to be activated in the form field labeled **Event time**. DOS events that require prolonged disk access should be executed after the run, using **Post-run actions** for channel 1.

You can choose to reset all eight relays at the end of the run by clicking Edit>Overall and checking the box in the lower left corner.

This option will return the relays to their default position—OFF.



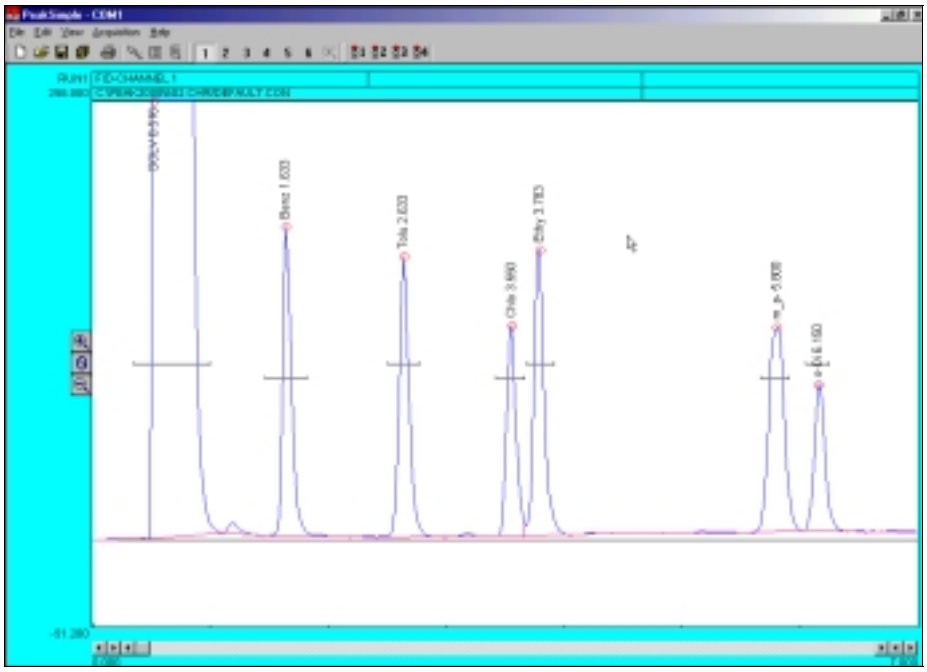
In some cases, a user may not want to reset the relays at the end of the run. For instance, when using our TO-14 Air Concentrator, users leave the gas sampling valve in the INJECT position at the run's end. This sweeps clean the trap and column, preparing the system for the next sample. In this case, the user would have an event table to turn OFF the valve relay and return it to the LOAD position sometime after the run has started. Therefore, such users would deselect the "Reset relays at end of run" option.

SRI Instruments

PeakSimple 2000

Chromatography Integration Software

Basic Tutorial



Installing PeakSimple 2000 from floppy disk or CD-Rom

A. Start the Windows operating system in use on your computer. (Windows 95, 98, ME, 2000)

B. Insert the PeakSimple 2000 disk or CD into your floppy disk drive.

C. Go to the **Start** menu in the bottom left hand corner of the windows screen and select **Run** from the set of icons.

D. From the run menu, type **X:\setup** (where **X** is the letter of your computers disk drive).

E. Now click on the **Continue** button with your mouse cursor or press the enter key on your keyboard to begin installation.

F. To complete installation follow the onscreen instructions provided by the installation wizard.

Installing PeakSimple 2000 from software download

A. Start the Windows operating system and use an online browser to access www.srigc.com.

B. From the menu on the left hand side of the screen select **Download our Software** and then download PeakSimple 2000 from the following page.

C. Save the file to a temporary folder and then double click on it from My Computer to allow the program to self-extract.

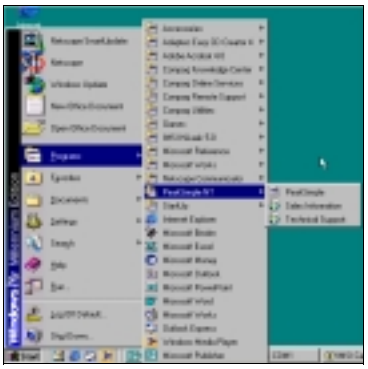
D. Once all the files have been extracted successfully double-click the install file and press the **Continue** button when prompted.

E. Follow the onscreen instructions to complete the installation of PeakSimple.

SRI Instruments 20720 Earl Street Torrance, CA 90503 U.S.A
Telephone: (310) 214-5092 Fax: (310) 214-5097 sales@srigc.com **www.srigc.com**

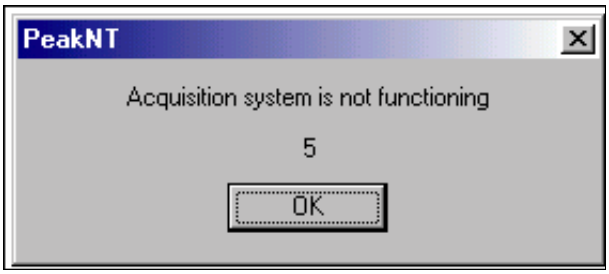
Launching PeakSimple 2000

1. Click on the windows **Start** button in the bottom left-hand corner of the screen. Select **Programs** and then **PeakSimple** from the list of program groups on the screen and then click on **PeakSimple.**



2. This will launch PeakSimple and initialize the data acquisition system.

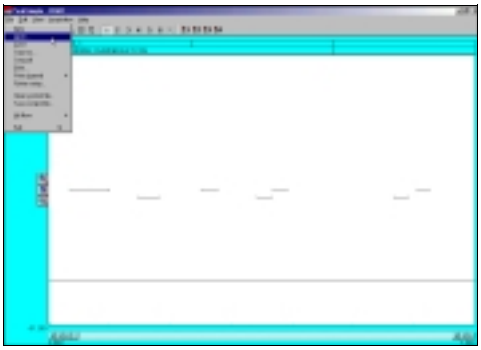
3. If PeakSimple comes up with an error message stating “Acquisition system is not functioning” with a countdown timer, it is indicating that there is a communication problem between the computer and the data system or that the data system and the hardware is not connected. Click **OK** to continue working with PeakSimple.



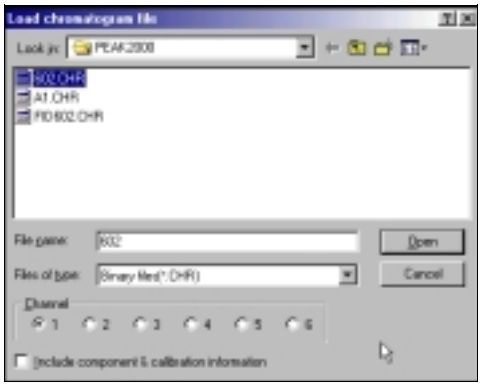
4. Most of the commands and options in PeakSimple are equipped with tool tips that will automatically pop up to display useful information when the mouse cursor is held over a command. To turn off the tool tips deselect the tool tips option in the Help menu.

Opening a PeakSimple Data File

1. To open a PeakSimple data file or chromatogram, begin by selecting **File** in the PeakSimple menu bar and then choose **Open…** from the set of options.



2. The Load Chromatogram File window is now open. The PeakSimple software includes a number of sample chromatogram data files that can be opened, displayed, and manipulated. One file, 602.CHR, will be used throughout the rest of the tutorial. Select file **602.CHR** from the PeakSimple directory, choose **Channel 1** as a destination channel, and then select **Open** to load the file.

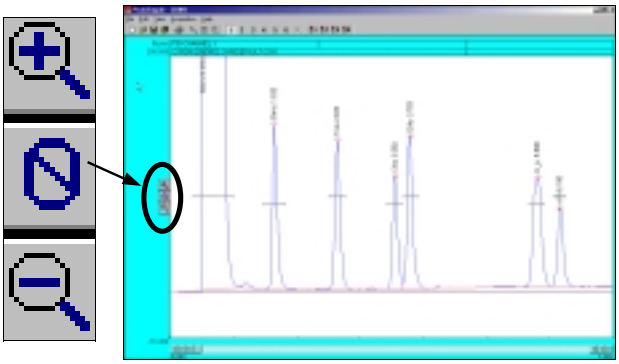


Adjusting Display Limits

1. To adjust the display limits of a chromatogram click on either the **+** magnifying glass icon or the **-** magnifying glass icon to the left of the chromatogram. This will increase or decrease the limits by a factor of two each time you click on the icons.

2. After opening chromatogram 602.CHR, practice making the display limits smaller but the peaks larger by clicking the **+** magnifying glass icon.

3. Practice making the display limits larger but the peaks smaller by clicking on the **-** magnifying glass icon.

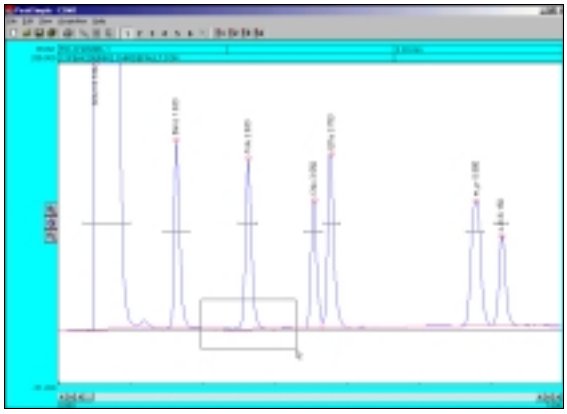


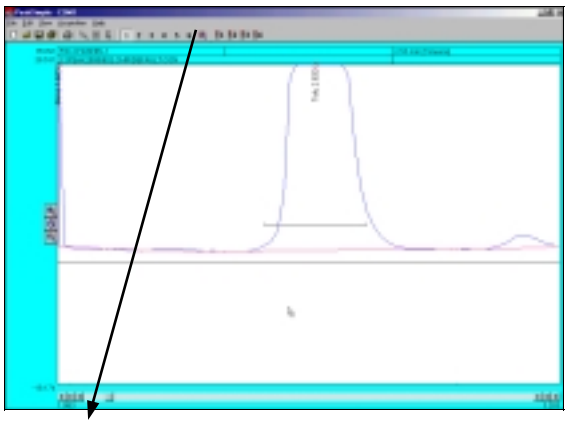
Zooming

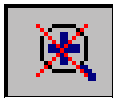
1. To zoom in on a specific part of a PeakSimple chromatogram, click and hold the left mouse button and drag it over the desired area.

2. After opening chromatogram 602.CHR hold the left mouse button and drag it over the base of the toluene peak. Let go of the mouse button and there will be a larger view of the area that was selected.

3. To return to the original display limits of the chromatogram and unzoom the area selected press **F6** or select the unzoom icon located in the PeakSimple toolbar at the top of the screen.







Dragging Retention Windows

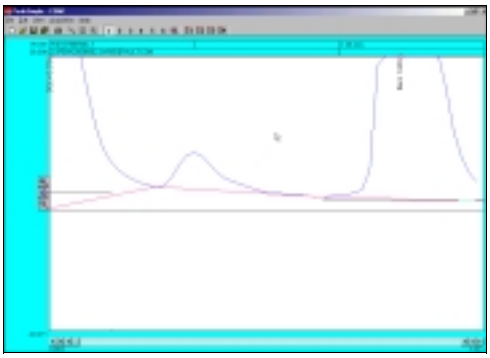
1. To drag a retention window bar place the mouse cursor on the bar until a double sided arrow pops up. Click on the left mouse button and hold and then drag the retention window bar to its desired place.

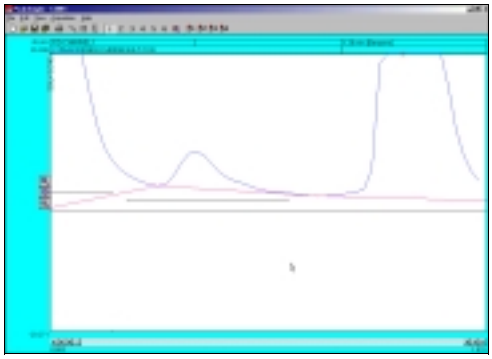
2. After opening the chromatogram 602.CHR zoom in on the benzene peak and the smaller peak to its left. Locate the benzene retention window bar and drag it over to the smaller unnamed peak to the left of the benzene. Because this is a small peak it is not immediately recognized.

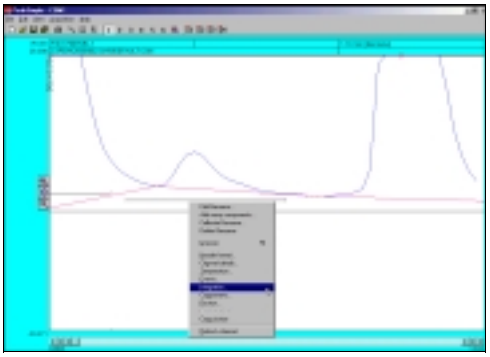
3. Right click on the chromatogram over the unnamed peak and select **Integration** from the resulting menu.

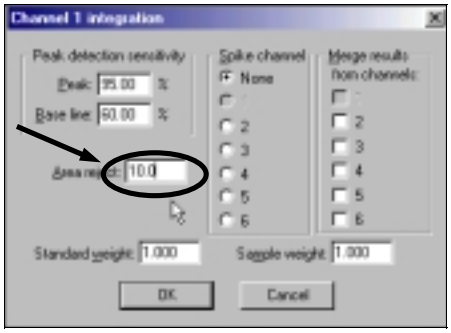
4. From the integration window locate the **Area Reject** dialogue box, erase the 100.0 in the box, and add the number **10.0** to the dialogue box. Click **OK** and the integration window will exit.

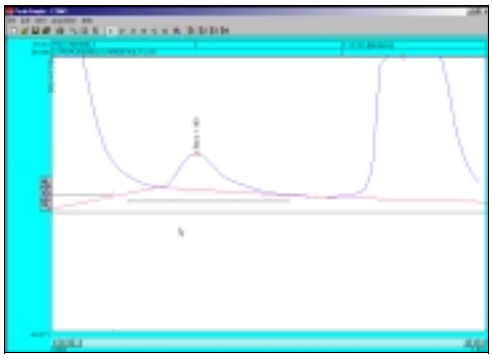
5. Press the **Enter** or **Return** key on your keyboard and the smaller peak will now be recognized as Benzene.





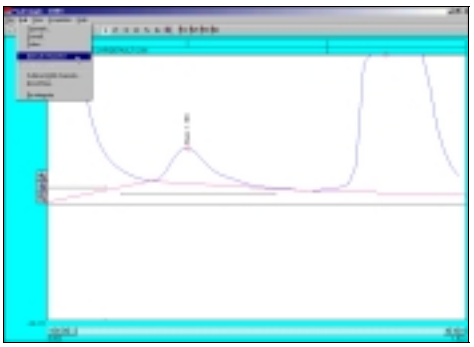




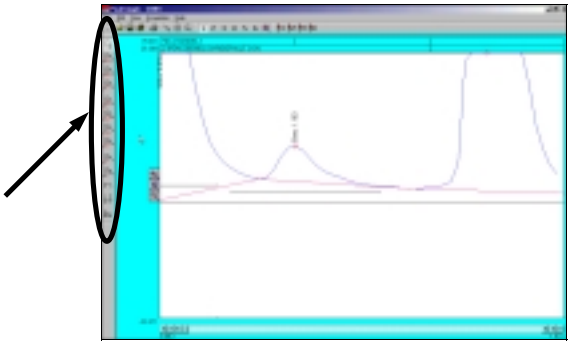


Manual Integration

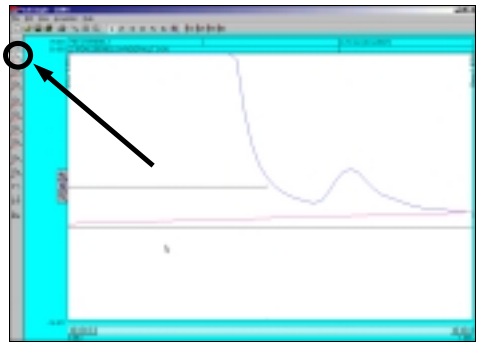
1. To manually adjust the integration baseline and peak separation in a chromatogram use the manual integration toolbar provided by PeakSimple. To open up the manual integration toolbar select **Edit** in the PeakSimple menu bar and then click on the **Manual Integration** option. The manual integration toolbar will now appear to the left of the chromatograph.



2. The manual integration toolbar contains nine types of manual integration options. Four of the most commonly used options are **None** integration, **Drop** integration, **Based** integration, and **Rubber Band** integration.

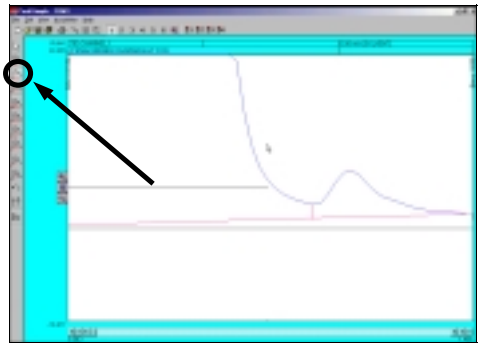


3. To make a baseline ignore a peak use the None integration tool. After opening chromatogram 602.CHR and the manual integration toolbar, zoom in on the baseline of the solvent peak and the smaller unrecognized peak immediately to its right. Click on the **None** integration tool in the manual integration toolbar with the mouse cursor and then click on the valley between the two peaks where they meet the baseline. The area of the small peak is now added to the solvent peak.

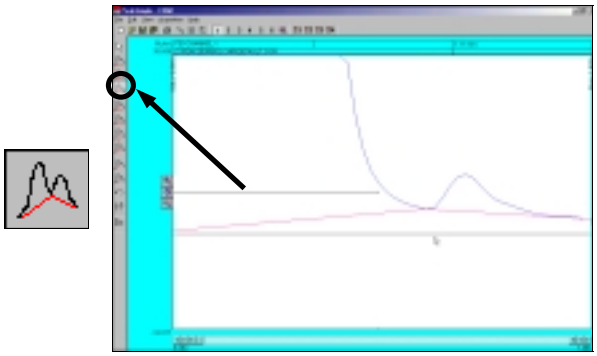


4. To undo the changes made to a chromatogram at any time simply click on the **Undo** integration tool in the manual integration toolbar. After selecting this tool all integration changes made to the chromatogram will be undone.

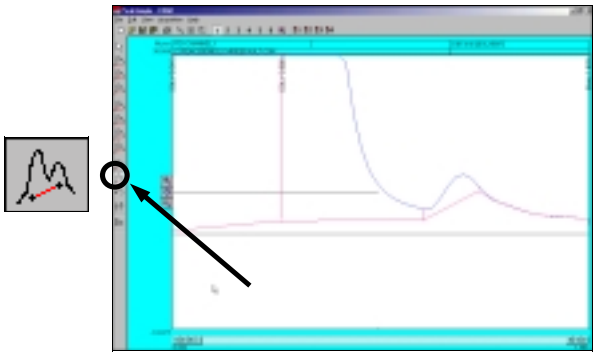
5. Click on the **Undo** tool with your mouse cursor and select the **Drop** integration tool to enable the dropping of the baseline below the between the two peaks. After selecting the Drop tool click where the valley of the peaks meet the baseline with the cursor. The baseline should now be dropped below the base of the peaks and a line should extend from it to the baseline.



6. After the manual integration between the two peaks is dropped use the **Based** integration tool to raise the baseline to the valley between the peaks. Once the Based integration tool is selected, click on the valley between the solvent peak and the smaller peak to its right with the mouse cursor. The baseline will now extend up to meet the valley of the two peaks.

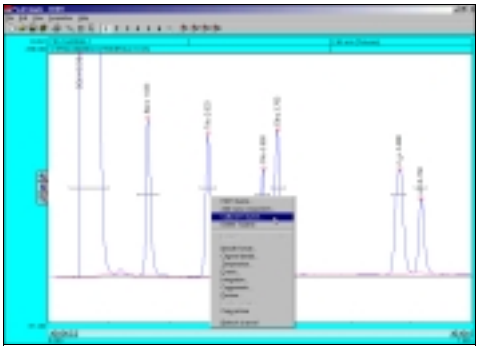


7. Once again click on the **Undo** tool in the manual integration toolbar to remove all changes done to the chromatogram. Select the **Rubber Band** integration tool to manually draw a baseline. Once the Rubber Band tool is selected take the mouse cursor and click on a part of the baseline. While holding down the left mouse button extend the line to another part of the baseline further to the right of the starting point and let go of the mouse button. The base line will now be drawn according to the line that was drawn using the Rubber Band integration tool.

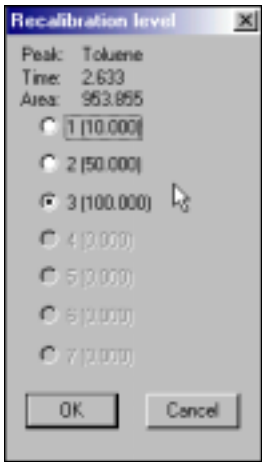


Calibration

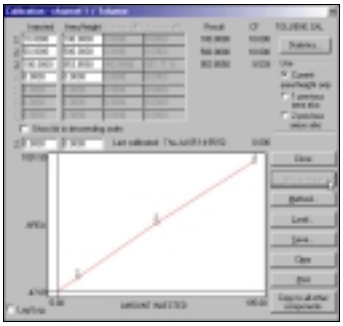
1. To turn the raw area of a peak into a real-world number the peak first needs to be calibrated. To calibrate the Toluene peak in chromatogram 602.CHR, open up the file and then right click using the mouse on the Toluene peak. After right clicking on Toluene select **Calibrate Toluene** from the resulting menu.



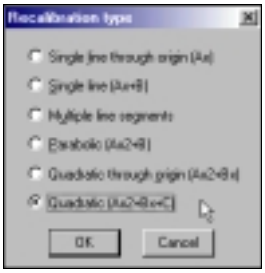
2. From the Recalibration level window click on the third level radio button **3 (100.000)** and then select **OK** with your mouse cursor.



3. After selecting OK from the Recalibration level menu the Calibration menu for Toluene will pop up. Check to make sure the flashing asterisk on the calibration curve is on level 3 and then click on the **Accept New** button to the right of the window.



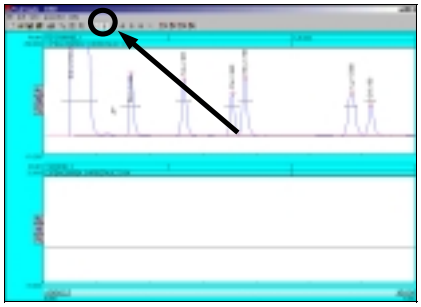
4. Once the new data is accepted, click on the **Method** button immediately below the Accept New button. The Recalibration type window will now open allowing the user to select a method of calibration. By default the calibration type is set at Multiple Line Segments. Select the **Quadratic (Ax2+Bx+C)** radio button and then click on **OK** with the mouse cursor.



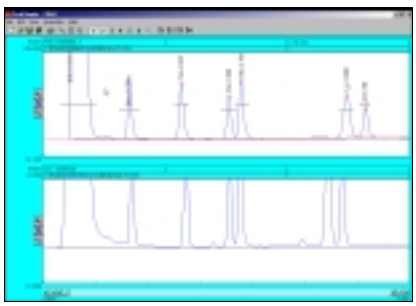
5. After changing the method of calibration click on **Statistics** in the upper right hand corner of the Calibration level window. The Calibration statistics window will pop up revealing the statistics for the calibration of Toluene. Click **OK** with the mouse cursor to close the Calibration statistics window and then select **Close** from the Calibration window to finish calibrating Toluene.

Overlay

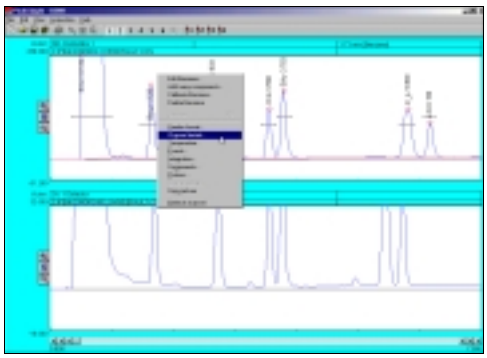
1. To compare two or more chromatograms overlay them using PeakSimple. To overlay two chromatograms first open chromatogram 602.CHR and then click on the **2** button in the PeakSimple toolbar. A second chromatogram channel is now open in the PeakSimple window.



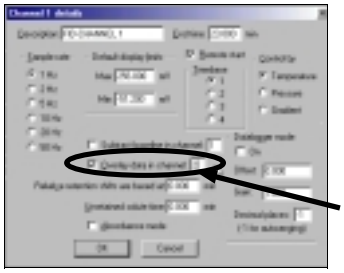
2. Once the second channel is open select **File** from the PeakSimple menu bar and then click on **Open**. The Load chromatogram file window will open up displaying a list of files to load. Select chromatogram **FID602.CHR** to load and then select the **2** channel radio button to load the chromatogram in the second channel.



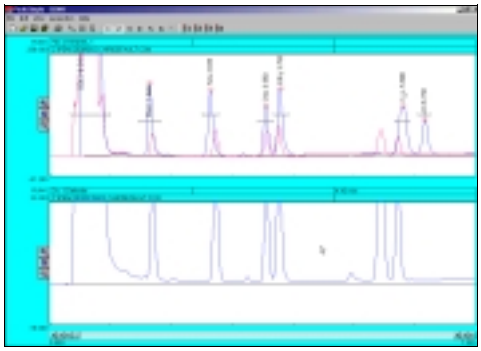
3. Once FID602.CHR is open in the second channel right click using the mouse on the chromatogram in the first channel and select **Channel Details** from the list of options.



4. After the Channel 1 details window appears on the screen locate the **Overlay data in channel** check box and select it. Look to the dialogue box to the right of the Overlay data in channel check box and insert the number **2** in place of the 1. Click on **OK** with the mouse cursor to exit the Channel 1 details window.

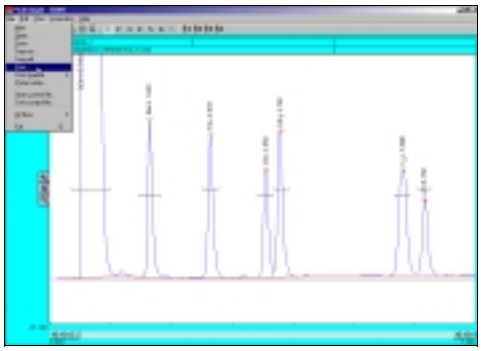


5. The chromatogram FID602.CHR is now in place overlaid on top of chromatogram 602.CHR in channel 1. Chromatogram 602.CHR is in blue while FID602.CHR is in red.

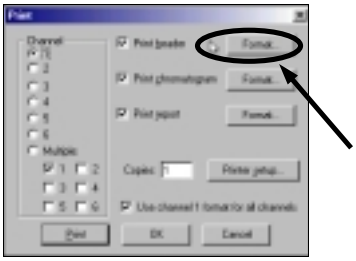


Printing a Chromatogram

1. To print a chromatogram first open chromatogram 602.CHR. Once the chromatogram is open select **File** from the PeakSimple menu bar and then select **Print** from the drop-down menu.



2. The Print window will open and will allow the user to customize the printing of a chromatogram. Click on the **Format** button for the Print header to open up the Header format window. Add or delete any information in the window by clicking on the fields and inserting the desired information. Click on the **OK** button when all the desired information is inputted to close the window.

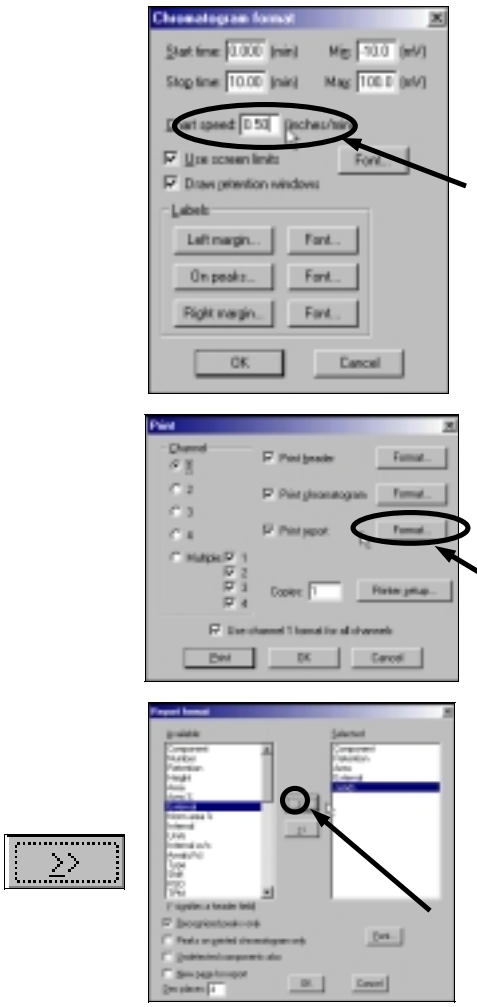


3. In the Print window click on the **Format** button for Print chromatogram to open up the Chromatogram format window. Locate the **Chart speed** dialogue box and insert the number of inches each minute on the chromatogram will take up when printed (for a nine minute run try **0.50** inches per minute). After the Chart speed is entered click on **OK** to exit the window.

4. In the Print window locate the Print report check box and click on the **Format** button to its right.

5. Once the Report format window is open click on **External** in the Available dialogue menu (on the left) and then click with the mouse cursor on the right facing arrow button to add External to the Selected dialogue box (on the right). After External is added to the Selected dialogue box click on **Units** with the mouse cursor and click on the right facing arrow button to add Units to the Selected dialogue box. Click on **OK** with the mouse cursor to exit out of the Report format window.

6. Select **Print** in the Print window to print the chromatogram or click on **OK** in the Print window to exit the window.

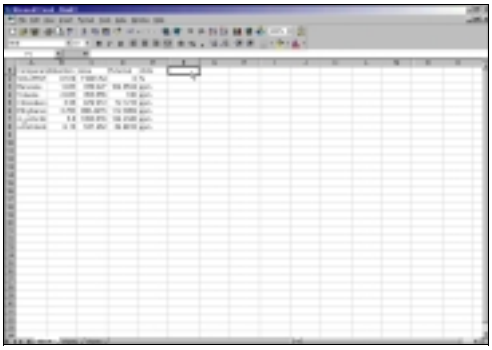


Exporting to Excel

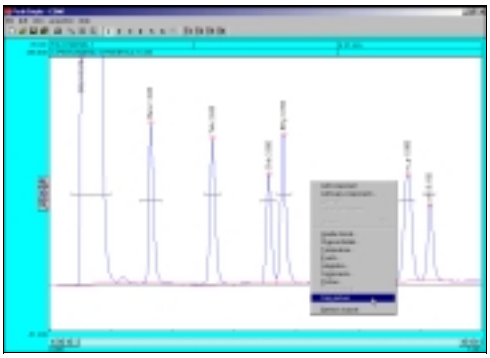
1. In the PeakSimple toolbar click on the **Results** window button to open up the Results window. Once the Results window is open click on the **Copy** button to copy the results data to the Windows clipboard.

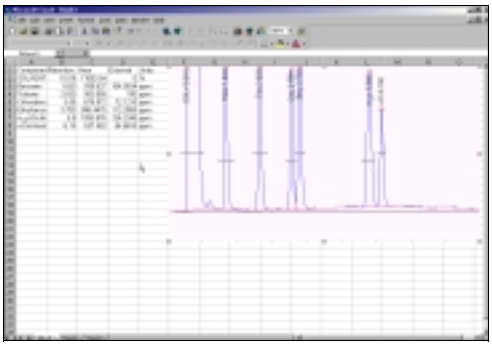
2. Make sure Microsoft Excel is loaded on the computer. If Excel is not loaded you can copy results data and chromatograms to Microsoft Word or PowerPoint. Open up Microsoft Excel by clicking with the mouse cursor on the **Start** button in the bottom left of the Windows screen and then **Programs** and then **Microsoft Excel** in the Windows Program menu.

6. Once Excel is opened select **Edit** from the Excel menu bar and then **Paste** from the drop down menu. The results data is now placed into the columns and rows of Excel. Using the mouse cursor, select a box to the right of the results data in the Excel spreadsheet. Go back into the PeakSimple for Windows NT program and hit **Close** to exit the Results window.



7. Right click with the mouse cursor anywhere on chromatogram 602.CHR and select **Copy picture** from the resulting menu. Go back into Excel and select **Edit** from the Excel menu bar and then **Paste** from the drop down menu. The PeakSimple chromatogram will now be displayed next to its results data in the rows and columns of Microsoft Excel.





This concludes the PeakSimple 2000 Basic Tutorial

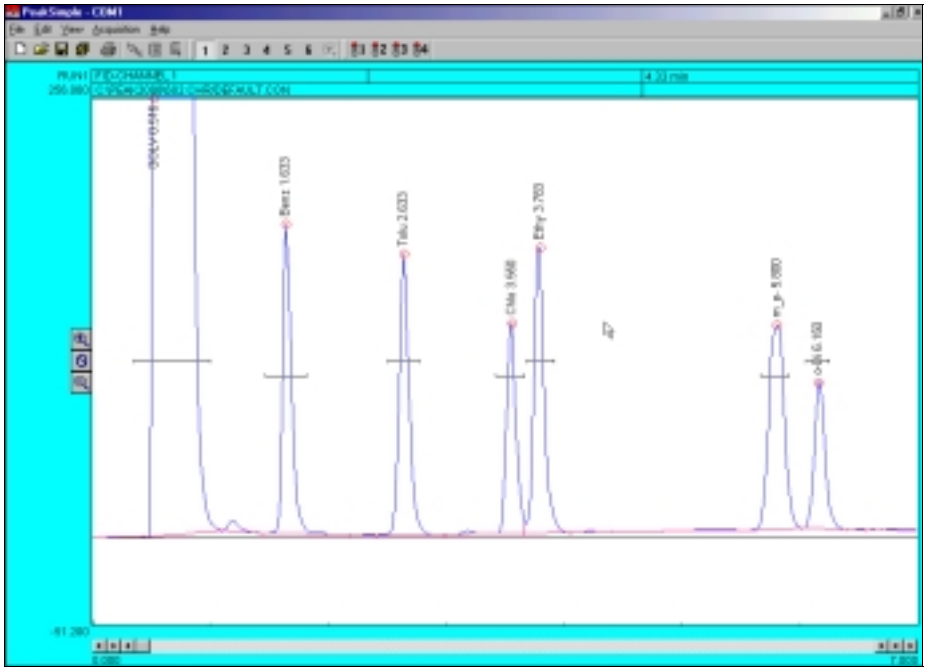
An Advanced Tutorial can be obtained by going to: www.srigc.com online

If you have questions or would like to place an order call: (310) 214-5092

PeakSimple 2000

Chromatography Integration Software

Advanced Tutorial



Installing PeakSimple 2000 from floppy disk or CD-Rom

A. Start the Windows operating system in use on your computer. (Windows 95, 98, ME, 2000)

B. Insert the PeakSimple 2000 disk or CD into your disk drive.

C. Go to the **Start** menu in the bottom left hand corner of the windows screen and select **Run** from the set of icons.

D. From the run menu, type **X:\setup** (where **X** is the letter of your computers disk drive).

E. Now click on the **Continue** button with your mouse cursor or press the enter key on your keyboard to begin installation.

F. To complete installation follow the onscreen instructions during the installation wizard.

Installing PeakSimple 2000 from software download

A. Start the Windows operating system and use an online browser to access www.srigc.com.

B. From the menu on the left hand side of the screen select **Download our Software** and then download PeakSimple 2000 from the following page.

C. Save the file to a temporary folder and then double click on it from My Computer to allow the program to self-extract.

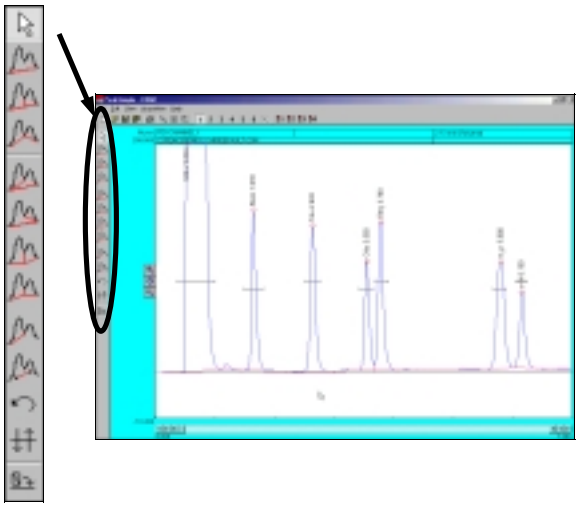
D. Once all the files have been extracted successfully double-click the install file and press the **Continue** button when prompted.

E. Follow the onscreen instructions to complete the installation of PeakSimple.

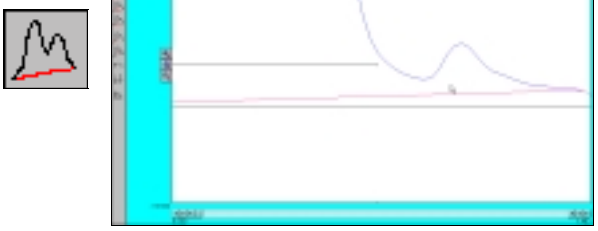
SRI Instruments 20720 Earl Street Torrance, CA 90503 U.S.A
Telephone: (310) 214-5092 Fax: (310) 214-5097 sales@srigc.com **www.srigc.com**

Manual Integration

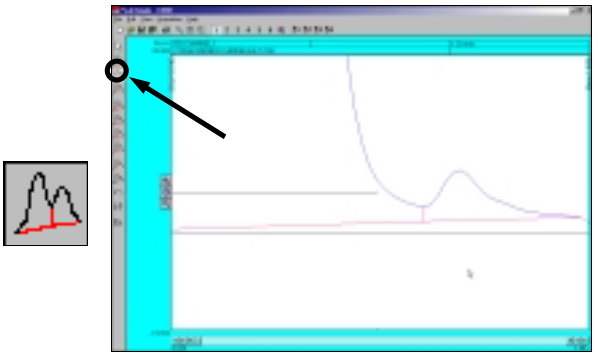
1. To manually integrate the PeakSimple baseline in a chromatogram use the manual integration tools found in the manual integration toolbar. To open the manual integration toolbar first have chromatogram 602.CHR loaded and then select **Edit** from the PeakSimple menu bar. From the drop down menu select **Manual integration** with the mouse cursor. The manual integration toolbar will now be displayed to the right of the PeakSimple toolbar in the left most part of the screen.



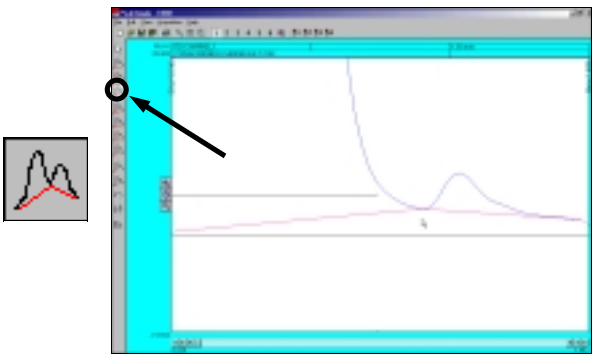
2. Use the None integration tool to add the area of the smaller peak to the area of the Solvent peak. First, zoom in on the solvent peak, the smaller peak to its right, and their baselines. Once the chromatogram is zoomed in select the **None** integration tool from the manual integration toolbar. With the None integration tool selected click once, using the left mouse button, on the valley between the solvent peak and the smaller peak.



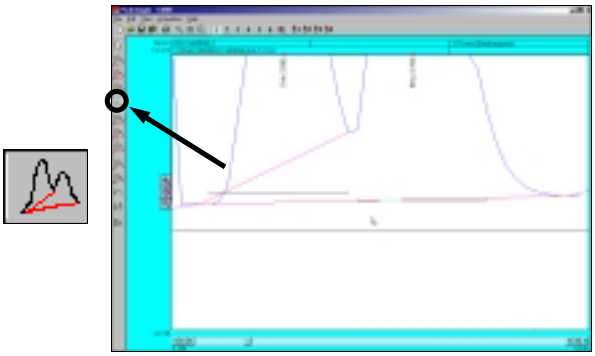
3. Use the Drop integration tool to drop the baseline from the valley of the two peaks to an existing baseline. To drop the baseline select the **Drop** integration tool from the manual integration toolbar. Using the mouse cursor, click on the valley between the solvent peak and the smaller peak to drop the baseline.



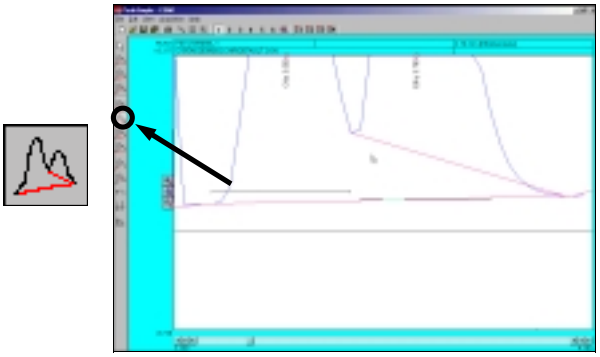
4. The Based integration tool raises the baseline to the valley between two specified peaks. With the baseline dropped, click on the **Based** integration tool button and then click on the valley between the solvent peak and the smaller peak to its right to raise the baseline to the valley.



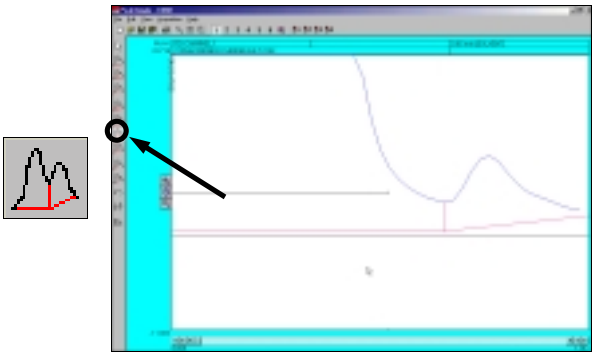
5. The Lead skim integration tool allows a peak's area to be skimmed off of the leading edge of another peak. To use the Lead skim tool first unzoom off of the solvent peak and the other smaller peak and then zoom in on the Chlorobenzene peak, the Ethylbenzene peak, and the baseline. After the chromatogram is zoomed click on the **Lead skim** integration tool button and then click on the valley between the two peaks with the mouse cursor.



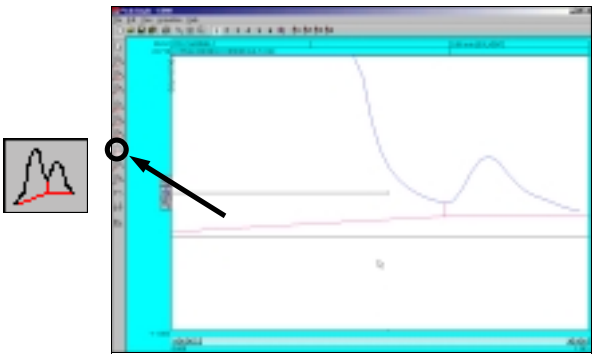
6. The Trail skim integration tool is similar to the Lead skim tool except a peak's area is now skimmed off of the trailing edge of another peak. Select the **Trail skim** tool button from the manual integration toolbar and then click on the valley between the Chlorobenzene and Ethylbenzene peaks with the mouse cursor to see the Ethylbenzene peak skimmed off of the Chlorobenzene peak.



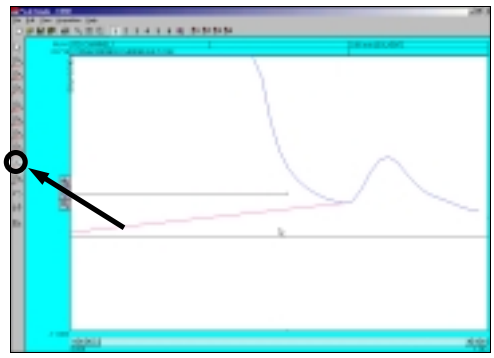
7. The Lead horizontal tool constructs the baseline horizontally for the leading peak while the trailing peak's baseline stretches from the horizontal line to the next valley. Unzoom off of the Chlorobenzene and Ethylbenzene peaks and instead zoom in on the Solvent peak, the smaller peak to its right, and the baseline. Click on the **Lead horizontal** integration tool in the manual integration toolbar and then click, using the left mouse button, on the valley between the solvent peak and the other smaller peak.



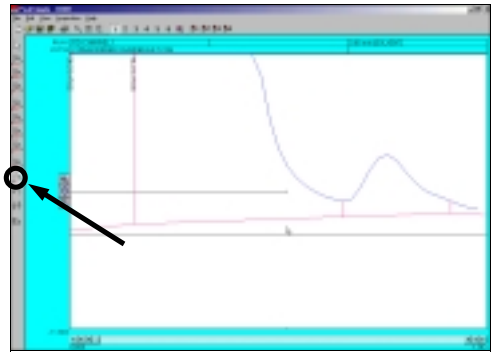
8. The Trail horizontal integration tool drops the baseline horizontally for the trailing peak while the lead peak's baseline stretches from the horizontal line to the previous valley in the chromatogram. After selecting the **Trail horizontal** tool in the manual integration toolbar click with the mouse cursor on the valley between the two zoomed in peaks.



9. The Inhibit tool ends the baseline after a valley effectively inhibiting a peak's area from being counted with the rest of the chromatogram. To use the Inhibit integration tool select the **Inhibit** tool button from the manual integration toolbar and click on the valley of the Solvent peak and the smaller peak to its right.

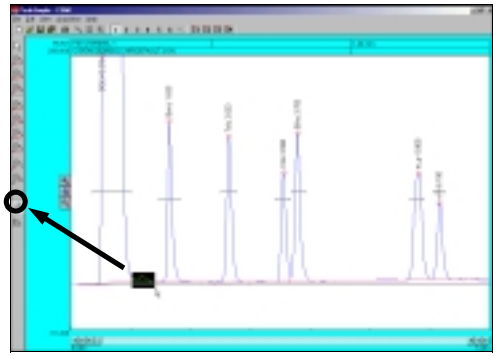


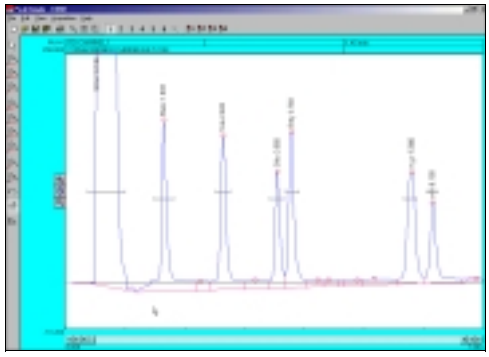
10. The Rubber Band tool is used to manually draw the baseline in a chromatogram. To use the Rubber Band tool first scroll the X-axis scrollbar all the way to the left to **0.000**. Select the **Rubber Band** tool from the manual integration toolbar and draw a line from the valley between the Solvent peak and the small peak to its left to the valley between the smaller peak to the right of the Solvent peak and the peak to its right.



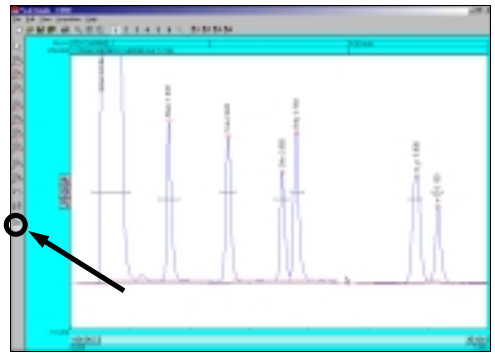
11. To undo a change made to the baseline of a chromatogram with the manual integration tools use the Undo button found in the manual integration toolbar. To undo the changes made to the baseline using the Rubber band tool click on the **Undo** button with your mouse cursor. All changes made to the baseline will now be undone.

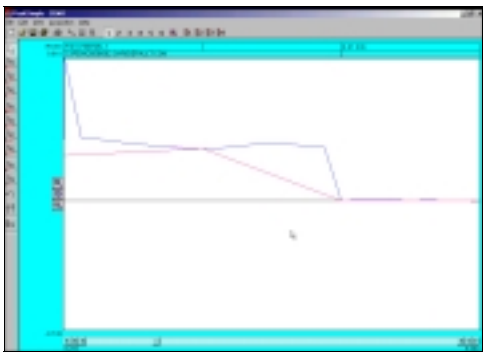
12. The Reverse tool allows the inverting of a peak in a chromatogram. ***Note:*** *To reverse the orientation of the X-axis in real time go to the Events table.* First unzoom off of the Solvent peak and the smaller peak to its right and then select the **Reverse** tool from the manual integration toolbar and click and hold the left mouse button while the area of the chromatogram you want to reverse is dragged over with a black box. Let go of the mouse button when the desired area is selected to reverse the orientation.





13. The Zero tool is used to set the value of the data line at a selected point and following in the chromatogram to zero. First undo the changes done to the chromatogram by the Reverse tool by reopening 602.CHR in the PeakSimple menu bar. ***Note:*** *Changes made to a chromatogram by the Reverse tool and the Zero tool cannot be undone with the Undo tool.* Once the file is reopened click on the **Zero** tool and click anywhere on the baseline between the Ethylbenzene peak and the two peaks to its right with the mouse cursor to set the data line at zero.

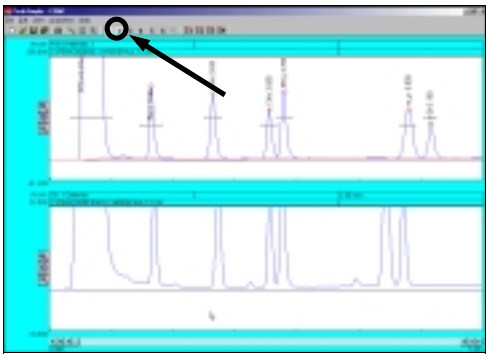


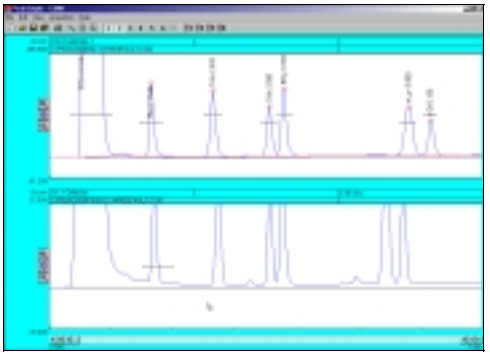


Creating Component Tables

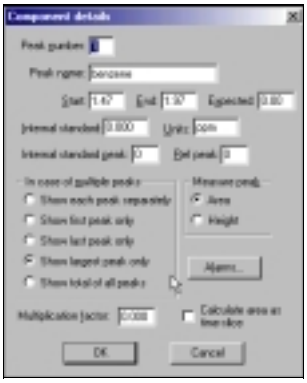
1. To create a component table from scratch open up a second channel in the PeakSimple window by clicking on the Display Channel **2** button in the PeakSimple toolbar. Once the second channel is open click on **File** and then **Open** to get to the Load chromatogram file window. Select file **FID602.CHR** from the list of files and select the Channel 2 radio button to open the file in channel 2. Click **OK** with the mouse cursor to load the file.

2. In channel 2 locate the second tall peak from the left and right click on it with the mouse cursor. From the resulting menu select **Add component** to add a retention window bar to the peak. Once again right click on the peak and select **Edit component** from the menu to open up the Component details window.

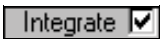


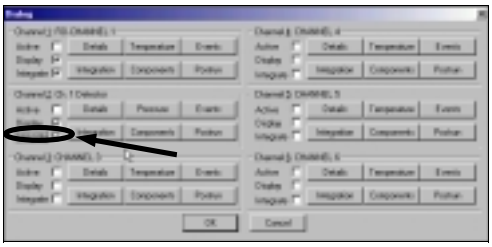


3. Once the Component details window is open locate the Peak number dialogue box and add the number **1**. Immediately underneath the Peak number box is the Peak name dialogue box. In the Peak name dialogue box input **benzene** to name it. Locate the Units box and put **ppm** to make the units parts per million. Locate the In case of multiple peaks options box and select the radio button for **Show largest peak only**. Click on **OK** with the mouse cursor to close the window.

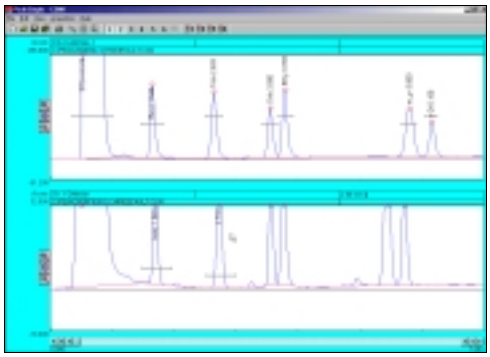


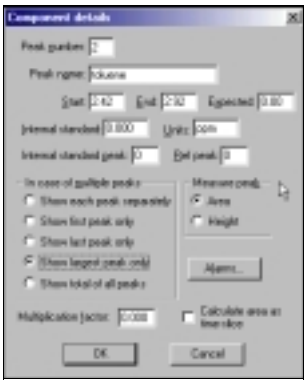
4. Go to **Edit** in the PeakSimple menu bar and then **Channels** from the resulting menu. The Channel controls window is now open. Locate the Channel 2 options box and the Integrate checkbox. Check the **Integrate** checkbox and then click on **OK** with the mouse cursor to close the window. The peak in the second channel should now identify itself as benzene.



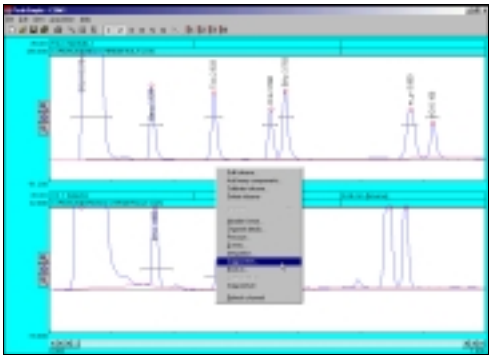


5. Locate the large peak to the right of the benzene peak in the second channel. Right click and then select **Add component** to add a retention window bar to the peak. Right click again and go to **Edit component** to open up the Component details window. Change the Peak number to **2**, the Peak name to **toluene**, the Units to **ppm**, and the In case of multiple peaks options box to **Show largest peak only**. Click on **OK** with the mouse cursor to exit the window.



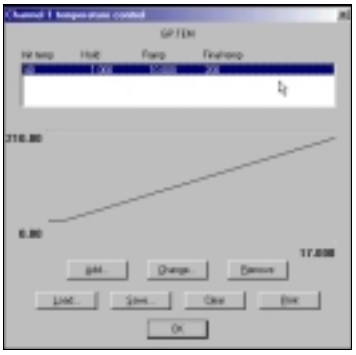


7. Right click anywhere on the second channel and select **Components** from the list of options. Once the Channel 2 components window is open make sure all the data is correct and then click on **Save** to save the Component data to disk. Name the file **Ctable** and then click on **OK** to close the window. An unlimited number of component windows may be added to the component table.



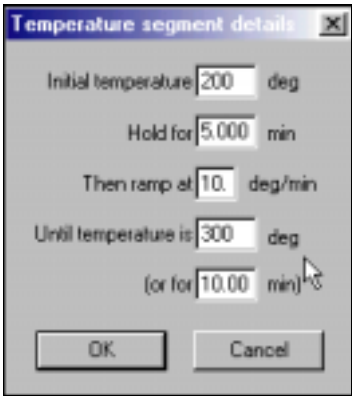
Temperature Programming

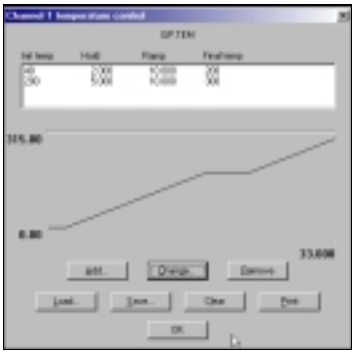
1. To modify the temperature programming in PeakSimple first open chromatogram 602.CHR and then right click anywhere on the chromatogram. From the drop down menu select **Temperature** to open up the Temperature control window.



2. In the Temperature control window click using the mouse cursor on the set of numbers in the box and select **Change** from the group of buttons below. The Temperature segment details window will open allowing the modification of the temperature programming. Locate the Hold for dialogue box and insert a **2** in the box. Click on **OK** to close the window and go back into the Temperature control window.

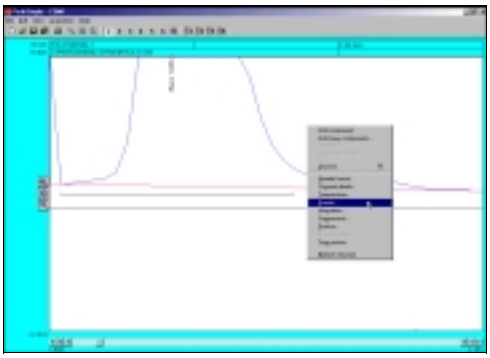
3. Select the **Add** button from the Temperature control window to open up the Temperature segment details window once again. Leave the Initial temperature at 200 and insert a **1** in the Hold for dialogue box. Change the Then ramp at dialogue box to **5** and the Until temperature is box to **250**. Click on **OK** to close the window and to see the new temperature data added to the temperature box. Click on **OK** to close the window.



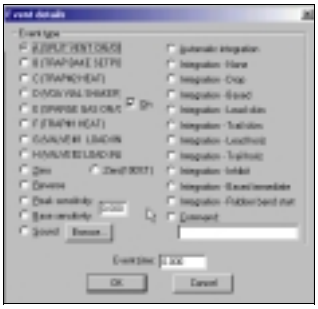


Events Table

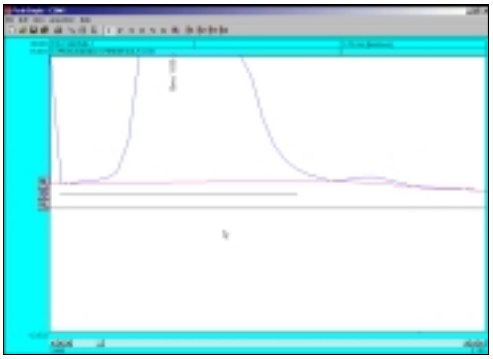
1. To modify up the Events table in PeakSimple open up chromatogram 602.CHR and zoom in on the benzene peak, the smaller peak to its right, and the baseline. Right click anywhere on the chromatogram and select **Events** from the drop down menu. Doing this will open up the Events window where specific events can be added to the chromatogram.



2. Click using the mouse cursor on the **Add** button to view the Event details window. A list of event types are available with their radio buttons to either select or deselect the event. ***Note:*** *The event types to the left of the window are real-time and thus will only affect the chromatogram when A/D hardware is connected. The event types to the right are concerned only with integration and their changes will be immediately evident after returning to the main screen and selecting* ***Reintegrate*** *from the* ***Edit*** *menu bar.*

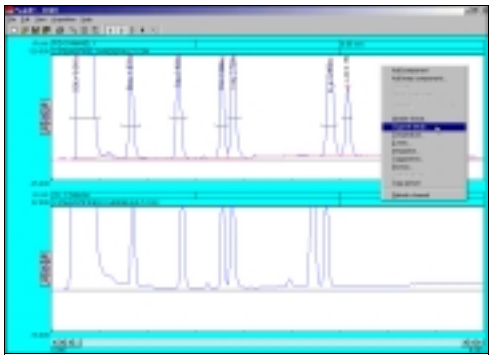


3. In the Event details window locate and select the relay **G** radio button with the mouse cursor and then locate the Event time dialogue box and enter **.1** in the box. Click on **OK** to exit the window. ***Note:*** *The relay might be used to actuate a valve when hardware is connected.* The event type will now be added to the Events table. Select the **Add** button and now locate and select the **Zero** event type radio button. Leave the Event time box at 0.000 and once again click on **OK** to exit the window and add the event to the Events table. ***Note:*** *The Zero event auto-zeros the detector signal at the beginning of the run.* Click on the **Add** button again and select the **Integration-Based immediate** radio button in the Event details window and input **1.86** in the Event time dialogue box. Select **OK** to exit the window.

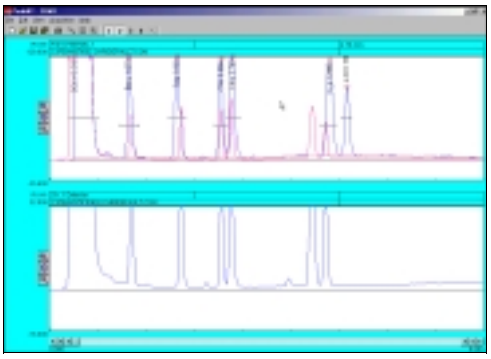


4. There are now three events in the Events table. Click on **OK** to exit the Events window and then hit the **Enter** button on the keyboard to reintegrate the baseline according to the events in the Events table. Notice that the baseline is connected to the data line at 1.86 minutes.

Overlay and Subtract

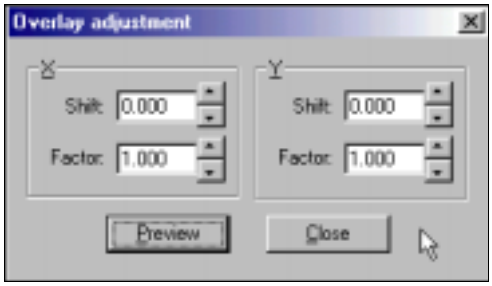


1. To overlay one PeakSimple chromatogram on top of another chromatogram open up a second channel in the main screen and load chromatogram 602.CHR in the first channel and chromatogram FID602.CHR in the second channel. Right click anywhere in the first channel and select **Channel details** from the drop down menu.



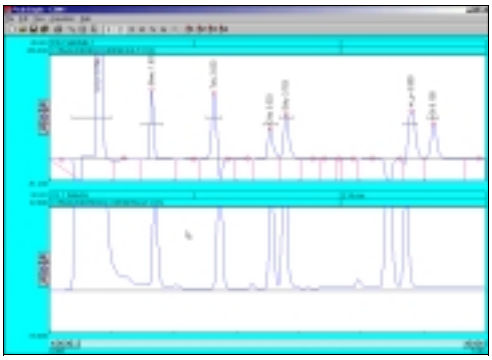
2. In the Channel 1 details window locate the Overlay data in channel checkbox and check it and then input a **2** in the dialogue box to the right. The chromatogram in channel 2 is now overlaid on top of the chromatogram in channel 1. The overlay appears in a different color.

3. Right click anywhere on the first channel and select **Overlay adjustment** from the drop down menu. In the Overlay adjustment window locate the Factor scroll box in the X box. Experiment scrolling the X factor up or down to shift the overlaid chromatogram to its right or left. Locate the Factor scroll box in the Y box and experiment scrolling the Y factor up or down to move the overlaid chromatogram up or down. Click on the **Close** button to close the window.



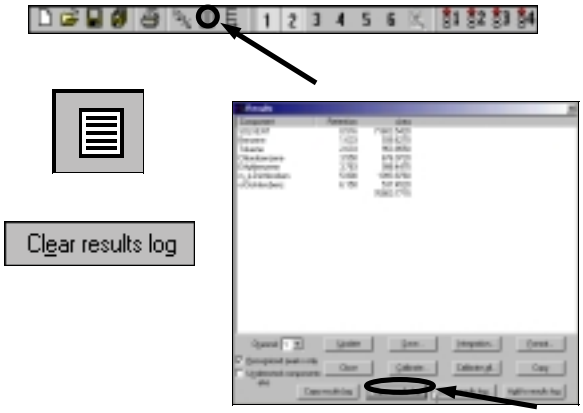
4. To subtract a chromatogram in one channel from another channel, right click using the mouse cursor on channel 1 and select **Channel details**. From the Channel 1 details window deselect the Overlay data in channel checkbox and then click on the **OK** button to exit the window.

5. Go to the **Edit** menu bar and select **Subtract/ Add channels** from the drop down menu. In the Subtract/add channels window make sure the Subtract radio button is selected and that channel 2 is being taken from channel 1. Click on the **OK** button to make the changes take effect and have channel 2 subtracted from channel 1. The normal way to use this feature is to subtract a drifting baseline from a chromatogram.



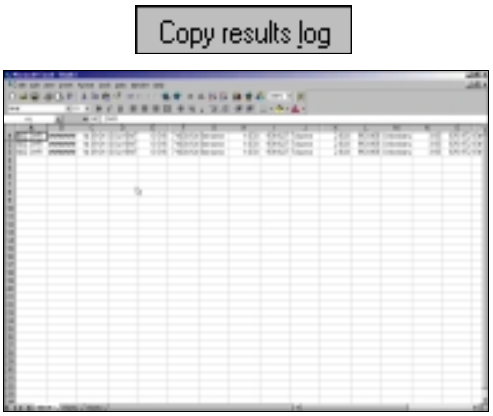
Results Log

1. Open chromatogram 602.CHR in the PeakSimple main screen and then select the **Results** button from the PeakSimple toolbar. In the Results window click on the **Clear results log** button at the bottom of the window. Click on **Yes** from the resulting window to clear the results.

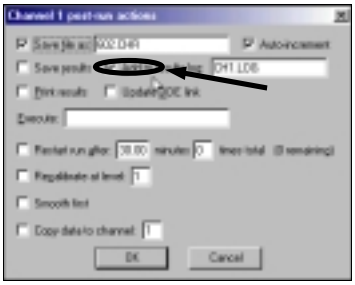


2. Locate the **Add to results log** button and click on it three times to add the results on the screen to the Results log three times. Click on the **Show results log** button to view the results log in the Windows Notepad. Exit the Windows Notepad program by selecting **File** from the menu bar and then **Exit**.

3. In the Results window locate the **Copy results log** button at the bottom of the window and click on it with the mouse cursor (don't confuse the Copy button with the Copy results log button). Open up Microsoft Excel (or if Excel is not loaded Microsoft Word or PowerPoint) and select **Edit** from the menu bar and then **Paste** to copy the results log to Excel.



4. Go back into PeakSimple and close the Results window by selecting the **Close** button. Right click using the mouse cursor on the chromatogram and select **Postrun** from the drop down menu to open the Post-run actions window. From the window locate the Add to results log checkbox and add a check to the box. By selecting the Add to results log checkbox all results from data analysis will automatically be added to the results log after the run is done. Click on **OK** to exit the window. In this way a summary of many analyses can be automatically created and then exported from PeakSimple.



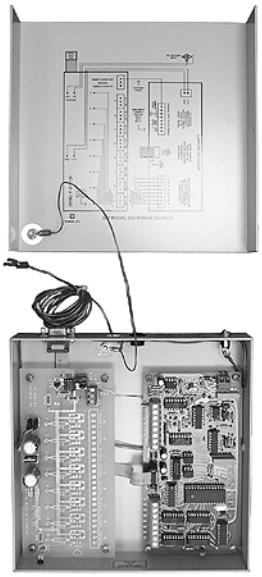
This concludes the PeakSimple 2000 Advanced Tutorial

Further documentation can be obtained by going to:
www.srigc.com online

If you have questions or would like to place an order call:
(310) 214-5092

Quick Start

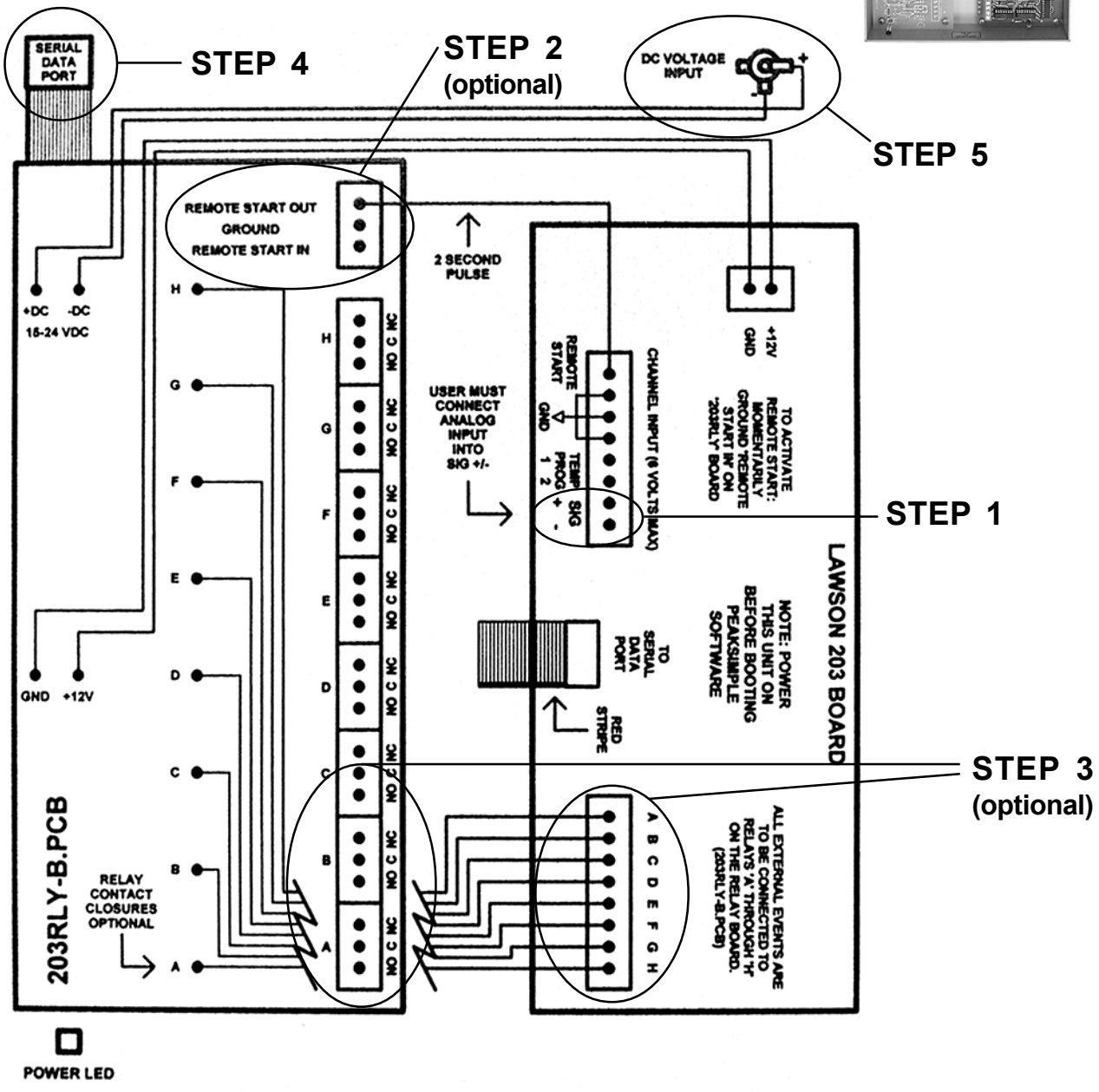
Model 203
Single Channel PeakSimple Data System



The Model 203 may be used with any brand or model of GC or HPLC offering an analog detector output signal ranging from 0-5V. It includes two independent, programmable controls (0-5V analog output) for temperature & pressure or HPLC gradient formation. A remote start input compatible with 2-wire switch closures (typically output by GCs and HPLCs as a remote start signal) is also included for your optional use.

Open the Model 203

Verify that the Model 203 is not plugged into a wall socket and is therefore powered OFF (no power switch). Remove the thumbscrews on both sides of the Model 203 box and slide the top cover up and off. It is connected to the bottom of the box by the ground wire, so just set it next to the bottom half of the box. There is a wiring diagram of the Model 203 circuit boards and all wiring connections on the inside of the top cover. Use this wiring diagram (shown below) to complete steps 1-5 as described on the following pages.



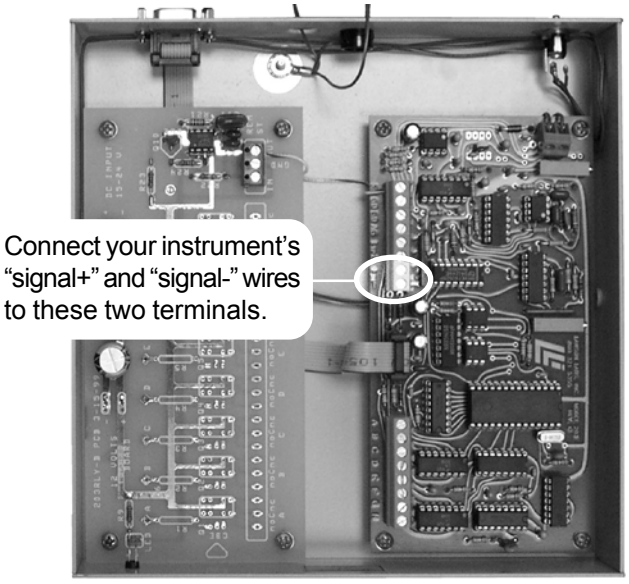
Quick Start

Model 203
Single Channel PeakSimple Data System

STEP 1: Connect the Analog Signal Cable

1-1. Route the analog signal cable from your instrument through the open hole in the back of the Model 203.
1-2. Strip 1/4" of insulation from the "signal+" and "signal-" wires of your instrument's signal cable.

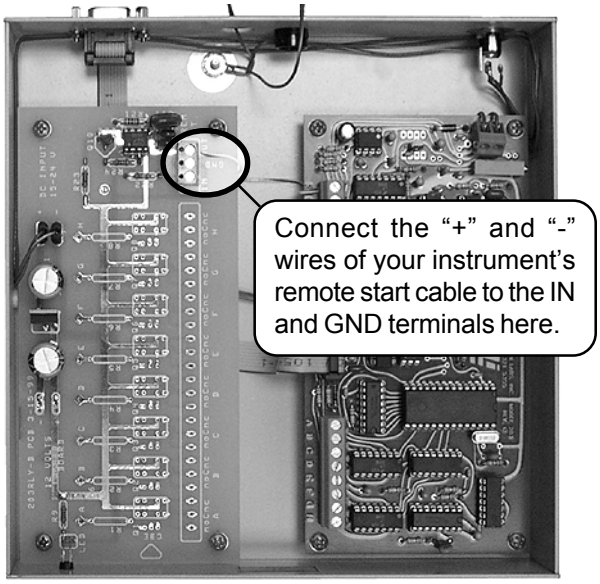
Route wires through this hole



1-3. Insert "signal+" into the Lawson 203 board screw terminal marked "signal+" and secure the connection with a small flat-blade screwdriver.
1-4. Insert "signal-" into the Lawson 203 board screw terminal marked "signal-" and secure the connection.

STEP 2: (OPTIONAL) Connect the Remote Start Cable

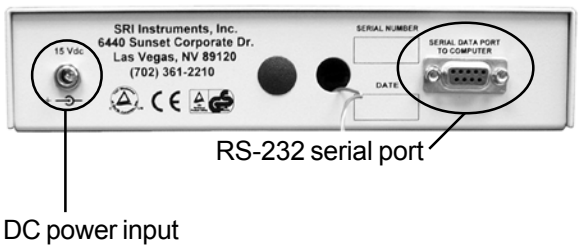
The Model 203 remote start capability allows you to start the data system by means of a switch closure. In some applications, the chromatograph being used with the Model 203 may offer a remote start signal output or switch closure output that permits starting an integrator or other device when the START button is pressed on the chromatograph's on-board control panel. Typically, this signal can be used to start the Model 203.
2-1. Route the remote start cable from your instrument through the open hole in the back of the Model 203.
2-2. Strip 1/4" of insulation from the "+" and "-" wires of your remote start cable.
2-3. Insert the "+" wire into the 203RLY board screw terminal marked "IN" and secure the connection.
2-4. Insert the "-" wire into the 203RLY board screw terminal marked "GND" and secure the connection.



Replace the Model 203 cover and secure it with the thumbscrews.

STEP 3: Connect the Serial Cable to Your Computer

The Model 203 is equipped with a RS-232 serial port. A DB-9 type serial cable (provided) connects the Model 203 to your Windows™ computer through the PC's COM port. This simple interface permits the Model 203 to be operated from a desktop or laptop computer.



3-1. Secure one end of the serial cable to an available COM port on your PC.

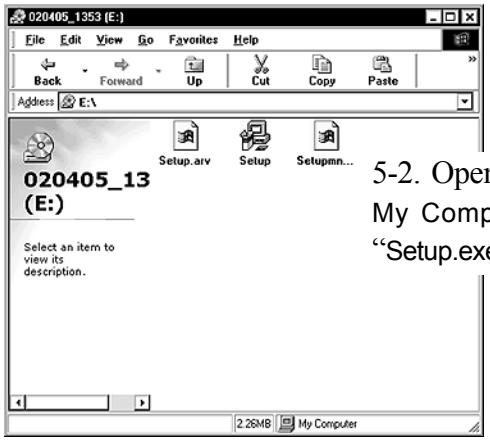
3-2. Secure the other end to the RS-232 serial port on the back of the Model 203.

STEP 4: Connect Power to the Model 203

Model 203 units are provided with a 15 V DC power supply which plugs into a standard wall volt outlet. Plug the power supply output plug into the back of the Model 203 and plug the power supply into the wall outlet. Verify that the POWER LED on the front of the Model 203 is lit.

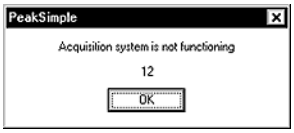
STEP 5: Install PeakSimple Chromatography Software

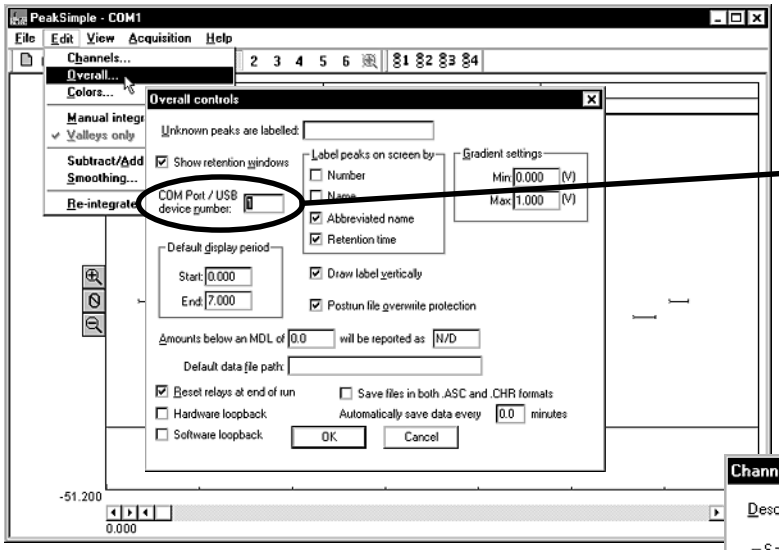
5-1. Locate your copy of the PeakSimple software, which is shipped inside the front cover of your SRI manual. Insert the CD or floppy disk(s) into your computer's appropriate drive.



5-2. Open the appropriate drive through My Computer, then double click on "Setup.exe" and follow the instructions.

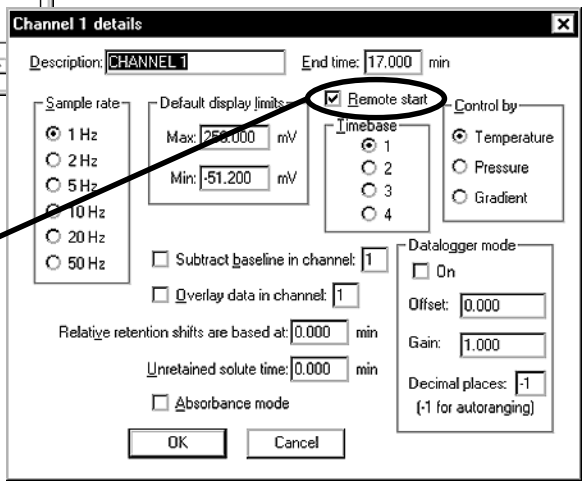
5-3. Double-click on the PeakSimple icon to launch the program. Verify that communication has been established between your computer and the Model 203. An error message will appear if communication is not established.





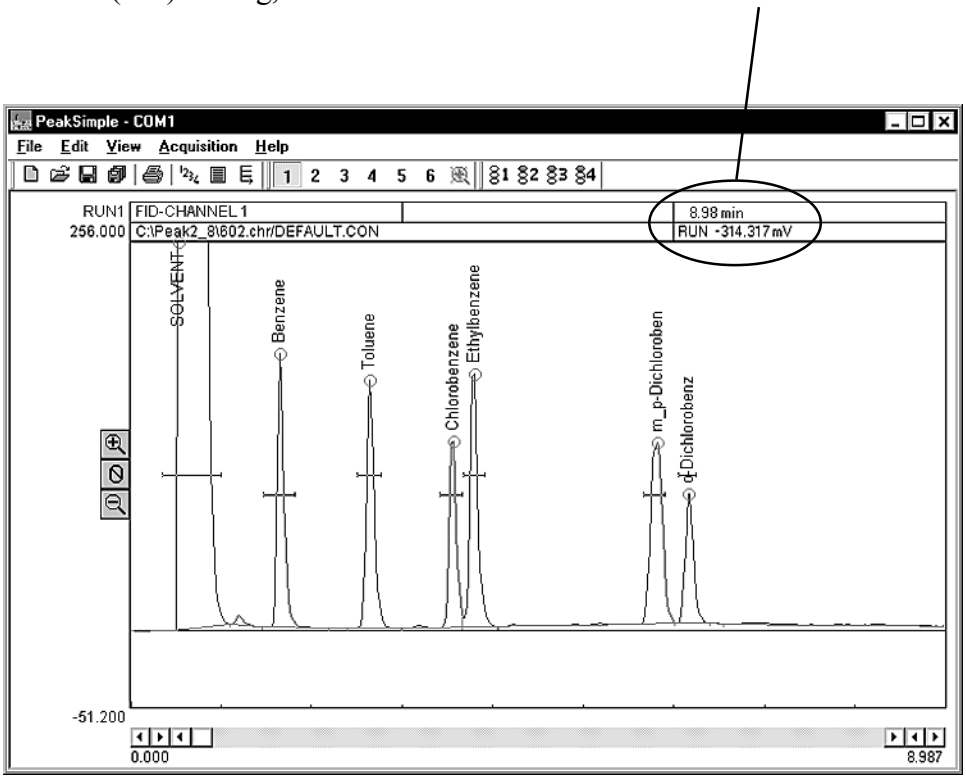
5-4. PeakSimple defaults to COM 1. If you did not connect the Model 203 to COM 1, you will get the error message. Open the Edit menu and choose Overall. In the dialog box that appears, enter the number of the COM port to which you have connected the Model 203. If you do not know the number of the COM port to which you connected the 203, use the process of elimination: try different numbers until you find one that works.

5-5. For the remote start option:
Open the Edit menu and choose Channels. Click on the Details button for channel 1. Verify that Remote start is enabled (the box should be checked).



STEP 6: Starting an Analysis

6-1. The upper right corner of the PeakSimple chromatogram window contains real-time information pertinent to your analysis in progress. The status of the run (RUN, STAND BY) is displayed in capital letters next to the millivolt (mV) reading, underneath the amount of time into the run.



6-2. Hit your computer keyboard spacebar to begin the run, and the data is plotted onscreen in the chromatogram window.

6-3. Hit the End key on your computer keyboard to stop the run.

More on PeakSimple:

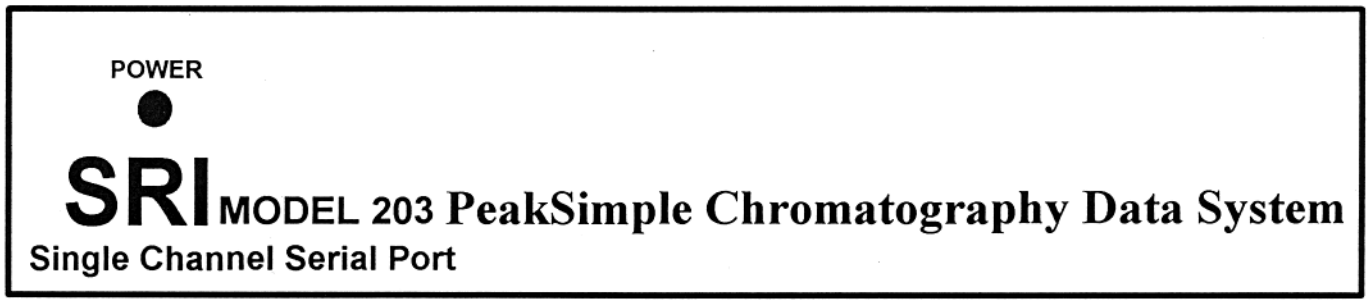
This Quick Start guide presents a very brief introduction to PeakSimple. There are tutorials in the manual and online at www.srigc.com (click on the "Download Our Documents" button) that will acquaint you with PeakSimple's basic functions.

If you have questions or problems, call SRI for free technical support at 310-214-5092, 8am - 5pm California time.

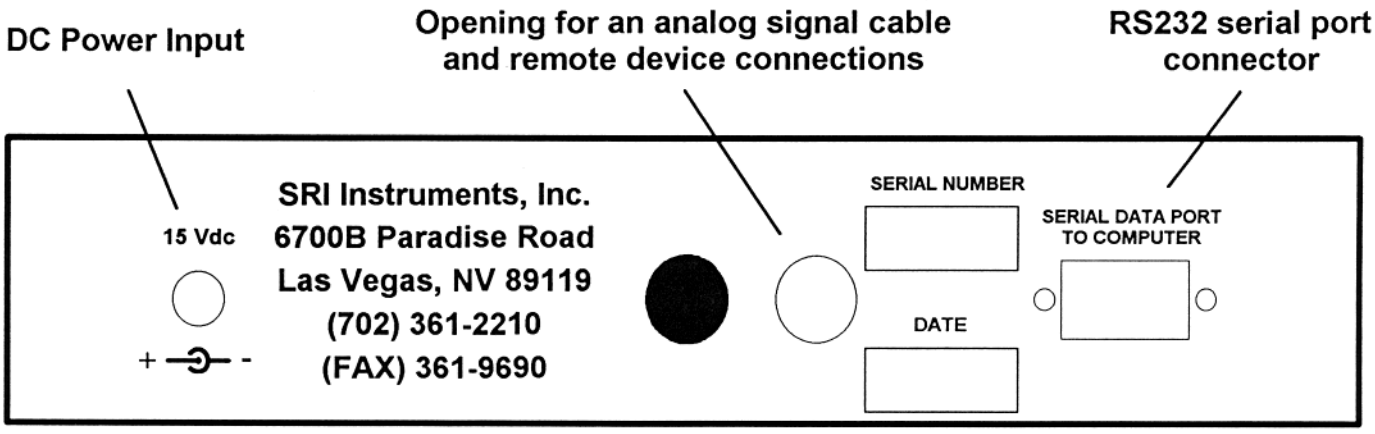
Chapter: MODEL 203 DATA SYSTEM HARDWARE

Topic: Model 203 Hardware Orientation

The SRI Model 203 PeakSimple Chroatography Data System is a single channel, analog to digital converter, controlled by our powerful PeakSimple Software. The Model 203 may be used with any brand or model of HPLC or gas chromatograph offering an analog detector output signal.
The Model 203 also features two independent, programmable controls which can be used for temperature and pressure ramping or HPLC gradient formation. There is also a Remote Start input that is compatible with two-wire switch closure signals typically output by GCs and LCs as a remote start signal.
Eight TTL outputs (0 to 5 volts) for computer control of external events come standard with the Model 203. If TTL outputs are not adequate for your application, the Model 203 can also be ordered with optional relay circuits offering normally open (NO) and normally closed (NC) switch closures.



(front view)



(rear view)

The Model 203 comes with a built-in serial interface for connection to your desktop or laptop computer's COM Port. (See the "PeakSimple For Windows" section in this manual for minimum system requirements.)

You should have received the following with your Model 203 purchase:

(1) Model 203 PeakSimple Chromatography Data System Box
(1) Serial Data Interface Cable for connection to your computer's COM Port
(1) 15 Volt dc Wall Transformer
(1) PeakSimple For Windows software package
(1) PeakSimple Chromatography Data System Manual

Chapter: MODEL 203 DATA SYSTEM HARDWARE

Topic: Model 203 Installation Connections

To connect the Model 203 to your computer it will be necessary to access connection terminals inside the Model 203 Box.
Verify that NO POWER is applied to the unit before performing the following procedure!!
Remove the thumbscrews on either side of the Model 203 Box and carefully slide up the top cover and set it aside. Figure 1, (below), depicts the layout of the Model 203 circuit boards and all wiring connections. To connect your system to the Model 203 Data System; please complete Steps 1 Through 6 as shown below and described on the following pages.

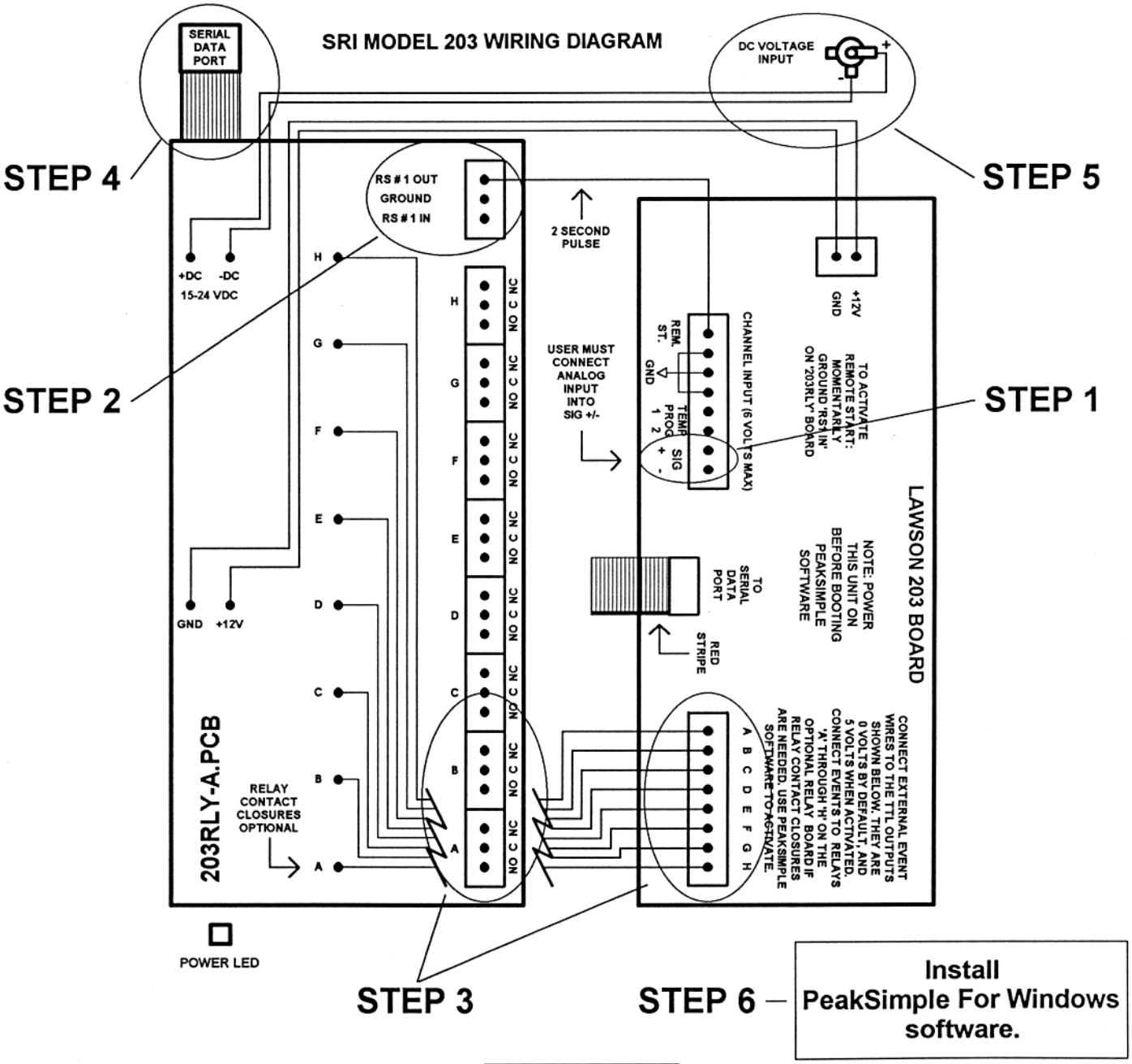


FIGURE 1

Chapter: MODEL 203 DATA SYSTEM HARDWARE

Topic: Model 203 Installation Connections

STEP 1: Connecting the analog signal cable:

NOTE: The analog output from some GCs or LCs can have a range of up to 10 volts dc. Although the Model 203 will allow high voltage inputs such as this; be advised that signals above 6 volts will generate unwanted noise and signals above 5 volts will be "clipped". (The tops of the waveforms will be cut off.)

Route the analog signal cable from your instrument through the open hole in the back of the Model 203.
Strip 1/4" of insulation off of the 'signal +' and 'signal-' wires of your signal cable.
Insert 'signal +' into the Lawson 203 board screw terminal marked 'sig +' and secure the connection using a small screwdriver.
Insert 'signal -' into the Lawson 203 board screw terminal marked 'sig -' and secure the connection using a small screwdriver.

STEP 2: (OPTIONAL) Connecting the remote start cable:

NOTE: The Model 203 offers a remote starting capability as a standard feature. This permits the user to start the data system by means of a switch closure, such as a footswitch. In some applications, the chromatograph being used with the Model 203 may offer a remote start signal output or switch closure output that permits starting an integrator or other device when the START button is pressed on the chromatograph's on-board control panel. Typically, this signal can be used to start the Model 203.

Route the remote start cable from your instrument through the open hole in the back of the Model 203.
Strip 1/4" of insulation off of the '+' and '-' wires of your remote start cable.
Insert '+' into the 203RLY board screw terminal marked 'IN' and secure the connection using a small screwdriver.
Insert ' -' into the 203RLY board screw terminal marked 'GND' and secure the connection using a small screwdriver.
NOTE: Be sure to check the "Remote Start" box in the PeakSimple For Windows EDIT - CHANNELS - DETAILS screen for channel 1.
Refer to the "PeakSimple For Windows" section of this manual.

STEP 3: (OPTIONAL) Connecting the external event relay wires:

The Model 203 features eight 0-5 volt TTL Level outputs that may be turned on and off individually and automatically by means of a timed event table.
Manual control is also available via the keyboard.
These outputs may be used to control external events or devices. If TTL level outputs are not adequate for your application, the Model 203 can be fitted with eight relay circuits offering normally open (NO) and normally closed (NC) contact closures. NOTE: Relay contact closures must be specifically requested at the time you order the Model 203.

STEP 3: (Continued)

Route the external event wires from your instrument through the open hole in the back of the Model 203.
Strip 1/4" of insulation off of each wire. Select which device should be connected to events 'A' through 'H' and insert the wire into the appropriate screw terminal and secure the connection using a small screwdriver.
Refer to the PeakSimple Software section of this manual for setting up event tables, keyboard activation, etc.

STEP 4: Connecting the Serial Data Interface cable to your computer:

The Model 203 is equipped with a RS-232 serial port. A DB-9 type serial cable (provided) connects the Model 203 to your personal computer through the PC's COM port. This simple interface permits the data system software to be loaded onto, and operated from, either a desktop or notebook PC for portability in field operations.
Secure one end of the Serial Data Interface cable to an available COM port on the Back of your PC. Secure the other end to the DB-9 connector on the back of the Model 203. (Refer again to Figure 1 for location of the Serial Data port.)

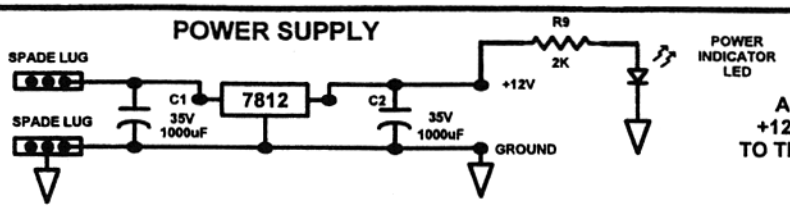
STEP 5: Connecting power to the Model 203:

Slide the top cover back onto the Model 203.
Secure the cover with the two thumbscrews.
The Model 203 requires a minimum input of 14.8 V dc to operate.
110 volt units are provided with a 15 V dc transformer which plugs into a standard 110 volt outlet. To avoid damaging the unit; plug the transformer output plug into the back of the Model 203 first and THEN plug the main transformer into the wall outlet. Verify that the POWER LED on the front of the Model 203 is lit.

STEP 6: Installation of PeakSimple Software:

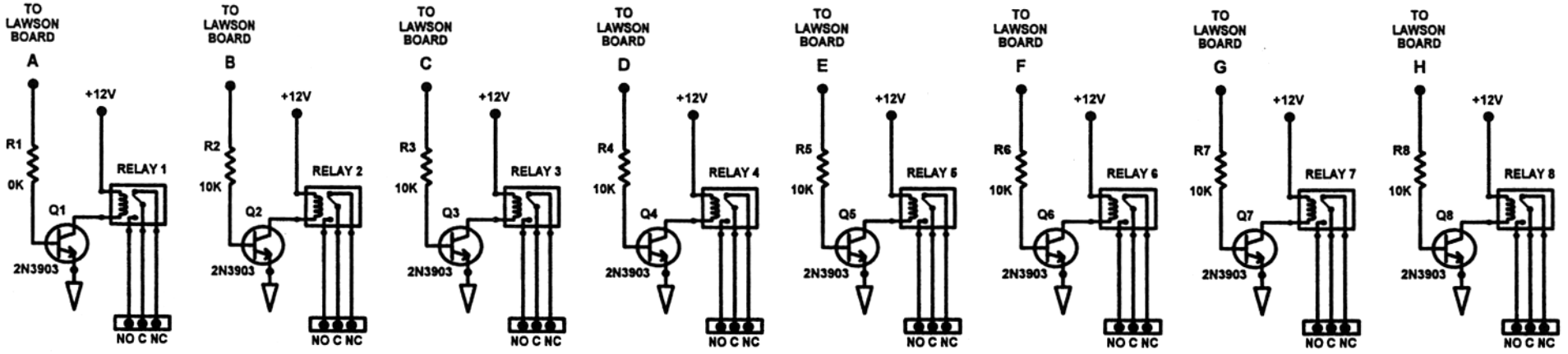
Refer to the "PeakSimple For Windows" section of this manual for details on proper installation and operation.

POWER SUPPLY



15 - 24 Vdc INPUT FROM
WALL TRANSFORMER

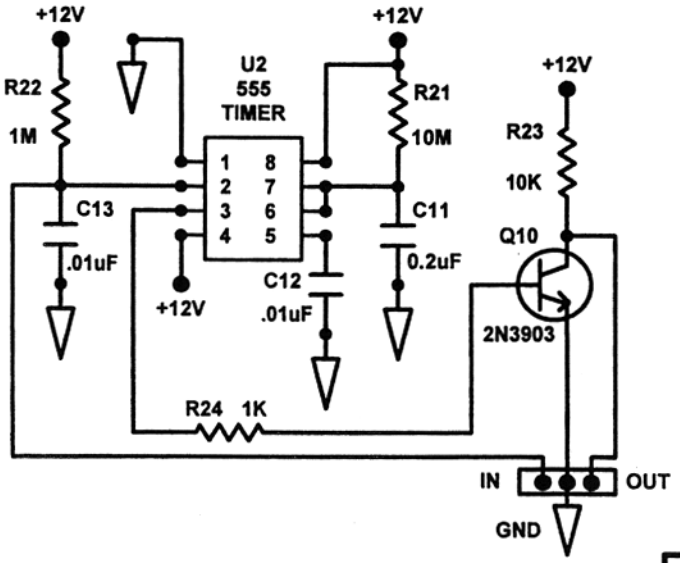
ALSO SUPPLIES
+12 V AND GROUND
TO THE 203 A/D BOARD



OPTIONAL RELAY CIRCUITS:
USED WHEN A CONTACT CLOSURE
IS NEEDED FOR ACTIVATION
OF EXTERNAL DEVICES.

REMOTE START CIRCUIT

(MOMENTARY GROUNDING OF THE INPUT
PRODUCES A 2 SECOND NEGATIVE GOING PULSE
ON THE OUTPUT WHICH TRIGGERS THE
203 A/D BOARD REMOTE START FUNCTION.)



		203RLY-B SCHEMATIC
Page 1 of 1		
Filename: 203rly.tcw	Date: 12/20/97	By: R. Fenske
	Rev. Date: 4/21/03	By: M. Watts