QUICK-START GUIDE

Instructions for the installation of a Antec DECADE Elite ECD to an Agilent Infinity II bioinert LC system for carbohydrate analysis using HPAEC-PAD.

Introduction

This guide is written for use by qualified **Agilent service engineers** who have to connect a DECADE Elite and an Antec Eluent Tray ET210 *for inert gas* to an Agilent *Bioinert* LC system with OpenLab/Chemstation software control.

Here we give a summary of all the important steps and recommendations that are specific for connecting to Agilent LC's. Please note that this document is not intended as a replacement of the user manuals, which contain the more detailed instructions.

Reference list of parts, manuals and software

Make sure to have the following parts available during the installation:

Part	Remark
from **Agilent**:	
5005-6800 - Agilent capillary kit	For exchange of the incompatible tubing at the pulse damper.
from **Antec Scientific**:	
176.0035(D)B - DECADE Elite (DCC) SCC	The detector + accessory kit
176.0100 - ECD driver license for OpenLAB CDS & Chemstation	The driver license was already uploaded in the detector at factory if ordered together.
116.4321 - SenCell 2 mm Au HyREF	The flow cell + accessory kit
190.0150D - Detector installation kit	This kit contains LC connection tubing for the analytical flow path, a tubing cutter, connectors, unions, and a regular LAN cable
171.9015 - Dialogue Elite OQ ROXY (standard)	Software license dongle (USB key) for Dialogue Elite standard to run the OQ test. The part that covers this item on the order is 901.1035R (Remote assisted ECD Installation inc. IQ-OQ and training)
192.0050 - ET 210 eluent tray, Inert	Eluent tray with connectors and valves for blanketing the mobile phase with inert gas.
184.0205 - PPCO bottle assembly, 2L, inert gas	Pressure resistant bottle for blanketing mobile phase
180.0204C - Degasser inlet assembly, HPAEC	Tubing with quick connector to attach the PPCO bottles to the degasser

The user manuals (and drivers) can be found on the USB stick that is standard provided with each new ECD. Here is a list with the relevant manuals and their part numbers related to this specific installation (clickable links that open specific pages of the Antec Scientific website):

User manuals related to the hardware:

- 175_0010 - DECADE Elite Lite
- 116_0010 - SenCell flow cell
- 192_0010 - ET 210 eluent tray, Inert

Installation instructions for the software:

- 176_0102C - DECADE Elite driver for OpenLab Chemstation
- 176_0102 - DECADE Elite driver for OpenLab CDS
- 175_0015 - Dialogue Elite

Software and drivers (website login credential required for downloading):

- 176.0100OL - DECADE Elite driver for OpenLab
- 176.0100CS - DECADE Elite driver for ChemStation CDS
- SetupDialogueElite

We recommend checking our website www.AntecScientific.com for the latest versions of the drivers and manuals.

Step 1 - Connecting the ECD to the software & preparations for OQ testing

Service time required: **about ½ hour**

Place the ECD next to the HPLC

1. Depending on the way the instruments are stacked, place the detector to the right or left of the system so that the column outlet is closest to the detector.

Connect the ECD to the computer

2. Connect the ECD over LAN through an ethernet switch or a free LAN port on the computer. The detector is standard delivered with a cross-over cable (black with red ends) for connection to a LAN port on the computer (find it in the detector accessory kit); a standard LAN cable for connection to a switch is part of the detector installation kit. Use the correct cable.

Change the IP address of the ECD

3. The detector default IP address is 192.168.5.1.
4. First set the computer IP to 192.168.5.x. “x” being e.g. 10.
5. Go to the IP settings page of the device using an Internet Browser (enter the IP address in URL without adding \ or /). In case http access is denied, call Antec for support.
   i. Log in (user: *empty*, password 3171).

ii. Click top left "Network", enter the new IP, and the subnet mask. Leave gateway and DNS open (will be 0.0.0.0).

iii. For IP numbers with the first octet in the range 128-191: subnet mask 255.255.0.0

iv. For IP numbers with the first octet in the range 192 or higher: subnet mask 255.255.255.0

v. Click OK, and then click "Apply Settings".

6. Change the computer's IP settings back to the original IP address & subnet mask.

Install and test the driver for the ECD

7. Install the OpenLab software driver for control over the DECADE Elite: it is delivered on a USB stick. Note that there are two versions, one for OpenLab CDS and one for OpenLab Chemstation, respectively. In case of a client/server installation, make sure to install the driver on the AIC as well as the Agilent application server/Terminal Server.

8. Perform the Agilent Software verification, which now also includes the DECADE driver.

Details

ID	Description
55	Agilent OpenLAB Data Analysis 2.204.0.661
69	Agilent OpenLAB DataStore Sequence Writer for ChemStation A.1.013 [0]
71	Agilent OpenLAB CDS - Agilent 35900 AtoD 2.3 [53]
72	Agilent OpenLab CDS - Agilent GC 3.0 [532]
73	Agilent OpenLAB CDS - Agilent LC 2.19.19
10010	Agilent OpenLAB CDS - Agilent Data Player 2.2.6
10016	Agilent OpenLAB CDS - Agilent SS420x A.01.01 [65]
10018	Agilent OpenLAB CDS - Agilent LCMS A.01.02
10019	Agilent OpenLab CDS - Agilent GC/MS 1.3.54
10300	Agilent OpenLab CDS Plugin 2.4.0.628
10501	ANTEC SCIENTIFIC Electrochemical Detector driver 1.2.0.0

9. Configure the driver according to the manual DECADE Elite driver for:

i. OpenLab CDS: manual 176_0102

ii. OpenLab Chemstation: manual 176_0102C

10. Connect the External Dummy Cell (Antec pn. 250.0040) with cell cable (Antec pn. 250.0126A) and test communication with the detector. For example, set the Ecell to 800 mV and change the range. Leave the dummy cell in the oven when done (will be used for OQ test).

Prepare for the OQ test

11. Install the software Dialogue Elite delivered on the USB stick (Admin rights required). This software is used for detector Operation Qualification (OQ) - for details see doc. 171_0023O (a hard-copy is provided with each new detector). Make sure that Agilent OpenLab is shut down when using Dialogue Elite. The detector can be controlled by only one software at a time.

12. Insert the Dialogue Elite Software Dongle in a USB port to unlock the extended software functionality.

Step 2: preparation of the LC system

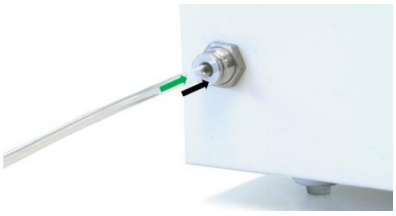
Service time required: **about 2 hours**

Modify the Agilent Pump

1. Exchange the standard pump capillaries with the Agilent capillary kit p/n 5005-6800 between pump head and pulse damper.

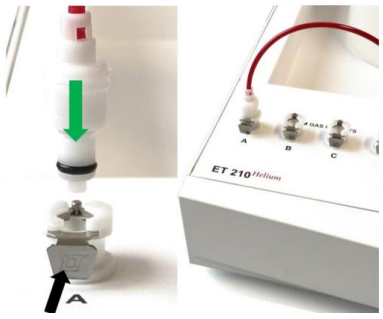
Install Antec Eluent Tray ET210

2. Place the tray on top of the system
3. Connect inert gas supply using the provided 4 mm OD PU tubing.

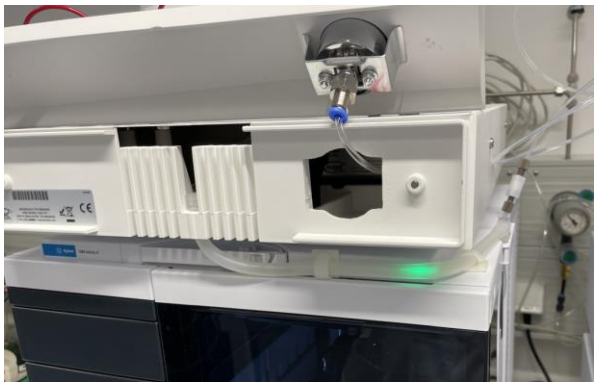


4. Press the metal locking ring of the connector, fully insert the PU tubing and release the ring. This makes a gastight connection
5. The other end of the PU tubing has to be connected to the pressure regulator of the laboratory gas supply. Standard included is a quick connector that fits the ¼“ threaded connection most laboratory gas supplies have. Use Teflon tape to seal. Advise for alternatives:

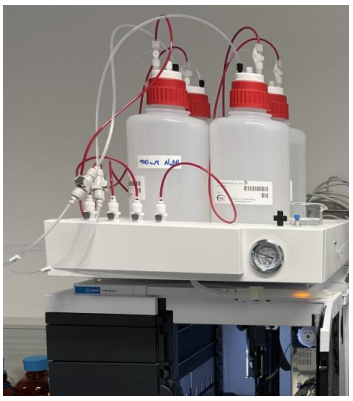
   i. In case of an existing gas line, a T-piece can be used for splitting (check for example www.landefeld.de.)
   ii. In case a nut/ferrule type connection is made where the ferrule seems to be just too small, cut the line under an angle, and pull it through the ferrule with a pair of tongs (warm it up with a heat gun makes it more flexible). Cut off the pointy part after mounting the ferrule.
6. Connect the red gas lines to the tray. Immerse the other ends in water and adjust the gas flow until bubbles appear in a slow but regular frequency. This flow rate can be fixed by the locking nut. Reconnect the red line to the bottle cap when done.



7. Connect the drain tubing to the front using tubing delivered with the Agilent system.
8. Pull/push the square drain nozzle out of the front of the eluent tray.
9. Insert the drain tubing into the front and secure the tubing by inserting the drain nozzle into the tubing, see example below. In this way the drain doesn’t get kinked.




10. Connect the ‘HPAEC degasser inlet assembly’ (Antec pn. 180.0204C) to the quick-connector (nr.7) of the eluent bottles and connect the other end of the lines to the degasser.



Note: no inlet filters should be attached to the eluent lines. The Agilent inlet valve contains a filter that is used as an inlet filter. Be careful to avoid particulate matter when preparing eluents especially in the eluents containing sodium acetate.

Flow path

11. Fill the bottles for the pump piston wash and autosampler needle wash with water.
12. Prepare the complete analytical flow path with 125 µm ID PEEK capillaries, but temporarily use unions instead of the borate trap column, the analytical column and flow cell (because of upcoming initial system flush
13. Use the larger 0.5 mm ID between detector - waste.


These photos show where the borate trap can be installed at the pump, and the location of the union (instead of flow cell during flush) in the detector oven.

System flush

14. Make sure the column and flow cell are not yet connected (temporarily use unions).
15. After Agilent´s recommended system flush, additionally clean the entire system with NaOH prior to initial start-up.
16. Rinse each bottle with a bit of 0.2 M NaOH (for 1 L of this concentration simply add 10.4 mL 50% sodium hydroxide to 0.99 L deionized water and mix).
17. Fill each pre-rinsed bottle with 0.1M NaOH solution (no need to prepare this with the method to make carbonate free solutions yet) and place all 4 eluent lines in it. Open the purge valve and withdraw at least 50 mL of the solution through each line using a syringe or with the purge function.
18. Close the purge valve and leave the pump proportioning at 25/25/25/25 at about 1 mL/min for 1 hour. Make sure to have sufficient liquid in the eluent bottles.
19. Make sure all surfaces come into contact with the sodium hydroxide: rotate the injection valve a few times while pumping.
20. Replace the NaOH solution for water (with resistivity of 18 MOhm.cm) and flush the system. It can now be left with the flow off until it is time for the next step: training instructions for mobile phase blanketing and cell installation under remote assisted guidance of the Antec engineer (if ordered).

General recommendations when setting up the application

We highly recommend installing a borate trap between pump and injector.

21. After installing a new column, let it equilibrate with running mobile phase for at least 1 hour before connecting the cell.
22. After 30 min of stabilization of the signal, the system should be ready for test injections.

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