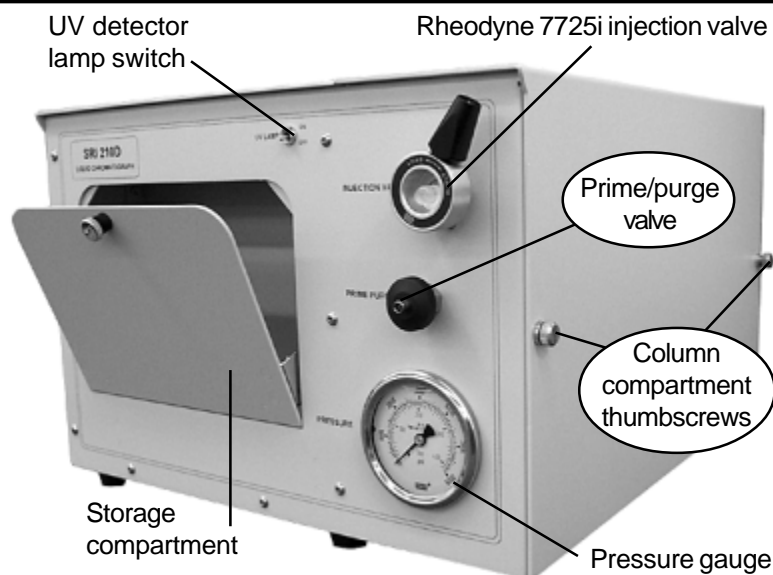


HPLC Model 210D

1. Overview

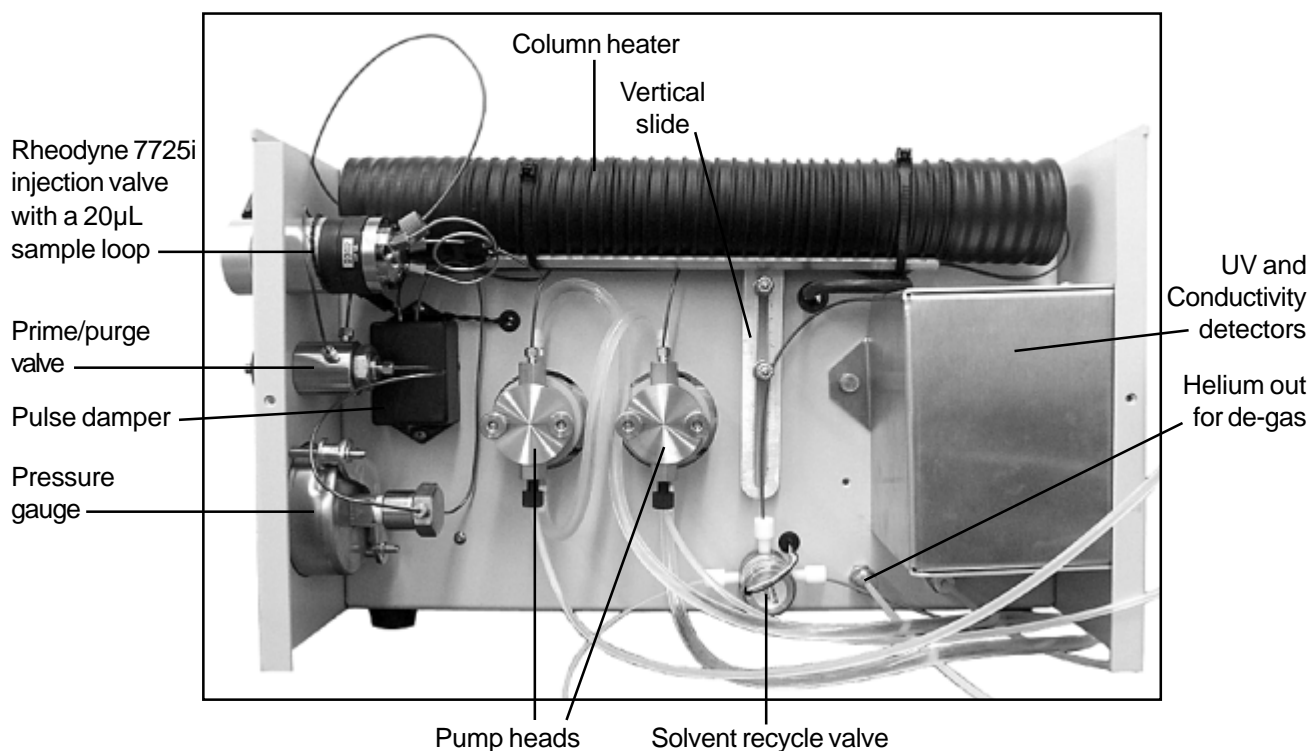
The Model 210D front panel houses the UV detector lamp switch, Rheodyne injection valve, prime/purge valve, pressure gauge, and the storage compartment. Inside the storage compartment, an accessories kit is included with your 210D. In the kit is an extra finger tight nut, an extra 1/16" fitting and ferrule (found in various connections throughout the system), a flange fitting and ferrule for the Solvent Recycle Valve, a 20mL prime/purge syringe, a 3mL injection syringe, and a 100µL injection syringe.



Accessories kit



On the right hand side of the 210D is the column compartment, which gives you access to the column heater, pump heads, solvent recycle valve, and the detector housing. Open the column compartment by loosening the two captive thumbscrews and lifting off the cover. Use the picture below to familiarize yourself with the interior of the column compartment.

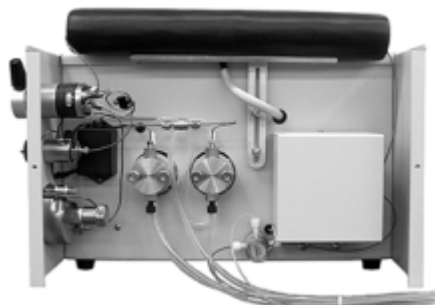


HPLC

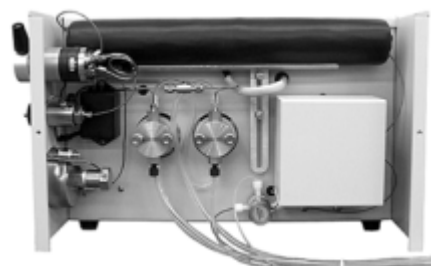
Model 210D

2. Installing a Column

Slide the column heater up. Install the column of your choice using the included PEEK finger tight nuts. Secure one nut, then slide the column into the column heater. Attach the second nut. Replace the black column heater end caps, which have notches in them for the PEEK tubing. Slide the column heater back down into the operating position.

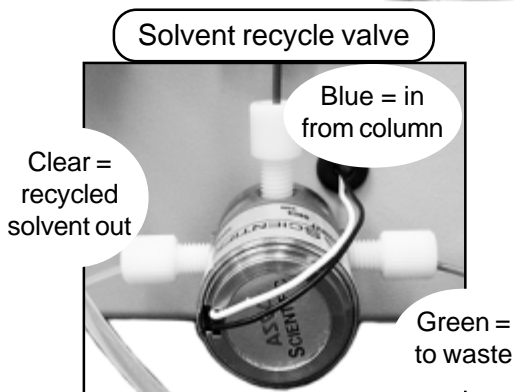


Slide the column heater up to install the column, then slide it back down to operate the 210D.



3. Solvent Set-up

The pump heads each have an 1/8" solvent inlet line. The helium degas line is also 1/8". Place these ends of three lines in your solvent bottle. The solvent recycle valve has two outlet lines. Put the end of the 1/16" clear line into it's own bottle—this is recycled solvent. Place the end of the 1/16" green line into a waste receptacle (like an empty bottle).

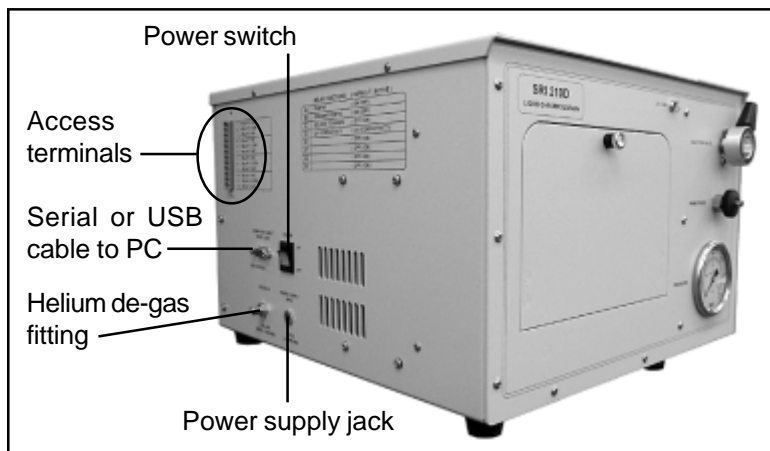


4. Helium De-gas

On the left-hand panel of the 210, there is a 1/8" fitting labeled "DEGAS IN." Connect your supply of helium to this fitting. Set the helium pressure to about 15psi (1 bar). You should be able to see helium bubbling through the solvent from the helium de-gas line. Turn the inlet pressure up or down for more or less flow.

5. Computer Connection

Connect your HPLC system to your Windows™ computer with the provided serial or USB cable. The cable port connection is located on the left-hand side of the 210D.



6. Power Supply

Your 210D comes with its own 12 volt power supply. Plug the small power source cord into the jack on the left hand side of the LC. Plug the larger power cord into a GFCI (ground fault circuit interrupter) wall outlet. Turn the power ON with the power switch, located above the power supply jack.

7. Installing PeakSimple software



You will find your PeakSimple installation disk just inside the front cover of your manual. Install the PeakSimple software by inserting the PeakSimple CD into the CD-ROM drive of your Windows™ computer. Double-click on My Computer, then open the CD-ROM drive. Double-click on the “setup.exe” program icon and follow the instructions.

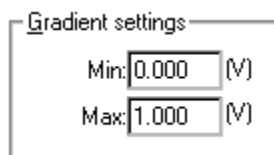
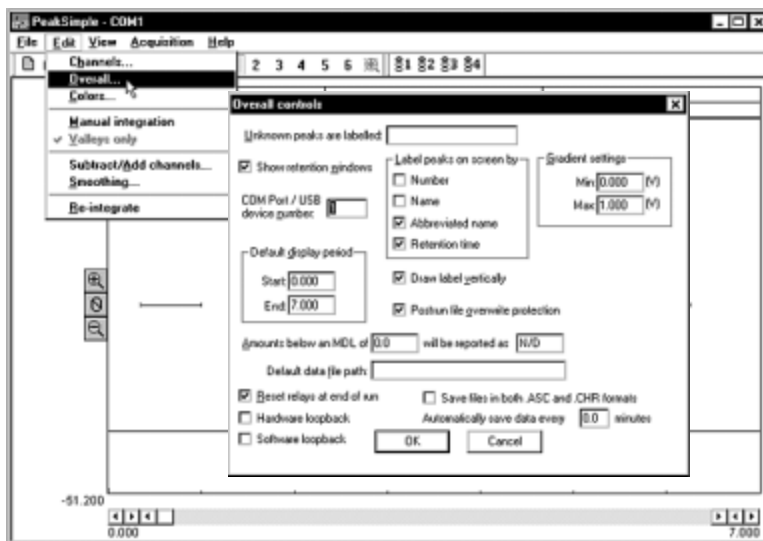


Configuring PeakSimple for HPLC



8. Double-click on the PeakSimple icon to launch the program. Verify that communication is established between the computer and the pump. An error message will appear if communication is not established.

9. Verify that the correct I/O port is specified in the Edit/Overall screen. By default, COM 1 is entered in the Edit/Overall screen because many Windows™ computers have COM 1 designated as the serial port. Other computers may use COM 2, COM 3, or COM 4. You may have to examine the My Computer/System screen to determine what serial port numbers Windows™ has assigned to the hardware in your particular computer. USB numbers are unique to each instrument, and is printed on the instrument and your PeakSimple disk.




10. Also in the Edit/Overall screen, verify the Gradient Settings. The Min: field should be set to 0.00, and the Max: field should be set to 1.00. These are the defaulted settings in PeakSimple.

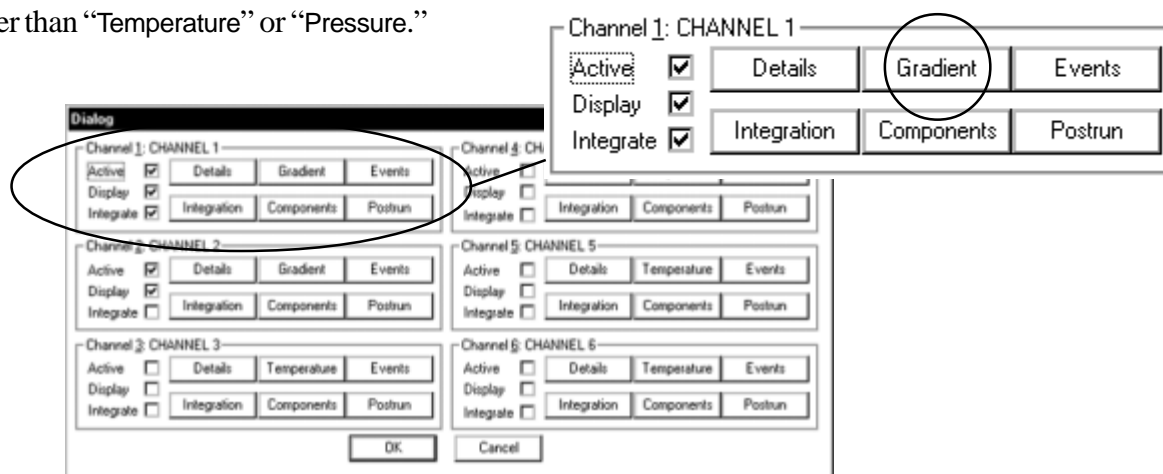
HPLC

Model 210D

Configuring PeakSimple for HPLC *continued*

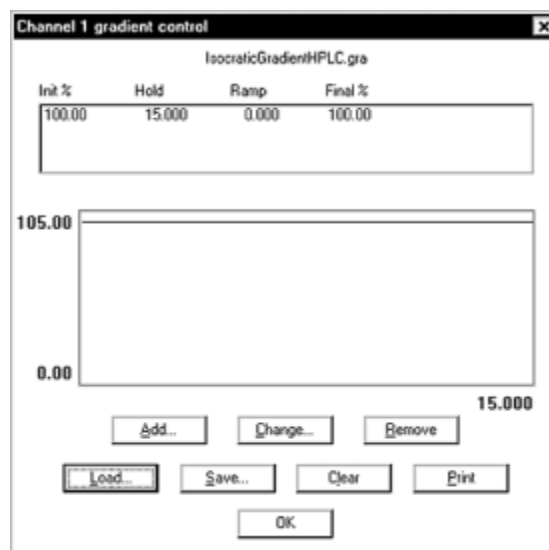
11. Open the Channel Details for Channel 1 by right-clicking anywhere in that channel's chromatogram window and choosing "Channel Details" from the pop-up menu. Select the Gradient radio button in the "Control by" area. This tells PeakSimple that it is controlling an HPLC pump rather than a GC column oven or EPC (electronic pressure controller).

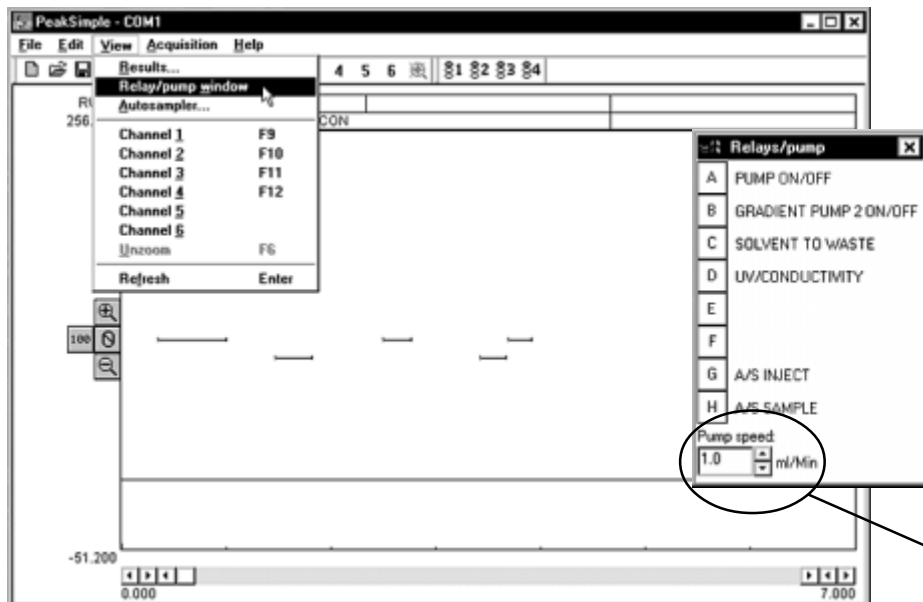
12. Open the Channel Control screen in PeakSimple by clicking on Edit then Channels, or by clicking on the numbered icon  in the main menubar. Verify that the top middle button for Channel 1 displays "Gradient" rather than "Temperature" or "Pressure."



13. Setting a Gradient Program

Click on the Gradient button for Channel 1. Since this system is isocratic, the Initial and Final percentages are 100%. The only variable is the Hold time period, which is determined by the length of your analytical run. Setting a gradient program automatically starts the pump.





Setting a Gradient Program *continued*

14. Click on the View menu and choose Relay/pump window to display the pump control window. The flow rate of the pump can be adjusted in units of mL/minute using the dialog box at the bottom of the window. Since you haven't primed it yet, click on Relay A to turn the pump OFF.

Pump speed

15. Solvent Recycle Control

Relay C controls the Solvent Recycle Valve. When Relay C is ON, the solvent is directed to waste. Turn Relay C ON before any peaks appear onscreen, and turn it OFF at the end of the run. Click on Relay C in the pump control window to turn it ON and OFF, or use an event table to do it automatically.

Time	Event
0.500	C ON (SOLVENT TO WASTE)
15.000	C OFF (SOLVENT TO WASTE)

Example event table



16. Priming the Pump

Open the prime/purge valve by turning it to the left, then start the pump by clicking on Relay A in the pump window. Insert the priming syringe into the prime/purge valve and gently pull back the plunger. When you can slowly pull a bubble-less stream out of the prime/purge valve, close the valve by turning it back to the right. The pressure should begin building to operating range, which is dependent upon the flow rate, solvent viscosity, and the back pressure of the column selected. When the system stabilizes at the

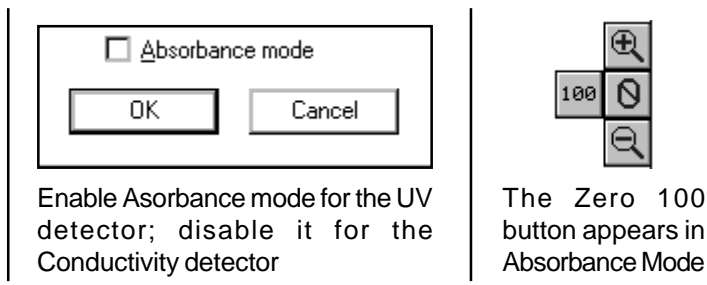
operating pressure range, you may inject your sample. It is normal for the pressure gauge needle to fluctuate with the pump stroke.

HPLC

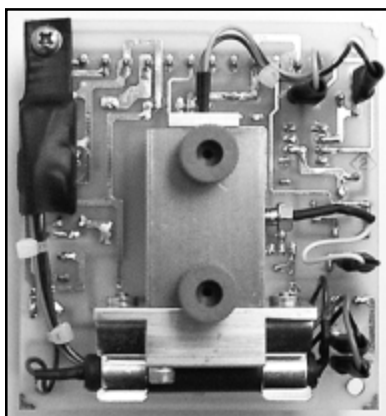
Model 210D

17. UV Detector

The UV detector is the default active detector (Relay D OFF). Turn ON the UV lamp switch. Right-click in the chromatogram window and choose “Channel details” from the menu that pops up. Near the bottom of the Channel details screen is a checkbox labeled “Absorbance mode.” Click the checkbox to enable Absorbance mode for the UV detector. In Absorbance mode, there is a Zero 100 button in addition to the Auto Zero button. The Zero 100 button is used in Absorbance mode only to zero the signal with just the solvent flowing (this is 100% transmission).



Both detectors are housed in the cell in the middle of this board.



18. Conductivity Detector

In a standard single channel configuration, both the UV and conductivity signal cables are connected to the same channel through a relay. In a multi-channel system, each detector is connected to an individual channel, and you can collect data from both detectors simultaneously. To use the conductivity detector in a standard system, activate Relay D (Relay D ON) by clicking on the letter D in the pump control window. Make sure Absorbance mode is disabled in the Channel details screen for Channel 1. To stay in conductivity detector mode, open Edit/Overall from the main menu bar and deselect “Reset relays at end of run.” A relay is assigned to the conductivity detector because of the standard, single channel data system that comes with the Model 210.

19. Adjusting the Detector Cell and Column Temperatures

The detector cell which contains both the UV and Conductivity detectors can be adjusted from ambient to 50°C. The column heater may be adjusted from ambient to 75°C. Both temperatures are adjusted with trimpots on the power supply board. Remove the 210D top cover to access the power supply board. It is near the back of the LC, just in front of the green Lawson (data system) board. Using a voltmeter, measure the voltage to chassis ground to determine the setpoint and actual temperatures. 0.5 volts is equivalent to 50°C, 0.7V to 70°C, etc. *Continued on the next page...*

