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ABI PRISM® 310 Genetic Analyzer
Resolving Communication Problems

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 Communication Problems

The ABI PRISM® 310 Genetic Analyzer system consists of hardware controlled via software installed on either a PC or Macintosh® computer.

Proper communication between the instrument and the computer must exist to:

- Send commands from the computer to the instrument
- Receive data from the instrument to the computer

Communication can be lost if:

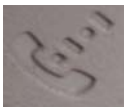
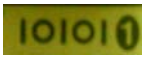
- The system is powered up incorrectly
- Power failure/Recovery from power loss
- Instrument is shut-down during a run
- Data Collection/Computer is shut-down during a run
- Local area network interference/interruption
- Communication-related settings are changed
- Communication cables are loose, damaged, or plugged incorrectly
- Communication ports/plugs are compromised
- Firmware is corrupted or compromised

Before You Begin

Since communication loss results from many variables, the following approach is a comprehensive, albeit lengthy, procedure to re-establish communication. If problems persist after completing these steps, please contact AB Technical Support, for assistance.

Resolving Communication Problems

Step	Possible Cause	Action
1	System is powered up incorrectly OR Data Collection software or the computer is shut-down during a run	1) Shut down the computer then shut down the instrument. 2) Turn on the ABI PRISM® 310 Genetic Analyzer. Wait until the status lights are on. 3) Start the computer. If Data Collection software does not launch automatically, manually launch it. 4) From the **Window** menu, select **Manual Control**, which opens a new window. 5) From the **Function** drop-down list select **Buffer Valve Close** then click **Execute.** 6) If you hear/see the buffer valve pin close, communication is re-established. If you do not hear/see the buffer valve pin close, continue with step 2.

Step	Possible Cause	Action
2	Communication cables are loose, damaged, or plugged incorrectly	1) Shut down the computer then shut down the instrument. 2) Carefully remove the communication cable between the instrument and the computer. Inspect the ports and plugs for dust, broken or bent pins, frayed wiring, etc. 3) Carefully reinsert/attach the communication cable to the following locations: • On the 310 Genetic Analyzer: Control/Data port  • On Macintosh® computer: Modem port  • On Mac® G3/G4 computer: Serial port 1  • On PC: COM1 port  4) Turn on the instrument then turn on the computer. 5) If Data Collection software does not launch automatically, manually launch it. 6) From the **Window** menu, select **Manual Control**, which opens a new window. 7) From the **Function** drop-down list select **Buffer Valve Close** then click **Execute.** 8) If you hear/see the buffer valve pin close, communication is re-established. If you do not hear/see the buffer valve pin close, continue with step 3. NOTE: If the cable is compromised, these parts can be purchased through AB (Mac® cable AB p/n: 4318551 **or** PC cable AB p/n: 4316489) or your local retailer.
3	Communication-related settings are changed	1) If Data Collection software does not launch automatically, manually launch it. 2) From the **Window** menu, select **Preferences**, then select **General Settings**. 3) In the **Communication Port** window : On the Macintosh® computer: Click on the “Modem” icon then click OK.  NOTE: On certain Macintosh ® Operating Systems the icon will not “highlight” when the Modem icon is depressed but the selection is still being made. On the PC: From the drop-down list, select “COM1” then click OK.

Step	Possible Cause	Action
3 (continued)		For both systems: 4) Restart the computer. 5) If Data Collection software does not launch automatically, manually launch it. 6) From the **Window** menu, select **Manual Control**, which opens a new window. 7) From the **Function** drop-down list select **Buffer Valve Close** then click **Execute.** 8) If you hear/see the buffer valve pin close, communication is re-established. If you do not hear/see the buffer valve pin close, continue with step 4.
4	Power failure/Recovery from power loss OR Instrument is shut-down during a run	1) If the instrument suffers an actual power loss or the instrument is accidentally powered down during a run – the instrument may perceive it as a power failure. 2) On Macintosh® systems only – the Data Collection software may generate a "recovery" file that interrupts normal operation sometimes generating a "Recovering from Power Failure" error. 3) From the Macintosh® Finder window, navigate to the ABI PRISM® 310 Data Collection folder and look for a file called "Recovery". Alternatively, perform a search for "Recovery". 4) If there is a "Recovery" file, drag it to the trash and empty the trash. 5) Open the Data Collection software. 6) From the **Window** menu, select **Manual Control**, which opens a new window. 7) From the **Function** drop-down list select **Buffer Valve Close** then click **Execute.** 8) If you hear/see the buffer valve pin close, communication is re-established. If you do not hear/see the buffer valve pin close, continue with step 5. NOTE: It is possible for actual power failures to cause severe damage to the ABI PRISM® 310 Genetic Analyzer. Contact AB Technical Support immediately If any uncharacteristic function appears.
5	Local area network interference/interruption	Running the instrument while the computer workstation is attached to an active network can cause various communication problems including: • Loss of communication • Loss of data/Compromised data • Termination of runs prematurely • Errors that pause the system mid-run To troubleshoot recurring problems of this nature, disconnect the system from the network entirely, while runs occur. Connect to the network only when runs have completed and data is to be transferred.

Step	Possible Cause	Action
5 (continued)		Additionally, take the following suggestions regarding general computer set-up into consideration. • The computer workstation should be within a firewall-protected network rather than having firewall software installed locally. • Anti-virus software should not be set to run on an automated schedule. To minimize possible interference, anti-virus scans should be started manually when a run is not occurring. • Do not set the computer workstation CPU to "sleep" or "hibernate" mode. • Do perform hard disk defragmentation/optimization at least once a month.
6	Communication ports or plugs are compromised	On Macintosh® systems: • If your computer utilizes a Keyspan® Serial Card Adapter, you may need to reinstall/reconfigure the PortConnector and/or KeySX Manager software. Refer to the appropriate user documentation. • If you are using a Mac® G3/G4 computer of the blue/white or grey/white configuration, you may need to reinstall the driver for the gPort/g4Port universal serial adapter. Refer to the appropriate user documentation. On PC systems: 1) If Data Collection software does not launch automatically, manually launch it. 2) From the **Help** menu, select **Communication Diagnostics**, which opens a diagnostics window. 3) View the Send/Reply table: • A large number of retries indicates possible bad cable routing, broken contact pins, or compromised cable. • A long duration for replies (Send/Reply) may indicate a computer serial driver problem.
7	Firmware is corrupted or compromised	Perform a cold boot reset: 1) Ensure that both the computer and the ABI PRISM® 310 Genetic Analyzer are turned off. If not, shut down the computer first then shut down the instrument. 2) Open the instrument doors. 3) Press and hold the **Tray** button down with your right hand. 4) Keeping the **Tray** button depressed, reach to the left-rear of the instrument, and turn on the ABI PRISM® 310 Genetic Analyzer. 5) After turning the instrument on, release the **Tray** button.

Step	Possible Cause	Action
7 (continued)		NOTE: If it is performed properly, the three status lights will be lit, indicating the firmware has been cleared. 6) Start the computer. If Data Collection software does not launch automatically, manually launch it. 7) A dialog box will appear indicating firmware is being reloaded. NOTE: If firmware does not automatically load, then the preferences may be corrupted or set improperly – for a detailed tutorial regarding setting preferences, please refer to the appropriate "Preferences" document for your operating system at: - 310 Preferences Preferences Module for Macintosh® computer - 310 Preferences Module for Windows® NT, 2000, and XP OS 8) From the **Window** menu, select **Manual Control**, which opens a new window. 9) From the **Function** drop-down list select **Syringe Home** and click **Execute**. This will bring the syringe pump up to its homed position. NOTE: After homing the syringe pump, use the **Syringe Down** command to bring the syringe pump back on top of the syringe plunger. 10) Select **Autosampler Home X,Y** and click **Execute**. 11) Select **Autosampler Home Z** and click **Execute.** If the instrument is able to complete all these steps, communication is re-established.
8	Further troubleshooting necessary	If the instrument is not able to communicate after all these steps, please contact AB Technical Support, for further troubleshooting.

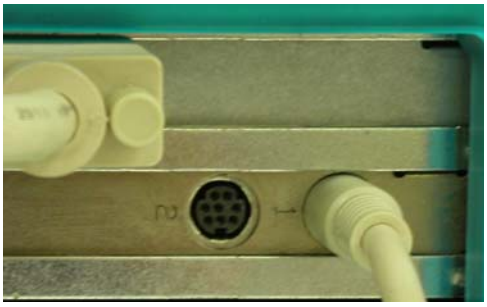
COM1 Port

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

Control/Data Port

G3/G4 Computer Serial Port



Manually Launching Data Collection Software

On the PC

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

On the Macintosh® computer

Modem Port

Syringe Pump at Home Position

Syringe Pump on Plunger

NOTE: After executing the SYRINGE HOME command, the syringe pump must be brought back down on top of the plunger. Ensure that the pump is close to but not compressing the syringe plunger. If the syringe pump is not returned to this position prior to a run – the instrument will generate a “Leak Detected” error.

Three Status Lights

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