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ABI PRISM® 310 Genetic Analyzer Autosampler Calibration Module

BEFORE PERFORMING ANY TROUBLESHOOTING WORK ON YOUR ABI PRISM® 310 GENETIC ANALYZER, PLEASE READ THE INSTRUMENT USER'S MANUAL FOR SAFETY AND WARRANTY INFORMATION AND FURTHER DETAILS ON USE OF THE SYSTEM.

NOTE: [Text in this fashion indicates a link to a picture or another section of this/another document.](#)

Please contact [AB Technical Support](#) if you have any questions regarding this procedure.

About Autosampler Calibration

The ABI PRISM® 310 Genetic Analyzer uses a mobile stage, called the autosampler, to bring the sample, buffer, water, and waste vials in contact with the fixed capillary/electrode. The autosampler is controlled by a stepper-motor assembly that moves the stage in the X (left-right), Y(front-back), and Z(up-down) axis. The calibration values are stored in the random access memory (RAM) of the instrument. Precise autosampler calibration is required for optimal instrument function.

When to Calibrate the Autosampler

Recalibrate the autosampler:

- After changing/repositioning the electrode
- After changing/repositioning the capillary
- If the capillary/electrode collide into the septa caps
- After a Clear Memory Reset procedure
- When prompted by the instrument
- If no data/weak data is generated

Before You Begin

Specific keys on the keyboard are responsible for moving the autosampler during the calibration process. By holding the keys down (rather than tapping them), the autosampler will move in larger increments. Use caution when holding down the keys or the autosampler will travel farther than intended, causing potential damage to the electrode and/or the autosampler block. When in doubt, tap the keys, instead of holding them down.

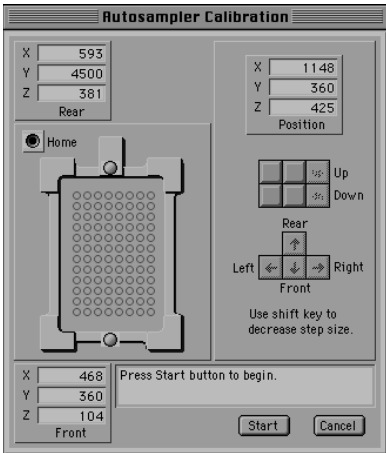
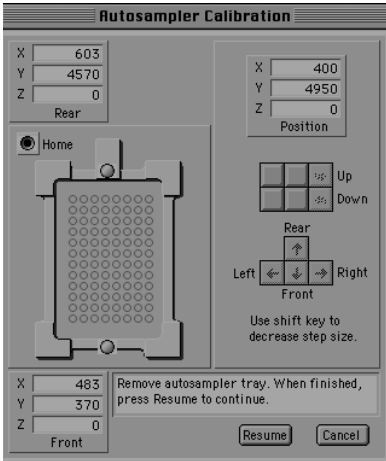
During the calibration the following keys move the autosampler in the desired directions:

To Move the Autosampler to the...	Press...
Rear	↑ Up arrow
Front	↓ Down arrow
Right	→ Right arrow
Left	← Left arrow
Up	Page Up
Down	Page Down
Half Steps	Hold SHIFT key together with the above key

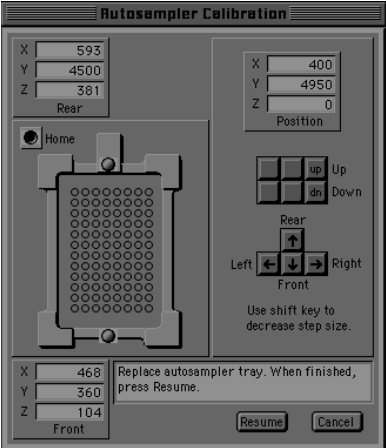
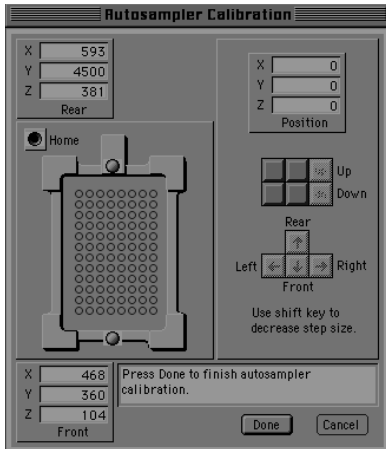
Alternatively, the autosampler can also be moved via the keys of the calibration window interface screen.

Performing the Autosampler Calibration

NOTE: A capillary must be [properly installed](#) on the instrument (see end of document). If a capillary is not present, install one prior to beginning the Autosampler Calibration procedure. If a capillary is present, make sure to finish the procedure quickly as the end of the capillary is exposed to air.

Step	Action
1	Data Collection must be on to perform Autosampler Calibration. If not, manually launch it.
2	<p>From the Instrument menu, select Autosampler Calibration. This will open the following window:</p>  <p>NOTE: Values are for reference only. Your instrument will have different values.</p>
3	Press Start to begin the calibration procedure.
4	<p>The following screen will appear:</p>  <p>The autosampler will present the tray. Remove the sample tray, buffer, water, and waste vials. If these items are not removed, the electrode will be bent. Press Resume when items are removed.</p>

Step	Action
<p>5</p>	<p>The following screen will appear:</p> <div style="display: flex; justify-content: space-between;"> <div> </div> <div> <p style="text-align: center;">Proper positioning on front calibration point</p> </div> </div> <p>The autosampler will move toward the front calibration point (a small metallic dot located between positions 3 and 4). Using the keyboard or the calibration window interface, adjust the autosampler until:</p> <ul style="list-style-type: none"> • The CAPILLARY is centered over the front calibration point (X and Y axis). • The CAPILLARY is almost touching the front calibration point (Z axis). <p>NOTE: See the picture above right for clarification.</p>
<p>6</p>	<p>Press the Set button to store the front calibration value.</p>
<p>7</p>	<p>The following screen will appear:</p> <div style="display: flex; justify-content: space-between;"> <div> </div> <div> <p style="text-align: center;">Proper positioning on rear calibration point</p> </div> </div> <p>The autosampler will move toward the rear calibration point (a small metallic dot located on the rear shelf). Using the keyboard or the calibration window interface, adjust the autosampler until:</p> <ul style="list-style-type: none"> • The CAPILLARY is centered over the rear calibration point (X and Y axis). • The CAPILLARY is almost touching the rear calibration point (Z axis). <p>NOTE: See the picture above right for clarification.</p>

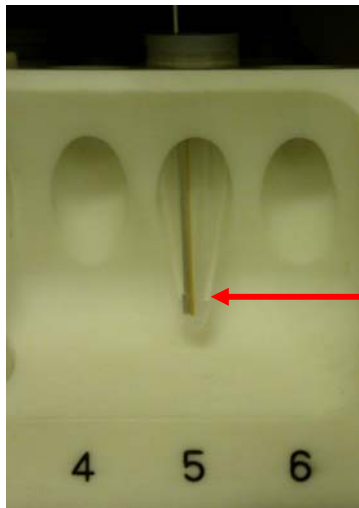
Step	Action
8	Press the Set button to store the rear calibration value.
9	<p>The following screen will appear:</p>  <p>The autosampler will present the tray. Replace the sample tray, buffer, water, and waste vials. Press Resume when items are returned to their proper positions.</p>
10	<p>The following screen will appear:</p>  <p>Press Done to end the Autosampler Calibration procedure.</p>
11	From the Window menu, select Manual Control , which opens a new window.
12	From the Function drop-down list select Autosampler To Position and enter “1” in the value box and click Execute . This will move the buffer vial under the capillary/electrode.
13	From the Function drop-down list select Autosampler Up . Type “50” into the value box and click Execute . Repeat the Execute command until the capillary/electrode are submerged in the buffer vial. You have successfully completed Autosampler Calibration.

See the next page for how to perform the Autosampler Calibration Test.

Performing the Autosampler Calibration Test

IMPORTANT: Manually test the Autosampler Calibration to ensure proper contact between the capillary/electrode and the samples. If the results of the test are not good – repeat the Autosampler Calibration.

NOTE: Minimum sample volume on the ABI PRISM® 310 Genetic Analyzer is 10 uL.

Step	Action
1	Data Collection must be on to perform Autosampler Calibration. If not, manually launch it.
2	From the Window menu select Manual Control , which opens a new window.
3	From the Function drop-down list select Autosampler Present Tray , which presents the tray.
4	Prepare a test sample by placing 10uL of water in a 0.5mL 310 Genetic Analyzer sample tube (p/n 401957). Open the instrument doors. Place the test sample tube onto the autosampler in position 5.
5	From the Function drop-down list select Autosampler Return Tray , which returns the tray.
6	From the Function drop-down list select Autosampler To Position and enter “5” in the value box and click Execute . This will move the test sample tube under the capillary/electrode.
7	From the Function drop-down list select Autosampler Z Max Travel and record the value.
8	From the Function drop-down list select Autosampler Up and type the value from the previous step into the value box and click Execute . The autosampler will move up to the value entered and the capillary/electrode will enter the tube.
9	Carefully inspect the depth of the capillary/electrode, which should be submerged in the test sample. <div>  </div> <div> <p>The red line indicates the top surface of a 10uL water sample (minimum volume).</p> <p>The capillary and electrode are both submerged in the sample.</p> <p>The capillary and electrode should NOT touch the bottom of the tube or they may be bent/broken. Sample injection may be adversely affected if the capillary is compressed into the bottom of the tube.</p> </div>
10	From the Function drop-down list select Autosampler Present Tray and click Execute , which presents the tray. Dispose of the test sample tube. Select Autosampler Return Tray and click Execute , which returns the tray. Repeat the calibration if necessary. (Continued on next page)

Step	Action
11	From the Function drop-down list select Autosampler To Position and enter “1” in the value box and click Execute . This will move the buffer vial under the capillary/electrode.
12	From the Function drop-down list select Autosampler Up . Type “50” into the value box and click Execute . Repeat the Execute command until the capillary/electrode are submerged in the buffer vial. You have successfully completed the Autosampler Calibration Test.

Contacting AB Technical Support

By Telephone: 1-800-831-6844

By Internet: <http://www.appliedbiosystems.com/support/>

Then click on "Frequently Asked Questions" and then the "Ask a Question" tab.

By E-mail: ABTechnicalsupport@appliedbiosystems.com

Manually Launch Data Collection



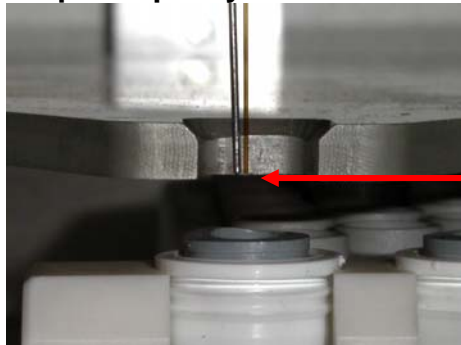
On the PC

Double-click on the shortcuts on the computer desktop.
Alternatively, navigate via the Apple Menu/Start Menu.



On the Macintosh® computer

Proper Capillary/Electrode Installation



The tip of the electrode should be FLUSH with the bottom of the plastic stripper plate (red arrow).

The tip of the capillary should be either FLUSH or extend NO MORE than 0.5mm past the tip of the electrode.

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