

# Chemistry Lab Cookbook

## Dionex DX-120 Installation, v210.0

**Instrument:**

Dionex DX-120

ODP #: 04995

Model #: DX-120

**Website:**

<http://www.dionex.com>

**Software:**

Peaknet, v3.9

**Documentation Available:**

Document Name/Title/Number	Source	Version	Associated Instrument(s)	Associated Measurement(s)
Dionex DX-120 Ion Chromatograph Operator's Manual	Dionex	Document No. 031183, Revision 02; March 1997	DX-120 Ion Chromatograph	Sulfate, chloride, calcium, sodium, potassium, and magnesium.
Dionex DXP Pump Operator's Manual	Dionex	Document No. 034437, Release 01; May 1991	DX-120 Ion Chromatograph	n/a
Dionex Misc. Binder	Dionex/In-house	n/a	DX-120 Ion Chromatograph	n/a
Dionex PeakNet Software Media Binder	Dionex	8-Aug-97	DX-120 Ion Chromatograph	n/a
Dionex PeakNet Software User's Guide	Dionex	Document No. 03914,	DX-120 Ion Chromatograph	n/a
DX Columns and SRS	Dionex/In-house	n/a	DX-120 Ion Chromatograph	n/a
DX-120 Setup & Example Runs Binder	In-house	n/a	DX-120 Ion Chromatograph	n/a
SpectraSystem AS3500 Autosampler Field Repair Manual	Thermo Separation Products	Dec-93	DX-120 Ion Chromatograph, AS3500 Autosampler	n/a
SpectraSystem AS3500 Autosampler Reference Manual	Thermo Separation Products	Mar-92	DX-120 Ion Chromatograph, AS3500 Autosampler	n/a

## **DIONEX DX120 Installation Instructions**

### **1. Hardware/Software**

During our DX120 “training” session in Houston, we ran the DX120 with PeakNet 5.0 and were told that this was the version that had been sent with our DX120, along with a PC LAN card and misc. set-up equipment. DIONEX did not send us v5.0 but instead v4.3. We decided to go ahead and installed the PC LAN card and PeakNet 4.3 on the PC112 (that currently runs also the DX100) as to be able to test the equipment. The software was installed with no problems. The PC LAN card was installed into the PC112 as the set-up manual instructed. The manual recommended to configure the card in the Peaknet Configure Menu with its IRQ set at 10 and ADDR at 240h but errors appeared stating that these settings could not be configured. The MCS David Morley was contacted to see if he could figure it out. He found a free IRQ and address (11 and 280h) and when it came time to load the driver for the AT LAN card, no disk was provided with the appropriate driver. The PeakNet 4.3 directory (PEAKNET) does not contain a driver for the card. At this point the computer crashed and was rebooted and could not reload Win95. As it is we cannot load Win95 in ‘normal’ mode but instead only in ‘safe’ mode. An error appears stating that there is a Windows protection error when trying to load the NIOS device (??). The MCSs haven’t got a clue what to do. We think that this is related to some kind of network problem or something about David editing/changing the Registry?? So as of this date (01Feb98) PC112 is out of commission.

### **2. Equipment**

At this stage of the Leg, we have opened all of the installation packages and set the instrument for operation except for the waste lines, gas connection and autosampler line connection.

In the back of the instrument:

- the helium pink line is installed in a push type fitting (ie. to insert the tube, push the tube in and pull the red plug out). DIONEX recommends to use helium, instead of nitrogen, at a pressure between 20 to 100 psi. There is an internal regulator that regulates the pressure to the eluent reservoirs to around 7 to 10 psi;
- the DX LAN card connects directly to the PC LAN card (if you ever get it to work) via a BNC cable;
- there are four wastes lines: one for injection valve waste (not used), one for pump waste, one for ASRS waste and one for CSRS waste;
- the TTL Inputs and Outputs are used to connect the DX120 to the AS3500 autosampler. See Figure B-15 (p.B-27) in the Operator’s Manual which illustrates the connections between the two rear panels;
- the fuse is below the power cord fitting.

In the front of the instrument:

- the power switch is below the display;
- the display has four functions: it displays flow settings, pressure, total conductivity and conductivity after offset (see p. 2-5 of the DX120 manual);
- the recorder is not used;
- the Component on/off buttons include: an Eluent Pressure button that is used to turn gas pressure, to eluent reservoirs, on/off; a Pump button that is used to turn pump flow on/off; and a SRS button used to turn power on/off to the suppressors and DS4 cell (see p. 2-6 of the DX120 manual);
- the System Control buttons include: a Local/Remote button similar to Local/Relay of the DX100 except that Peaknet 5.0 will automatically put the system in Remote when you start a run; an Auto Offset button that is used to offset the background conductivity (done automatically in the remote mode); a Load/Inject button used only for manual injection, this button is disabled in the remote mode; and, an Alarm Reset button that indicates alarm conditions such as cell leak, high or low pressure, etc. (see pp. 2-6/7 of the DX120 manual);

- the Column Selection buttons allow to switch between Column A (anion set up) and Column B (cation set up). There is no water rinse on this system. As one switches columns, one automatically switches eluents and flow paths.

The system is set up to run in the Column Select Mode.

For details on how the switch of flow from one column to another works, see pp. 2-18/19 of the DX120 manual. Take special notice of the Note on p.2-19.

Inside the instrument:

1. The cell is a DS4 with a thermal stabilizer (heater). It is all connected and the dip switches have been set for DS4 use (see pp. 2-14/16 of the DX120 manual for details). Notice the spill/overflow line and the two coils from the cell outlet to port #5 of the switching valve.

**Note:** We are not sure of the backpressure requirements. Please read p.B-14 of the manual before running the DX120 and see what you think. For now, we have two coils. It probably needs either one or zero ???.

2. The other panel components (on door) include:

- the two columns and guards columns. These are all new and have not been conditioned (see p.B-19 of the manual for column setup). Since we did not know whether or not the system will be used on Leg 178, we have kept the column/guard/SRS capped. Each peek line has actually been labelled by DIONEX and it is very easy to do the final connections (see p.2-22 for a flow schematic);
- a new CSRS (not conditioned) and an old ASRS (there are no ASRSs left on board at the end of Leg 177, so you may want to change it or maybe redo the small analyte peak conditioning) are connected to the power supply, but still need to be connected to the columns and switching valve;

**Note:** The DIONEX Rep. recommended to flush out the column and the SRSs before turning current on the SRSs.

- an injection valve (bottom valve) which is currently hooked up for manual injection. We recommend that you use it with the Load/Inject button to test the equipment before moving it to the inorganic side and connecting it to the AS3500.
- a switching valve that controls all the flows of the system. When the DX120 is connected to the AS3500, this valve is the only one in use (see p.B-41 of the manual for Column Switching Valve plumbing).

Please do not change the length of (do not shorten or lengthen!) any of the peek lines. The switch of flow path from one column to another takes into account the distance between the different components and the timing is such that there should be only a little eluent carry-over when switching columns set. However, the first injection run after switching columns should be ignored.

3. The dip switches on the left side of the main compartment have been setup for use. Instructions are given in pp.B-33 to B-36 of the manual and any changes have been highlighted in Figure B-18.

4. The pump is a single piston pump. The pulse dampener is behind the back wall. The pump has to be primed when starting a run (see pp. B-10/11 of the manual). When one selects a column type, 'A' for example for anion, the next step is to depress 'Flow Setting'. If the flow display does not exhibit the desired 2 ml/mn (for anion), pull out the knob on the front of the pump and turn it right or left to increase or decrease the flow rate. When the correct flow rate is displayed, push in the knob.

If the DX120 doesn't receive input for 90 min, the pump flow rate is reduced to 1/20th of its current rate and the SRS cycles on/off. Press any button to return to the previous flow rate.

## Document Information:

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