

Installing the ActiPix detector with Agilent HP^{3D} CE system

Introduction

Installing the ActiPix with the Agilent HP3D Capillary Electrophoresis system (also known as the G1600) offers two easy alternatives for placement: external, i.e. outside the system or internal, i.e. located at the top of the housing. Determining which to choose depends on the application and space availability. The HP^{3D} CE is controlled via ChemStation software, whereas the ActiPix is controlled via the ActiPix software provided.

External connecting

For more information, please refer to the HP^{3D} CE user's manual Chapter 4 page 141 – 149. Follow these simple numbered steps as carefully as possible. Figure numbers match the step.

1. Place the CE-MS cassette on a flat surface.



Figure 1. Agilent CE-MS cassette required for external ActiPix usage

2. Open and prepare for insertion of the separation capillary. The total capillary should be of sufficient length to reach approximately 25 cm past the right side of the cassette.

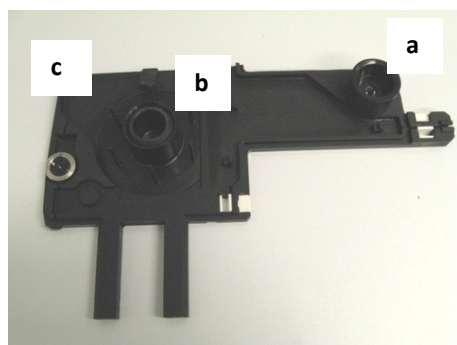


Figure 2. Internal view of CE-MS cassette;

- a) Outlet side to ActiPix Cartridge
- b) Sample inlet
- c) HP^{3D} CE detector window

3. Lock the capillary in place.

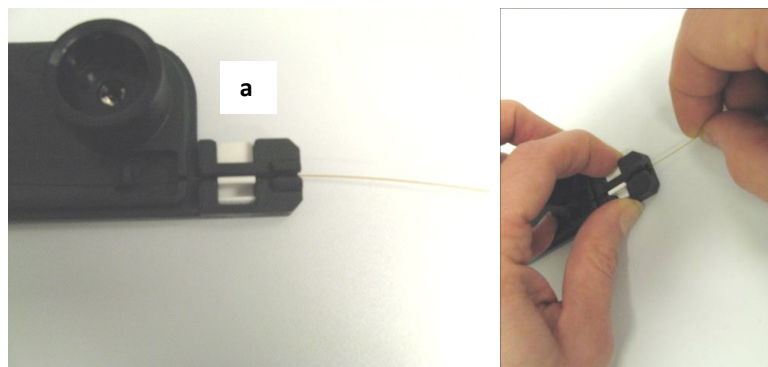


Figure 3. Capillary locked in place (a) extending outside of cassette towards ActiPix

4. Carefully measure the capillary so that the detection window is not too close to the CE instrument and that there is enough distance between both cartridges. The minimum recommended distance is 8 cm.

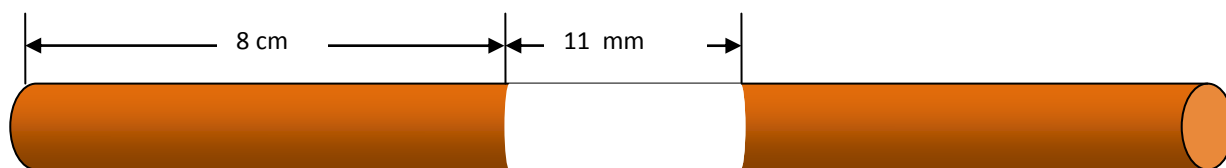


Figure 4. Approximate lengths required

5. Open the CE cartridge and lay it flat on the surface next to the cassette in preparation for insertion of the capillary.
6. Using your method of choice, remove the polyimide coating where the detector window is to be located. This should be no more than 11 mm wide as shown in Figure 4 above.

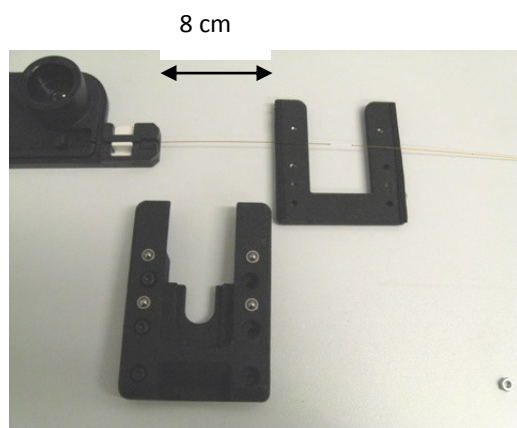


Figure 5. Burn a window at least 8 cm from the outlet of the Agilent cassette

7. Close the CE-MS cassette by pushing the lock button.

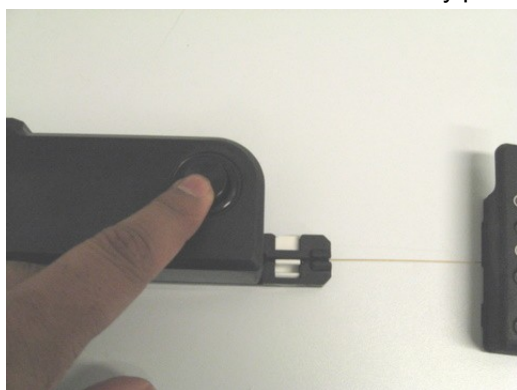


Figure 6. Lock the CE-MS cassette by pushing lock button

8. The cassette and cartridge are now fully assembled - see Figure 7.

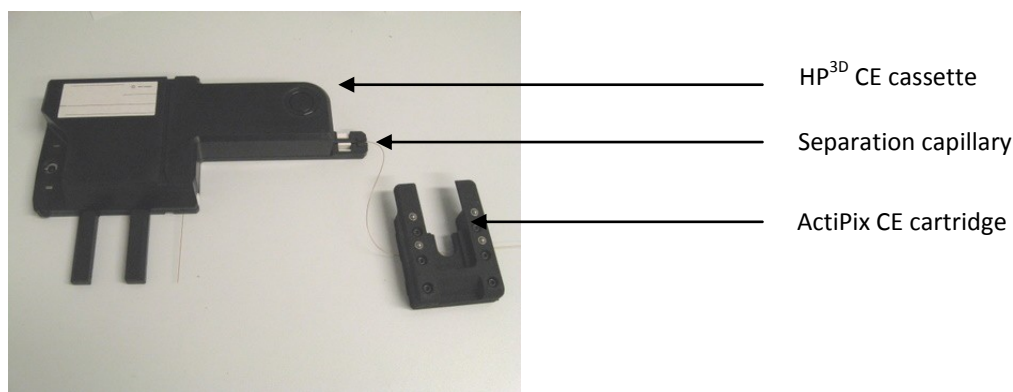


Figure 7. A fully assembled cassette and cartridge with separation capillary running between both

9. The HP3D CE and ActiPix cartridge combination are now ready for installation.
10. Switch on the CE system and the Chemstation software. After initializing the instrument, select 'Change Cassette' in the menu. Push open the top cover. Load the CE-MS cassette as per the instructions in the HP3D user manual being careful to keep the ActiPix cartridge close to the cassette at all times to avoid stressing the separation capillary and detection window. The cartridge can be temporarily placed on top of the oven cover. See Figure 8



Figure 8. Load Agilent cassette into HP3D, ensuring that the sample inlet capillary finds the guide hole. To relieve tension on capillary, temporarily place the cartridge on oven surface. For more information refer to your HP3D user's manual.

11. Position the ActiPix sensor next to the HP^{3D} CE system on an appropriate, stable support stand. Figure 9 shows a typical example. The height of the sensor should be equal with the output of the CE-MS cassette to avoid unnecessary strain on the separation capillary.

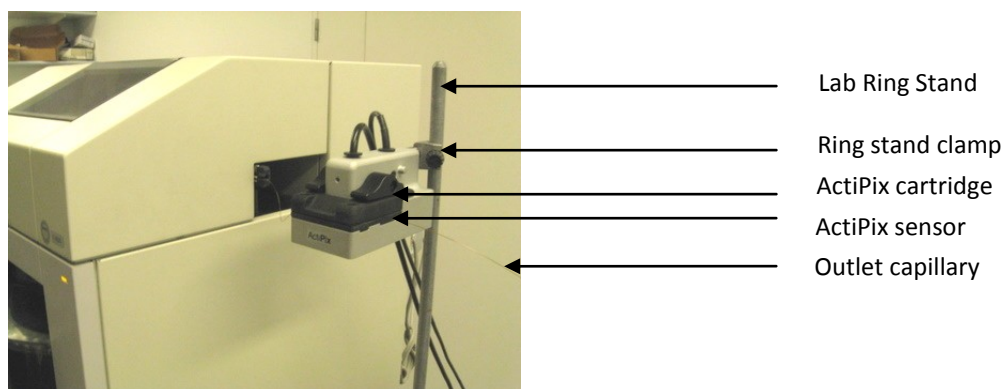


Figure 9. Locate the ActiPix sensor as close as possible outside the HP3D.

12. Carefully slide the cartridge into the ActiPix sensor head and lock in place. The sample outlet vial and ground connection are now ready to be connected. See Figure 10.



Figure 10. Lock the cassette in place. The ActiPix cartridge is now ready to be inserted.

13. The ActiPix control box should be located in a convenient location to the PC based on the length of the USB or Ethernet cable.

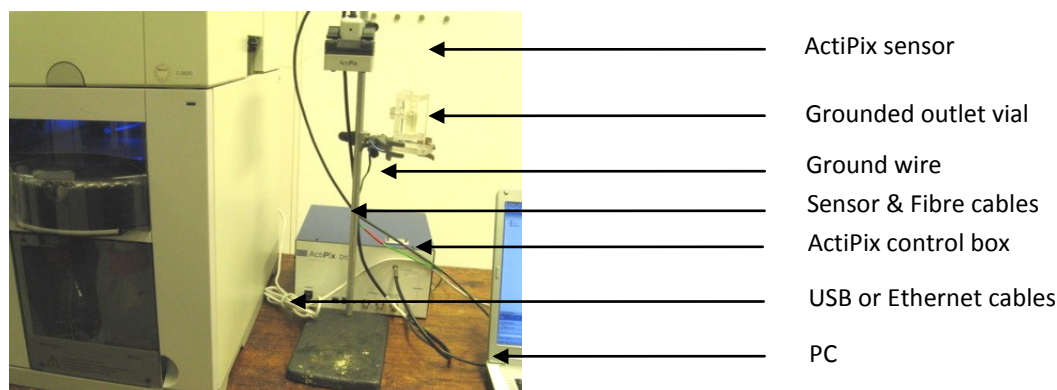


Figure 11. A common lab setup

**CAUTION!!**

It is important to ensure that the outlet ground wire is connected to earth to complete the circuit path. It is further recommended to connect the earth on the control box to the same earth or to the Agilent HP^{3D} CE as shown. It is strongly encouraged to contact your Agilent service provider to discuss this setup for safety considerations.

14. The outlet ground wire should be securely fastened both near the earth connection and near the outlet vial to prevent accidental disconnection. Furthermore, the gauge of the outlet wire should be sufficiently large enough to provide adequate insulation for the applied voltage and current.

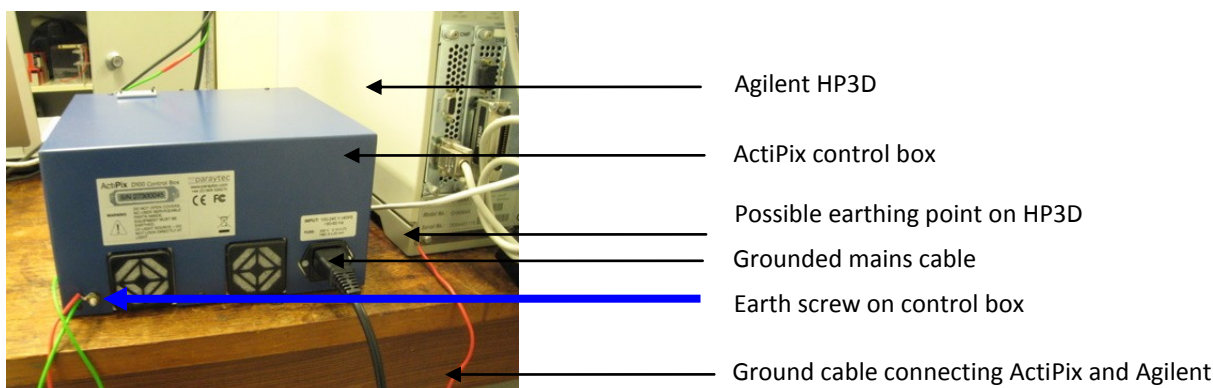


Figure 12. Important grounding wire connections.

Internal connecting

1. Connect capillary to internal cassette.
2. The cassette will need to be modified slightly by cutting a groove in the right side to allow the separation capillary out to the ActiPix and return inside the cassette.
3. Returning the separation capillary back to the outlet vial in the sample carousel does NOT require the need of a special ground wire.
4. CAUTION!!

The portion of capillary extending out of the cassette into the ActiPix is NOT thermostatically controlled by the internal fan. However, if the top cover is kept closed for a sufficient period of time, the internal cavity will reach a stable temperature above ambient, with control of temperature now limited.

5. Position the ActiPix sensor on top of the oven cavity. Ensure that the sensor and fibre optic cables pass out the right side of the G1600 CE back to the control box. To do this, the small panel screwed to the right side should be taken out.

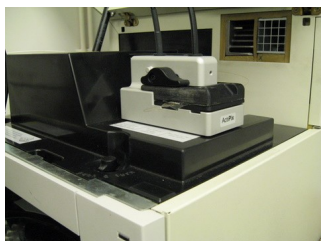


Figure 13. Positioning the ActiPix sensor inside the G1600 CE