

Experion™ Automated Electrophoresis System

Instruction Manual

Catalog #700-7000

#701-7000

#700-7001

#701-7001

#700-7060

#700-7061

#700-7062

#700-7063



BIO-RAD

Bio-Rad Technical Support

For help and advice regarding products from the Experion™ automated electrophoresis system, please contact the Bio-Rad Technical Support department, which in the United States is open Monday–Friday, 5:00 AM–5:00 PM, Pacific Time.

Phone: 1-800-4BIORAD (1-800-424-6723)

Fax: 1-510-741-5802

Email: LSG_TechServ_US@bio-rad.com (for U.S. and international customers)

Online technical support and worldwide contact information are available at consult.bio-rad.com.

Legal Notices

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage or retrieval system, without permission in writing from Bio-Rad Laboratories.

Bio-Rad reserves the right to modify its products and services at any time. This user guide is subject to change without notice.

Although prepared to ensure accuracy, Bio-Rad assumes no liability for errors, or for any damages resulting from the application or use of this information.

Dell and Optiplex are trademarks of Dell Inc. Corporation. Microsoft, Windows, and Windows Vista are trademarks of Microsoft Corporation. RiboGreen is a trademark of Invitrogen Corporation.

The dyes used in Experion kits are made by Molecular Probes, Inc. and are for research use only.



LabChip and the LabChip logo are trademarks of Caliper Life Sciences, Inc. Bio-Rad Laboratories, Inc. is licensed by Caliper Life Sciences, Inc. to sell products using the LabChip technology for research use only.

These products are licensed under U.S. patents 5,863,753; 5,658,751; 5,436,134; and 5,582,977, and pending patent applications, and related foreign patents, for internal research and development use only in detecting, quantitating, and sizing macromolecules, in combination with microfluidics, where internal research and development use expressly excludes the use of this product for providing medical, diagnostic, or any other testing, analysis, or screening services, or providing clinical information or clinical analysis, in any event in return for compensation by an unrelated party.

Copyright © 2010 Bio-Rad Laboratories, Inc.

Contents

Chapter 1: Experion™ Automated Electrophoresis System.	1
1.1 System Overview	2
1.2 System Components	3
1.2.1 Electrophoresis Station	3
1.2.2 Priming Station	3
1.2.3 Vortex Station	4
1.2.4 Microfluidic Chips	4
1.2.5 Analysis Kits: Microfluidic Chips and Reagents	4
1.2.6 Experion Software	5
1.3 Experion Workflow	5
1.4 Experion Video Tutorials	6
 Chapter 2: Setting Up the Experion System	 7
2.1 Unpacking System Components	8
2.2 Component Setup and Operation	8
2.2.1 Priming Station	8
2.2.2 Vortex Station	9
2.2.3 Computer (PC)	10
2.2.4 Software	10
2.2.5 Electrophoresis Station	10
2.3 First-Time Use of the Experion System	11
 Chapter 3: Care and Maintenance	 13
3.1 Electrophoresis Station	14
3.1.1 Cleaning the Electrophoresis Station	14
3.1.2 Cleaning the Electrodes	14
3.1.3 Replacing the Electrode Manifold	17
3.2 Priming Station	17
3.3 Vortex Station	18

Chapter 4: Troubleshooting 19

4.1 Electrophoresis Station 20

4.2 Priming Station 21

4.3 Vortex Station 22

4.4 Software Errors 22

4.5 Diagnostic Tests of the Electrophoresis Station 26

 4.5.1 System Diagnostic Tests 26

 4.5.2 Current Test 26

 4.5.3 Conductivity Test 27

 4.5.4 Focus Test 27

Appendices 29

Appendix A: Safety Notices 30

Appendix B: System Specifications 32

Appendix C: Bibliography 34

Appendix D: Ordering Information 35

1 Experion™ Automated Electrophoresis System

1.1 System Overview

The Experion automated electrophoresis system (Figure 1.1) employs LabChip microfluidic technology to automate protein and nucleic acid electrophoresis. It integrates separation, detection, and data analysis within a single platform. Using much smaller sample and reagent quantities than standard analysis methods, the Experion system accomplishes analysis in a single 30–40 minute, automated step.

The Experion system is used for the following applications:

- Protein analysis — quantitation and size determination (sizing) of protein samples useful for quality control, protein purity and stability analysis, protocol optimization, and evaluation of recombinant protein expression
- RNA analysis — evaluation of RNA integrity and concentration. The system automatically generates the RNA quality indicator (RQI), a quantitative integrity assessment, in addition to visual electropherogram data, ribosomal RNA ratios, and concentration data. This makes Experion RNA assays useful upstream of applications such as real-time quantitative PCR (qPCR), microarray analysis, sequencing, and reverse-transcription qPCR (RT-qPCR)
- DNA analysis — quantitation and sizing of restriction digests, amplified DNA, microsatellites, and amplified fragment length polymorphisms (AFLPs)

For details about how the Experion system performs these analyses, refer to the instruction manuals for each analysis kit.



Fig. 1.1. The Experion system. The system includes the following components: 1) automated electrophoresis station, 2) priming station, 3) vortex station used for nucleic acid analysis only, 4) system operation and data analysis tools (software), and 5) analysis kits, which include the (a) chips and (b) reagents for protein (Pro260 kit), standard-sensitivity RNA (StdSens kit), high-sensitivity RNA (HighSens kit), and DNA (DNA 1K and 12K kits) analyses.

1.2 System Components

1.2.1 Electrophoresis Station

The Experion electrophoresis station (Figure 1.2) houses all the electrical, optical, and hardware components necessary to perform the separation, staining, destaining, detection, and imaging of samples in a single step. The electrophoresis station is equipped with an internal universal power supply that operates at 100–240 VAC, 50–60 Hz. It connects to a computer (PC) running Experion software.



Fig. 1.2. Experion electrophoresis station.

1.2.2 Priming Station

The Experion priming station (Figure 1.3) is used to prepare the microfluidic chips (Section 1.2.4) for sample analysis. The priming station applies pressure to the priming well of the chip and fills the network of microchannels with the gel-stain solution (a mixture of Experion gel and stain).

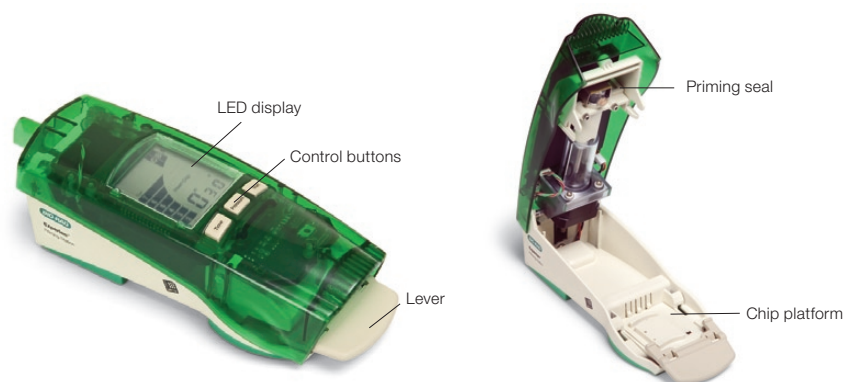


Fig. 1.3. Experion priming station.

1.2.3 Vortex Station

The Experion vortex station (Figure 1.4) ensures complete mixing of RNA or DNA samples and loading buffers in the chip wells. The vortex adapter securely holds the chip during the 1 min vortex cycle. The vortex station is not required for protein analysis.



Fig. 1.4. Experion vortex station.

1.2.4 Microfluidic Chips

At the center of the Experion system is the microfluidic chip in which sample separation occurs. Each chip contains a series of plastic wells bonded over a small glass plate. The glass plate is etched with a network of microchannels that connects with the base of the plastic wells. The microchannels are primed, or filled with a mixture of gel matrix and stain, before the samples are applied to the wells. Once a prepared chip is placed in the electrophoresis station and the lid is closed, 16 electrode pins contact the solutions in each well. The electrophoresis station directs the samples through the microchannels by controlling the voltages and currents that are applied. Different chips are used for each application (Figure 1.5).

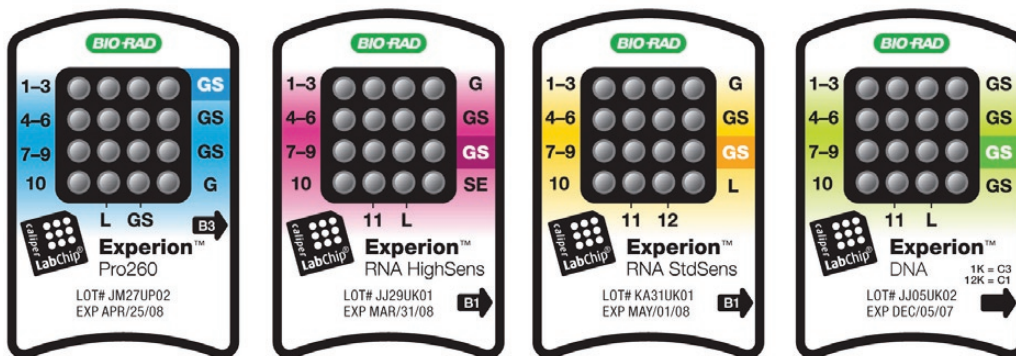


Fig. 1.5. Experion microfluidic chips.

1.2.5 Analysis Kits: Microfluidic Chips and Reagents

Experion analysis kits contain the microfluidic chips and reagents required to perform protein, RNA, or DNA separation and analysis (Table 1.1).

- Experion Pro260 analysis kit — used to resolve and quantitate 10–260 kD proteins with sensitivity comparable to that of colloidal Coomassie Blue gel staining. The kit includes the Experion Pro260 ladder, a modified version of Bio-Rad's Precision Plus Protein™ standards optimized for use on the system. The Experion Pro260 ladder contains 9 purified recombinant proteins of 10–260 kD for accurate sizing of samples analyzed on a chip. Each chip can separate up to 10 samples per analysis

- Experion RNA StdSens and RNA HighSens analysis kits — offer rapid single-step assessments of RNA quality and quantity and the ability to analyze 1–12 samples in approximately 30 min. Sample concentrations in nanogram (StdSens) or picogram (HighSens) amounts can be analyzed
- Experion DNA 1K and DNA 12K analysis kits — used for single-step sizing and quantitation of DNA fragments in up to 11 samples

Table 1.1 Experion analysis kits.

	Pro260	RNA HighSens	RNA StdSens	DNA 1K	DNA 12K
# Samples	1–10	1–11	1–12	1–11	1–11
Sample volume	4 µl	1 µl	1 µl	1 µl	1 µl
Concentration range	5–2,000 ng/µl	100–5,000 pg/µl	5–500 ng/µl	0.1–50 ng/µl	0.1–50 ng/µl
Separation range	10–260 kD	—	—	15–1,500 bp	50–17,000 bp
Sensitivity	2.5 ng/µl (carbonic anhydrase in 1x PBS)	100 pg	5 ng	0.1 ng	0.1 ng

1.2.6 Experion Software

Experion software includes the controls required to operate the electrophoresis station and the data analysis tools needed to assess the results. During a run, the software provides the ability to monitor run progress or review previous sample results. For more information about the use of Experion software, refer to the Experion analysis kit manuals.

Two optional software kits assess system performance and aid in troubleshooting:

- The Experion validation kit (catalog #700-7051) includes automated instrument qualification (IQ) and operational qualification (OQ) protocols that test the critical functions of the system and verify and validate specific system functionality; it is useful for troubleshooting
- Experion Security Edition software (catalog #700-7052) includes the IQ/OQ protocols of the validation kit in addition to tools for compliance with U.S. FDA 21CFR Part 11 regulations

1.3 Experion Workflow

Sample analysis involves the following steps:

- Preparing the chip (priming, loading, and vortexing) — Priming fills the wells and microchannels of the microfluidic chip with the gel-stain solution, which contains both the sieving matrix and fluorescent dye. Samples prepared in Experion sample buffer are then loaded in the sample wells. The chip is vortexed in RNA and DNA analyses
- Running the chip — The chip is inserted into the electrophoresis station, and as the electrophoresis station lid is closed, electrodes come in contact with the solution in the wells. The voltage applied to the sample wells causes the charged molecules to migrate into the separation channel. In the separation channel, the gel-stain solution causes the molecules to move at different rates, depending on their size. During separation, the fluorescent dye, which is specific to the analysis being performed, either associates with the lithium dodecyl sulfate (LDS) coating the proteins (protein analyses) or intercalates between the bases of RNA (RNA analyses) or DNA (DNA analyses)

- Detecting the molecules — As the molecules migrate toward the end of the separation channel, a laser excites the dye, causing it to fluoresce if it is bound to the protein-LDS micelle complexes or RNA/DNA fragments. A photodiode detects the fluorescence, and Experion software plots the fluorescence intensity as a function of time to produce an electropherogram. A virtual gel image is generated from the electropherogram data
- Data analysis — Once separation is complete, the software subtracts background noise, identifies and integrates peaks, and assigns their sizes and concentrations; the results of data analysis are automatically tabulated and presented in a table. Experion software displays all three forms of data simultaneously (Figure 1.6)

For detailed information on how the Experion automated electrophoresis system performs separation and analysis, refer to the instruction manuals for each analysis kit (available online at www.bio-rad.com, search term “Experion”).

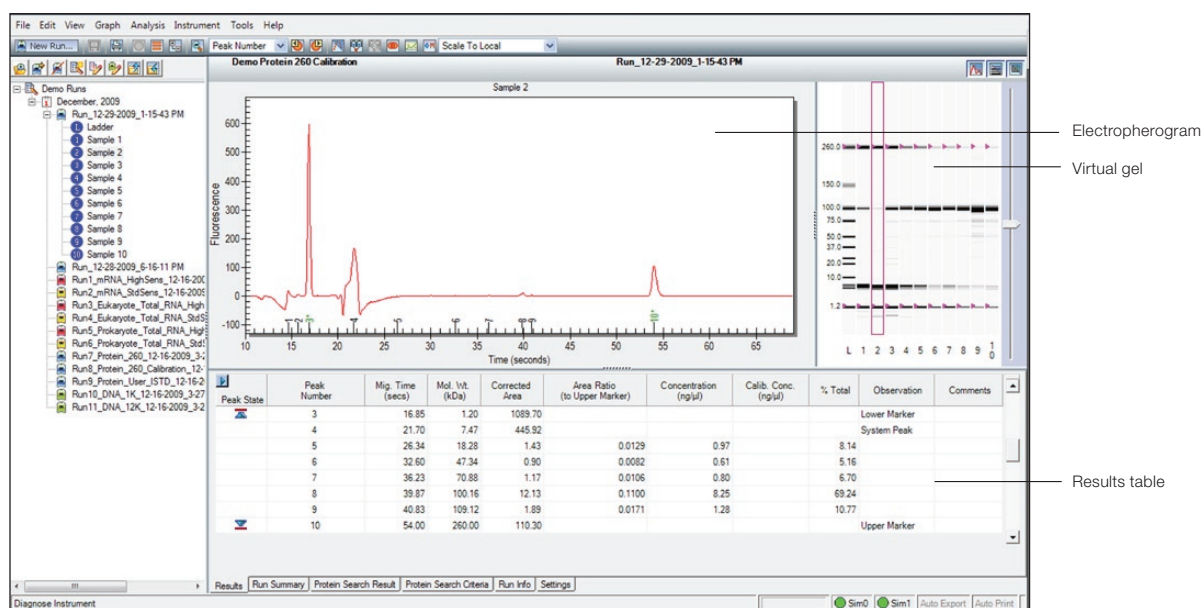


Fig. 1.6. Experion software display. The results of an Experion Pro260 analysis are shown.

1.4 Experion Video Tutorials

For additional information, view the video tutorials available online at www.bio-rad.com:

North America: Home > Life Science Research > Support > Tutorials > Electrophoresis and Blotting > Experion System Training

Other: Home > Life Science Research > Electrophoresis > Automated Electrophoresis > Experion Training Videos



Setting Up the Experion™ System

2.1 Unpacking System Components

The Experion system components are:

- Electrophoresis station, power cord, USB2 cable, and instruction manual
- Priming station, power adapter, power cord, and 2 extra priming seals
- Experion software CD-ROM
- Vortex station (for DNA and RNA analysis)
- Experion starter kit (either Pro260 or RNA StdSens, included with catalog #701-7000 or #701-7001)

When removing the contents from each shipping box, carefully lift the electrophoresis station by grasping the underside of the unit (between the green rubber feet) and the top of the unit. Open the lid of the electrophoresis station and remove the shipping pin (as indicated on the yellow label; save the shipping pin for use in future shipments). Remove the instruments from the protective plastic bags and inspect them for any external damage. If any part is missing or damaged, contact Bio-Rad immediately.

Store the starter kit components at the temperatures indicated in the instruction manual.

2.2 Component Setup and Operation

Setup involves the following steps:

- Connect the vortex and priming stations to an electrical outlet
- Connect and configure the computer and install Experion software
- Connect the Experion electrophoresis station to a power outlet and to the computer (USB connection)

2.2.1 Priming Station

The priming station is equipped with a power supply that operates at 100–240 VAC, 50–60 Hz. Connect one end of the power adapter cable to the priming station and the other end to a grounded AC outlet rated 10 A/100–240 V (Figure 2.1).

The priming station automatically powers up when the cable connections are made. There is no power switch.



Fig. 2.1. Experion priming station power connection (left) and priming station display (right).

When placing a chip on the priming station, match the alignment arrow on the chip with the alignment arrow on the chip platform (Figure 2.2). Alignment posts on the underside of the chip (next to the glass) match holes in the chip platform to ensure correct positioning of the chips in the priming station.

The priming station uses time and pressure settings optimized for each different chip type (Figure 2.1). Use the alphanumeric priming codes on the chip (Figure 2.2).

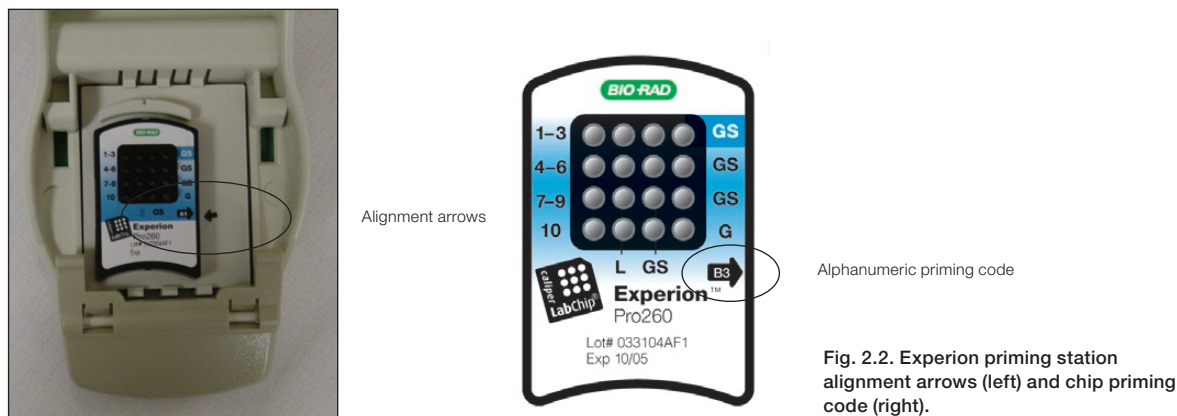


Fig. 2.2. Experion priming station alignment arrows (left) and chip priming code (right).

2.2.2 Vortex Station

The vortex station is used only for RNA and DNA applications. In these applications, sample and loading buffer are loaded directly into the wells of the chips to minimize sample volume requirements. The vortex cycle mixes the samples and buffers thoroughly before the chip is placed into the electrophoresis station.

Connect one end of the power cable to the vortex station and the other end to a grounded AC outlet. Press the green **Power** button on the front of the vortex station to power it on.

To place a loaded chip onto the vortex station, slide the chip under the prongs of the vortex adapter, ensuring the chip is inserted all the way until it is seated inside the chip indentation (Figure 2.3). The chip fits securely in the adapter.

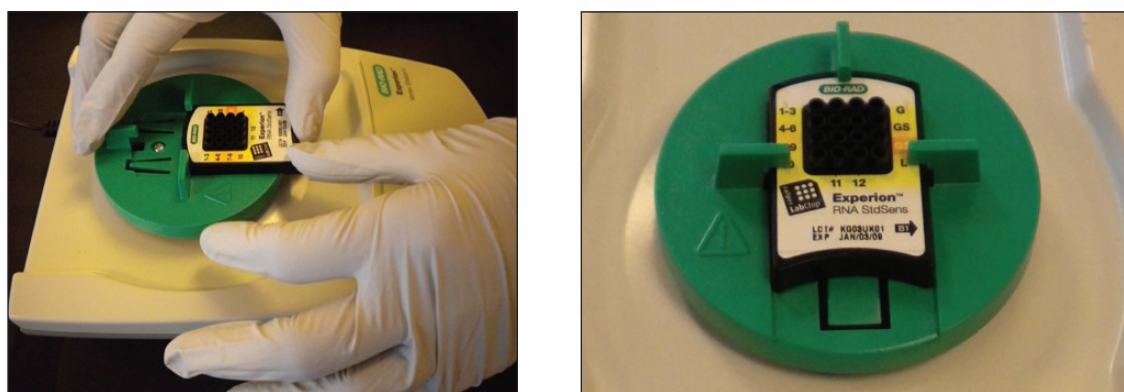


Fig. 2.3. Experion vortex station. Left, inserting the chip. Right, chip on the vortex adapter.

To start the vortex step, press the **Mix** button. After 1 min, the vortex station stops and three beeps indicate the end of the cycle. Remove the chip by depressing the tab on the adaptor area at the bottom of the chip and sliding the chip out (Figure 2.4).

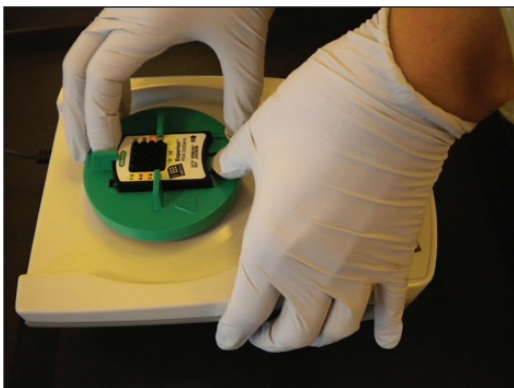


Fig. 2.4. Removing the chip from the Experion vortex station.

2.2.3 Computer (PC)

Depending on the system configuration ordered, your shipment may or may not include a PC. Connect the PC directly to a power outlet and power it on.

If using your own PC, ensure it meets the following specifications:

- Operating system Windows XP (service pack 3) or Windows Vista (service pack 1)
- Processor 3 GHz or higher
- Memory 1 GB RAM or greater
- Free disk space 80 GB or greater

2.2.4 Software

Insert the Experion software CD-ROM and follow the prompts to install Experion software on the PC. The installation program places an application icon on your desktop and creates a folder named **Experion** under **Programs** in the Windows **Start** menu.

After installation, reboot your computer and confirm that Experion software has been installed. Do not, however, launch the software.

To ensure proper communication between electrophoresis station and software, always power on the electrophoresis station before launching the software.

2.2.5 Electrophoresis Station

The electrophoresis station is equipped with a universal power supply to operate at 100–240 VAC, 50–60 Hz. Connect the electrophoresis station to an outlet and to your PC:

1. Place the electrophoresis station near the PC, on a sturdy surface and away from direct light and all other potential sources of extreme heat. Place it where it will not be subjected to vibrations or other movement.
2. Connect one end of the power cable to the electrophoresis station and the other end to a grounded AC outlet rated 10 A/100–240 V (Figure 2.5).
3. Connect the electrophoresis station to the PC using the USB2 cable (Figure 2.5).
4. Power on the Experion electrophoresis station by pushing the green button on the front of the station (Figure 2.6). The green LED above the green button illuminates, indicating the unit is on. Use the **Hardware Wizard** to install the driver for the electrophoresis station onto the PC.



Fig. 2.5. Connecting the electrophoresis station. Left, power connection. Right, USB2 connection.

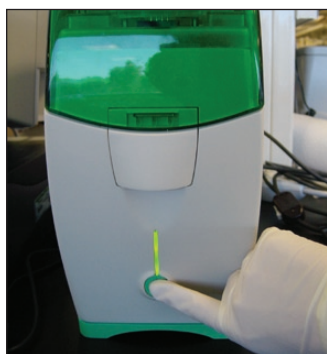


Fig. 2.6. Powering on the electrophoresis station.

If the LED does not light, the unit is not receiving power (refer to Chapter 4, Troubleshooting). During a run, a blinking LED indicates that a chip is loaded and analysis is in progress. Do not open the lid while the LED is blinking (opening the lid aborts the run).

2.3 First-Time Use of the Experion System

1. Clean the electrodes using Experion electrode cleaner and the deep cleaning procedure described in Section 3.1.2 (also in the Help section of Experion software, search term “electrodes”).
2. Power on the computer and then power on the electrophoresis station.
3. Launch Experion software. Confirm that the electrophoresis station and computer are communicating properly. A green dot with the last four digits of the electrophoresis station serial number should appear in the lower right corner of the user interface.
4. Familiarize yourself with the assay protocol and pipetting techniques by using the Experion Pro260 or Experion RNA StdSens starter kit. For additional information, view the video tutorials (see Section 1.4, Experion Video Tutorials).

Register your Experion system to ensure you receive important updates on software, tech notes, and manuals. Upon installation, a dialog provides registration instructions.

3 Care and Maintenance

3.1 Electrophoresis Station

3.1.1 Cleaning the Electrophoresis Station

Clean the electrode manifold after every analysis (see Section 3.1.2, Cleaning the Electrodes, Method 2: Routine Cleaning). For RNA analyses, perform the deep cleaning procedure on a regular basis (for example, monthly) and whenever contamination is suspected.

Do not leave the cleaning chip in the electrophoresis station overnight.

There is no need to manually dry the electrodes after cleaning.

Never place objects other than chips on the chip platform beneath the electrode manifold.

Never place equipment in water or other liquids; ensure that no liquid is spilled onto or into the electrophoresis station.

Keep the lid closed when the electrophoresis station is not in use.

Clean the outside of the electrophoresis station using a soft, lint-free cloth and deionized water.

To avoid electrical shock, never open the housing.

Refer servicing to qualified personnel only.

3.1.2 Cleaning the Electrodes

Two cleaning methods ensure the best results from the Experion electrophoresis station:

- Method 1 — deep-cleaning procedure; applies electrode cleaner directly to electrode pins using lint-free foam swabs
- Method 2 — routine procedure; uses cleaning chips and is performed before or after every run

Method 1: Deep Cleaning

This manual procedure applies Experion electrode cleaner directly to the 16 platinum pins in the electrode manifold (Figure 3.1). Perform this procedure:

- Prior to first use of the Experion electrophoresis station
- Between a protein and RNA or DNA analysis, and between a DNA and RNA analysis
- Any other time RNase contamination is suspected or any contamination (for example, salt deposits or other precipitates) is visible on the electrodes
- If a chip has been left in the electrophoresis station for an extended period of time (for example, overnight)

Perform this procedure with the electrode manifold in place (installed in the electrophoresis station).

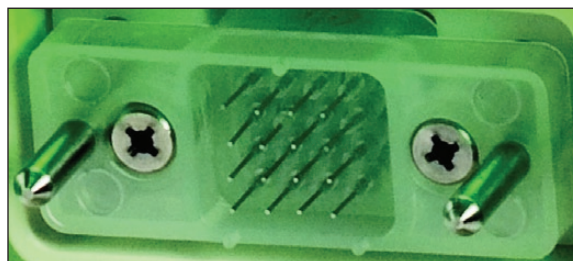
Deep cleaning requires the following supplies:

- Experion electrode cleaner (catalog #700-7252)
- Experion DEPC-treated water (catalog #700-7253)
- Lint-free cleaning swabs (catalog #700-7264)

Keep the chip platform completely dry during this procedure. Cover the chip platform with plastic wrap and a paper towel or foil to protect it from liquid (Figure 3.2).



Fig. 3.1. Experion electrophoresis station electrode manifold.



Plastic wrap

Paper towel

Fig. 3.2. Electrophoresis station platform covered with plastic wrap and a paper towel.

1. Shut off power to the electrophoresis station.
2. Add 0.5–1 ml Experion electrode cleaner to a microcentrifuge tube. Insert a swab into the solution until it is saturated with electrode cleaner.
3. Use the swab to lightly scrub each electrode pin one at a time, on all four sides (Figure 3.3). Do not press too hard on the pins, as they may bend. Finally, clean the tip of each pin. Dip the swab into more electrode cleaner as necessary.

-Or-

Move the swab up and down, and side to side, 2–3 times along the columns and rows of pins (Figure 3.3). Finally, clean the tip of each of pin. Dip the swab into more electrode cleaner as necessary.

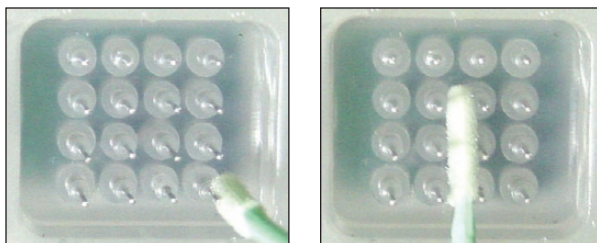


Fig. 3.3. Manual cleaning method. **Left**, positioning the swab along the length of the pin; **Right**, moving the swab up and down and side to side along the columns and rows of pins.

4. Repeat steps 2 and 3 twice, each time with a fresh swab soaked in DEPC-treated water.
5. Fill a cleaning chip with 800 µl DEPC-treated water, and place the chip in the electrophoresis station for 5 min.
6. Remove the chip and allow the pins to dry by leaving the lid open for 5–10 min.

Method 2: Routine Cleaning (After Each Run)

Clean the electrode manifold in the Experion electrophoresis station after each run using the following procedures. Such routine cleaning is essential for maintaining the electrophoresis station and preventing buildup and cross-contamination.

The type of cleaning procedure you will need to use depends on the types of samples being analyzed:

- Routine cleaning for protein and DNA analysis involves a single rinse step with water after each run
- Routine cleaning for RNA analysis involves 2 types of cleaning: 1) a two-step process performed daily before running chips and 2) rinsing the electrodes with DEPC-treated water after each run

Each box of chips contains 1 (protein, DNA) or 2 (RNA) reusable cleaning chips to be used for routine cleaning. Never store the cleaning chip inside the electrophoresis station. Store the empty cleaning chip covered to keep the wells clean.

Routine Cleaning — Protein and DNA Analysis

Use this procedure to clean the electrode manifold in the Experion electrophoresis station immediately after each run.

1. Fill a cleaning chip with 800 µl deionized water (0.2 µm filtered; use DNase-free water for DNA analysis). Gently tap the side of the cleaning chip to remove any trapped bubbles from the wells.
2. Place the cleaning chip on the chip platform of the electrophoresis station. Then close the lid and leave it closed for 1 min.
3. Open the lid, remove the cleaning chip, and allow the electrodes to dry for 1 min. Close the lid.
4. Replace the water in the cleaning chip after each use to avoid contamination. For storage, remove the water from the cleaning chip and store the chip in a clean location.

Routine Cleaning — RNA Analysis

This procedure involves two protocols: a two-step process that is performed before RNA analysis (for example, at the beginning of a work day) and a rinse step performed following each RNA analysis. It uses two cleaning chips: one with DEPC-treated water, and the other with Experion electrode cleaner. Experion electrode cleaner removes RNases from the electrode, and the water rinse removes traces of the cleaner from the electrodes to prevent it from affecting the analysis.

If the cleaning chips are being used for the first time, wash them with electrode cleaner to remove any RNase contamination:

1. Fill the two cleaning chips with 800 µl Experion electrode cleaner. Let sit for 5 min and then remove the electrode cleaner.
2. Rinse the chips by adding 800 µl DEPC-treated water and letting it sit for 1 min. Repeat this step four more times.
3. Label the cleaning chips: dedicate one for DEPC-treated water and the other for electrode cleaner.

Routine Cleaning *Before* RNA Analysis

Use this protocol, for example, at the start of a workday.

1. Fill one cleaning chip with 800 μ l Experion electrode cleaner and another with 800 μ l DEPC-treated water. Gently tap the side of the chips to remove any trapped bubbles from the wells.
2. Place the cleaning chip with electrode cleaner on the chip platform, close the lid of the electrophoresis station, and leave it closed for 2 min.
3. Replace the electrode cleaner chip with the chip containing the DEPC-treated water, close the lid, and leave the chip in the electrophoresis station for 5 min to rinse the electrodes.
4. Replace the DEPC-treated water in the DEPC-treated water chip, and repeat the rinse step for 1 min.
5. Open the lid, remove the DEPC-treated water chip, allow the electrodes to dry for 1 min, and then close the lid again.
6. Replace the water and electrode cleaner in the cleaning chips after each use to avoid contamination. For storage, remove the water or electrode cleaner from each cleaning chip and store the chips in a clean location.

Routine Cleaning *After* Each RNA Analysis

1. Fill the cleaning chip labeled DEPC with 800 μ l DEPC-treated water. Gently tap the side of the cleaning chip to remove any trapped bubbles from the wells.
2. Place the cleaning chip on the chip platform, close the lid of the electrophoresis station, and leave it closed for 1 min.
3. Open the lid, remove the cleaning chip, allow the electrodes to dry for 1 min, and then close the lid.
4. Replace the water in the cleaning chip after use to avoid contamination. For storage, remove the water from the cleaning chip and store the chip in a clean location.

3.1.3 Replacing the Electrode Manifold

If the electrode pins become damaged, contact Bio-Rad Technical Support to replace the entire electrode manifold.

3.2 Priming Station

Periodically wipe the priming station clean using a soft, lint-free cloth and deionized water. Replace the priming seal (catalog #700-7031) once a year or as needed (for example, if the seal becomes clogged with gel, which may occur if the priming station is opened before priming is complete) to maintain optimal performance. Display of the **Check Seal** message on the LCD indicates the priming seal may need to be replaced.

To replace the priming seal (catalog #700-7031):

1. Wearing gloves to keep the seal clean, open the priming station, pull the priming seal tab forward to remove it (Figure 3.4). Hold the tab as close as possible to the seal.
2. Position the new priming seal so the tab is located to the right, and insert the seal into the hole. Use your thumb to push the seal back into position.
3. Reset the priming station by unplugging it for a few sec and then reconnecting the power cord.

The cylindrical portion of the seal has a ridge on one side that fits into a cutout in the opening of the priming station. If the ridge and cutout are not lined up properly, the seal may be difficult to insert.

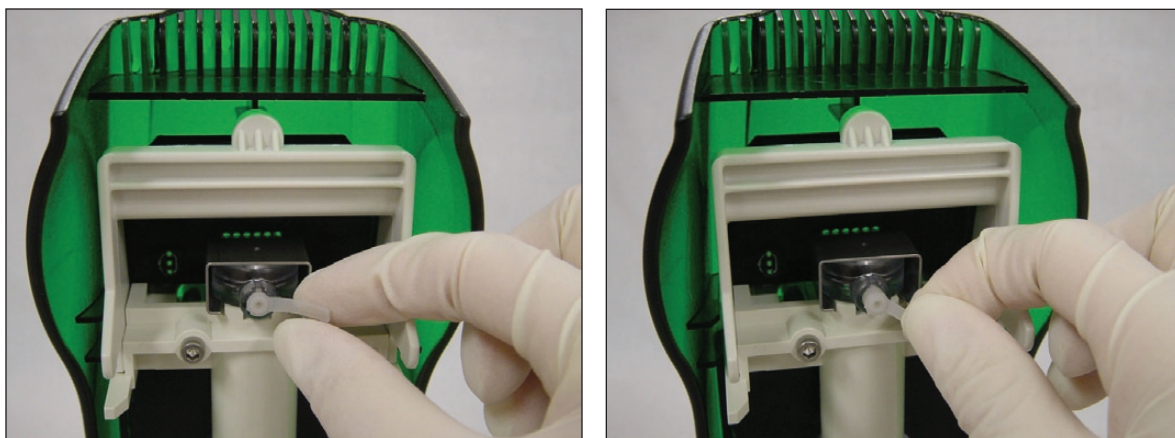


Fig. 3.4. Pulling the priming seal tab.

3.3 Vortex Station

To clean the vortex station, unplug it from its power source and clean carefully with a damp cloth and water. Do not clean with acetone or other organic liquids, except alcohol. In extreme cases, mild alcohols (10% ethanol, for example) may be used. Dry thoroughly.

4

Troubleshooting

This chapter contains troubleshooting information for the Experion™ system hardware components and general software error codes. For detailed troubleshooting advice specific to an Experion analysis kit, refer to the analysis kit instruction manual.

4.1 Electrophoresis Station

Error	Probable Cause	Recommended Action
Green LED on the front panel is not illuminated	There is no power to the electrophoresis station	Check the connections to the PC and to the power outlet Confirm that the power button is depressed, or in the “on” position
Experion icon on the software screen is grayed-out	There is no communication between the computer and the electrophoresis station	Check the connections to the PC, then reboot the PC. Power on the electrophoresis station before launching Experion software
IV check failure (Experion software)	One or more wells are not filled correctly, and the electrodes are not immersed	Fill all sample wells of the chip with blank or replicate samples Ensure pipets are properly calibrated
	Air bubbles are interfering with the electrical contact in one or more of the wells	Stop the run, remove the chip, and use a clean pipet tip to remove the sample and apply a new aliquot When pipetting, insert the tip vertically and to the bottom of the well. Dispense the liquid slowly. Do not expel air at the end of the pipetting step. Dispense only to the first stop on the pipet. Positive (reverse) pipetting may also be used
	An electrode is loose or disconnected	Perform a conductivity test with the cleaning chip or conductivity chip from the Experion validation kit (catalog #700-7051). Add 850 µl water to the chip, place the chip in the electrophoresis station, and close the lid. In Experion software, select Tools > Diagnose Instrument and in the Instrument Diagnostics dialog, select Conductivity If the station passes the test, focus on the sources of error above. If it fails, contact Technical Support with the results
	The chip is not primed properly	Repeat the analysis using a new chip
Unreliable runs: the electrophoresis station aborts a run or generates variable data	The computer power saver options are causing the runs to abort (this is a problem only with Experion software prior to version 3.0)	Upgrade to the newest version of Experion software Confirm that all power saver and/or power options are turned off before starting the assay. Do not let the computer “sleep” during a run. If the computer goes to sleep, the run will abort
	Sample preparation procedures are inconsistent	Use the same reagents and follow the same procedures for each sample and each run. Do not modify the protocol to compensate for sample concentration or variability Use calibrated pipets Check that reagents and chips have not expired
	The chip is not primed properly	Repeat the analysis using a new chip
	An incompatible sample buffer was used	Ensure that the buffer used to solubilize samples falls within the buffer compatibility guidelines for the assay (see the assay instruction manual for details)

4.2 Priming Station

Error	Probable Cause	Recommended Action
LCD screen is blank	There is no power to the priming station	Check the power cord connections and for AC power to the outlet
Check Seal message	The priming seal is worn, torn, or clogged	Replace the priming seal (see Section 3.2, Priming Station)
	The chip is not positioned correctly in the priming station	Align the arrow on the chip with the arrow on the platform
	The gel-stain solution (GS) was added to the wrong well for priming	The priming well is highlighted on the chip. Refer to the assay manual for information on how to prime the chip
Nothing happens when the Start button is pushed	The gel-stain solution (GS) was added to the wrong well for priming	The priming well is highlighted on the chip. Refer to the assay manual for information on how to prime the chip
Timer fails to count down to zero after pushing the Start button	The priming seal is worn, torn, or clogged	Replace the priming seal (see Section 3.2, Priming Station)
Service message and wrench icon appear in the display		Contact your local Bio-Rad office
After priming, a bubble is present in the microchannels	Poor application of gel-stain solution (GS); bubbles that are forced into the microchannels take the shape of the microchannel and are elongated, not round	Prime a new chip
After priming, channels are not filled with gel-stain solution (GS)	Inappropriate priming pressure and time settings were used	Use the pressure and time settings indicated on the chip for the selected assay
	GS was added to the wrong well for priming	The priming well is highlighted on the chip. Refer to the assay manual for information on how to prime the chip
	The priming seal is worn, torn, or clogged	Replace the priming seal (see Section 3.2, Priming Station)
	Particulates in GS are clogging the microchannels	Prepare new GS or refilter an older aliquot

After changing the priming seal, or if the display is not working properly, reset the priming station by unplugging it for a few sec and then reconnecting the power cord.

4.3 Vortex Station

Error	Probable Cause	Recommended Action
No movement or sound	There is no power to the vortex station	Check the power cord connections and for AC power to the outlet Unplug the power cord and check both fuses If all of the above are fine, contact Bio-Rad Technical Support
Vortex adapter is damaged or does not move but motor makes some noise, or if solution splashes out of chip wells after vortexing		Contact Bio-Rad Technical Support

4.4 Software Errors

Error Code	Message	Probable Cause	Recommended Action
50001	Login failed	The username and/or password is invalid	Log in again using a valid username and password
50004	Failed to create the data file folder		Log in as a Windows Administrator and reinstall Experion software
50005	Failed to create the packet file folder		Log in as a Windows Administrator and reinstall Experion software
50006	Cannot start a run because the electrophoresis station is in use		Wait for a run to complete before starting a new run
50007	Failed to locate the electrophoresis station selected		Confirm the electrophoresis station and PC are connected and try again
50008	Failed to open the assay selected		Restart the computer and try again Reinstall Experion software
50009	Cannot find the script for the assay selected		Reboot the computer and run the assay again; if the problem persists, reinstall Experion software
50011	The selected assay cannot be run on this electrophoresis station	The software is in simulation mode; an assay cannot be run on a simulation electrophoresis station	Deselect simulation mode to run the assay. Select Tools > Options > Advanced and then deselect Instrument Simulation Mode
50013	Failed to create the data file		Check permissions to write to the data folder
50015	Failed to locate the run selected	The run information appears in the tree view, but the data file is missing	Import the data file again by browsing to the data file location
50016	No assay selected		Select an assay, then start the run
50017	Unexpected error occurred in the application. Please check the log file for details		Take the action indicated in the system log file

Error Code	Message	Probable Cause	Recommended Action
50019	The run is already present in the tree view	An attempt was made to import a run that is already present	Check the tree view for the imported run
50021	Failed to save the run		Check permissions to write to the data folder
50022	Cannot change the electrophoresis station simulation mode because an electrophoresis station is currently running	The software is trying to toggle between normal and simulation mode, which cannot be done while the electrophoresis station is running	Stop the run to switch modes. To switch modes, select Tools > Options > Advanced and then select or deselect Instrument Simulation Mode
50024	Select a project before starting a run		Select a project, then start the run
50033	Failed to connect to the database		See the Security Edition startup guide or software Help file for requirements for connecting to the database
50046	Aborting the run	Lid is opened during the run	Do not open the lid during the run; to stop the run, click Stop Run
50047	Cannot close Experion because electrophoresis stations are acquiring data		Wait for the run to complete before exiting
50060	Failed to save protein names		Check permissions to write to the data folder
50063	Cannot start run - Electrophoresis station lid open		Close the lid and start the run
50064	Cannot start run - no chip detected		Confirm that the chip is primed and loaded properly and that it is seated correctly in the electrophoresis station. Then restart the run
50068	Failed to subscribe to electrophoresis station control events		Restart the computer and try again Disable the firewall
50075	Cannot logoff because the user is currently running experiments		Wait until the run is complete prior to logging off
50081	Cannot perform software OQ because configuration files are missing		Login as a Windows Administrator and reinstall Experion software
	Application needs to be run with administrative privileges		Right-click the Experion software desktop icon to launch software, and select Run As Administrator
	Attempt to start assay without script	A script was not received by the electrophoresis station	Restart Experion software
	BsnReader has stopped working		Restart the computer and power off/on the electrophoresis station
	Cannot communicate with channel power supplies		Contact Bio-Rad Technical Support

Error Code	Message	Probable Cause	Recommended Action
	Database at <path> could not be attached	The database file is missing or corrupted	Restore from backup or recreate by reinstalling software
	Database server is not available or not found		Restart the computer and try again. If the problem persists, update Windows via Windows update and then uninstall Experion software (see Uninstalling Experion 3.0 XP in the software Help file). Reinstall Experion software
	Did not receive a proper response to a command	The PC and electrophoresis station are not synchronized	Exit the application and reboot the PC Power off/on the electrophoresis station and restart the software. Power on the electrophoresis station before launching Experion software If the problem persists and data are affected, contact Bio-Rad Technical Support
	Failed to add user < LoginName> to Windows 'Experion' Group	Insufficient permissions	See the Security Mode section of the software Help file
	Failed to add Windows 'Experion' Group	Insufficient permissions	See Launching the application for the first time for Vista or XP in the software Help file
	Failed to add Windows 'Experion' group access to Experion Database	Insufficient permissions	See the Security Mode section in the software Help file Restart the computer and try again. If the problem persists, update Windows via Windows update and then uninstall Experion software (see Uninstalling Experion 3.0 XP in the software Help file). Reinstall Experion software
	Failed to add Windows 'Experion' Group - Windows Logon User must be a Windows Administrator	Insufficient permissions	See Launching the application for the first time for VISTA or XP in the software Help file
	Failed when checking if Experion Database is attached.	Insufficient permissions	See the Security Mode section of the software Help file Restart the computer and try again Update Windows via Windows update and then uninstall and reinstall Experion software (see Uninstalling Experion 3.0 XP in the software Help file)
	Focus Motors and Limit Switches failed		Contact Bio-Rad Technical Support
	Installation rolls back	Corrupt Setup.exe file	Install the software using a different Setup.exe file (contact Technical Support for help)
		Antivirus software blocking installation	Disconnect the computer from the Internet to minimize the chance for virus attack, stop antivirus software, and try again
		Bad conditions (for example, corrupted registry, malfunctioning components, etc.) in the operating system	Ask your IT department to check the integrity of the operating system

Error Code	Message	Probable Cause	Recommended Action
	Installation rolls back (continued)	Conflict with installed software or between installation demands and current system configuration	Ask your IT department for assistance Install Experion software on a computer that has only basic software installed
	Invalid characters in name: <Name> were found and removed. Valid characters are: alphanumeric, <, >, [,] and spaces	The DNA name contains invalid characters	Enter a valid name
	Power-on Self Test Error: Current Read Error found on Supply		Contact Bio-Rad Technical Support
	Power-on Self Test Error: Voltage Read Error found on Supply		Contact Bio-Rad Technical Support
	Script Calibration error in Channel		Contact Bio-Rad Technical Support
	Select an electrophoresis station before starting a run		Select an electrophoresis station, then start the run
	Self Calibration error in Channel		Contact Bio-Rad Technical Support
	There is an instance of Experion application running on this machine. Please close it to continue the installation	An attempt was made to install/upgrade Experion software while the software was running	Close the running application and click OK to proceed with installation
	The molecular weight m.nn ± d.dd overlaps with Protein: ID = <id> <Name> m.nn ± d.dd	Search criteria overlap, resulting in a single peak being identified with two names, which is not permitted	Redefine the molecular weight so there is no overlap; <ID> and <Name> are populated with the entry with which the size overlaps
	This run file is either being used by another user or has a read-only access. Continue opening in read-only mode?	User does not have write permission for the file	Deselect the read-only flag in the run file properties Log in as an Administrator to access the file Add Experion group access to the data folder. Deselect Use simple file sharing under Control Panel > Folder options > View to enable the Security tab
	UAC is ON which requires application to be run with administrative privileges	(This error is specific to the Vista operating system)	Right-click the Experion software desktop icon and select Run As Administrator
	Unexpected error in establishing database connection		Restart the computer and try again If the problem persists, update Windows via Windows update and then uninstall Experion software (see Uninstalling Experion 3.0 XP in the software Help file). Reinstall Experion software
	USB Buffer Overflow	Communication error between the PC and the electrophoresis station	Exit Experion software and power off the electrophoresis station. Power the electrophoresis station back on and then launch Experion software Always power on the electrophoresis station before launching Experion software

4.5 Diagnostic Tests of the Electrophoresis Station

Experion software features a set of programmed diagnostic tests used to check various aspects of electrophoresis station performance. The Experion validation kit (catalog #700-7051) or Security Edition software (catalog #700-7052) are required to execute some of these tests. If the electrophoresis station fails, repeat it for confirmation. If it fails twice, contact Bio-Rad Technical Support for assistance.

These tests are also executed by the IQ/OQ protocols as part of the **Validation** menu, which allows you to print a hard copy of the pass/fail report.

4.5.1 System Diagnostic Tests

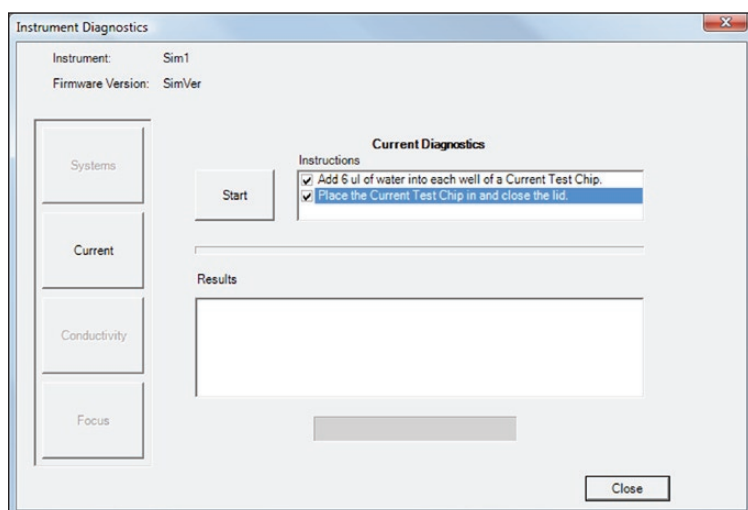
Perform these tests to perform functional analyses of various aspects of the system.

- Under **Tools > Diagnose Instrument**, click **Systems** and select all of the following the diagnostic tests:
 - **Communications** — reports the rate of data transfer (bytes/sec) between the electrophoresis station and the application
 - **Electronics** — performs all startup electronic board tests for the electrophoresis station
 - **Fan** — verifies the fan is running
 - **Heater Plate** — verifies that the heater achieves a set temperature within an acceptable time window (not before 30 sec and not after 5 min of the start of the command)
 - **Lid Sensor** — verifies the operation of the lid sensor
- Click **Start**. Results appear in the **Test Results** field as pass or fail. If a test fails, record the explanation and contact Technical Support.

4.5.2 Current Test

Perform this test to determine whether current is leaking between the electrode pins. This test requires use of the leakage current chip included in the Experion validation kit.

- Under **Tools > Diagnose Instrument**, click **Current**. The **Instrument Diagnostics** window appears.
- Follow the instructions in the **Instructions** field. Check the instruction after you complete the command. When all instructions are checked, the **Start** button is enabled.
- Click **Start**. A 10 min countdown timer appears. Results appear in the **Results** field.



4.5.3 Conductivity Test

Perform this test, which uses the conductivity chip from the validation kit filled with water, to verify the regulation of the current by the power supplies. Two different measurements are made (current and voltage) for each electrode pin.

1. Under **Tools > Diagnose Instrument**, click **Conductivity**. The **Instrument Diagnostics** window appears.
2. Follow the instructions in the Instructions field. Check the instruction after you complete the command. When all instructions are checked, the **Start** button is enabled.
3. Click **Start**. A progress bar indicates the time remaining. Results appear in the **Results** field.

4.5.4 Focus Test

Perform this test, which requires the Experion validation kit, to verify the performance of the optics and related electronics. It checks for correct operation of the limit switches, the existence of a good fluorescence signal peak, laser %CV, background signal, and background noise.

1. Under **Tools > Diagnose Instrument**, click **Focus**. The **Instrument Diagnostics** window appears.
2. In the **Step** tab, follow the instructions in the **Instructions** field, checking them off as you proceed:
 - a. Record the horizontal offset (**O/S**) and signal level factor (**INT**, located on the back of the focusing chip).
 - b. Enter those values under the **Focus Chip Values** tab.
3. When all instructions are checked, the **Start** button is enabled in the **Step** tab. Click **Start**. A progress bar indicates the time remaining. Results appear in the **Results** field.



Appendices

Appendix A: Safety Notices

General Use Information

Always connect the Experion™ automated electrophoresis station, priming station, and vortex station to a grounded AC outlet rated 10 A/100–240 V using the AC power cord provided.

Never remove the outer casing of the electrophoresis station or other system components. Doing so voids the manufacturer warranty. The only user-serviceable part of the Experion system is the priming seal gasket of the priming station. If you suspect other parts need service, call your local Bio-Rad office.

The electrophoresis station is intended for laboratory use only. Do not use the equipment except as intended.

Do not operate the Experion system in extreme humidity (>90%) or where condensation can short the internal electrical circuitry.

Periodically inspect Experion electrophoresis stations for obvious damage that might affect normal operation.

Do not operate after the equipment malfunctions or if it has been damaged in any manner.

Return the electrophoresis station to Bio-Rad for service or examination, repair, or electrical or mechanical adjustment.

When using electrical equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury. To reduce the risk of electric shock, do not immerse the electrophoresis, priming, or vortex station in water or other liquid.

Electrophoresis Station Safety Notice

The Bio-Rad Experion electrophoresis station is designed and certified to meet EN 61010-1 and IEC 61010-1 safety standards. EN 61010-1- and IEC 61010-1-certified products are safe to use when operated in accordance with the instruction manual. This equipment should not be modified in any way. Alteration of these electrophoresis stations will:

- Void the manufacturer's warranty
- Void the EN 61010-1 and IEC 61010-1 safety certification
- Create a potential safety hazard

Bio-Rad Laboratories is not responsible for any injury or damage caused by the use of this system for purposes other than those for which it is intended, or by modifications of the components not performed by Bio-Rad Laboratories or an authorized agent.

These products conform to the "Class A" standards for electromagnetic emissions intended for laboratory equipment applications. It is possible that emissions from these products may interfere with some sensitive appliances when placed nearby or in the same circuit as those appliances. The user should be aware of this potential and take appropriate measures to avoid interference.

The vortex station is built in accordance with electrical requirements for measurement, control, and laboratory by IEC 61010-1; UL 61010-1 (U.S.), CAN/CSA C22.2 No. 61010-1 (Canada), Règles de sécurité pour appareils électriques de mesure, de régulation, et de laboratoire; Partie 1: Prescriptions générales (CEI 1010-1, France), DIN EN 61010-1 class VDE 0411 (Germany).

Laser Safety Notice

Use of controls, adjustments or performance of procedures other than those specified in this instruction manual may result in access to hazardous laser light. Do not attempt to remove any parts of the housing. The electrophoresis station is to be serviced only by the factory. Opening the housing of the electrophoresis station voids the warranty.

The electrophoresis station is a laser product that is classified as Class 1 under 21CFR chapter 11, subchapter J, and under EN 60825-1. It presents no laser hazard to the user.

Appendix B: System Specifications

Electrophoresis Station

Material

Casing	ABS, polycarbonate (gray)
Lid	Polycarbonate (translucent green)
Open latch	Polycarbonate (khaki)
Rubber feet	Thermoplastic rubber
Power button	ABS, polycarbonate (green)

Technical

Power supply	100–240 VAC, 50/60 Hz, 31 VA
Power indicator	LED
Electrode wires	90% Platinum, 10% iridium alloy, 0.5 mm diameter
Laser	Photo diode, 635 nm excitation
Laser	Safety Class 1 product (nonhazardous)
Detector	Photoemission, 685 nm emission
Voltage limit	2,200 V (when multiple channels are driven)
Operating conditions	15–40°C, 0–90% humidity
Safety conformances	
U.S.	IEC 61010-1, EN 61010-1:2001, and UL 61010-1
Canada	CAN/CSA C22.2 No. 61010-1
EMC compliance	EN 61326: Class A
Computer connection	USB2 cable
Weight	4.58 kg (10 lb 1 oz)
Dimensions	15 x 31 x 29 cm

Priming Station

Material

Base casing	Glass-filled polycarbonate (gray)
Lid	Polycarbonate (translucent green)
Open latch	Polycarbonate (khaki)
Rubber feet	Thermoplastic rubber
Priming seal	Silicone rubber

Technical

Power supply	100–240 VAC, 50/60 Hz, 31 VA
Pressure range	50–125 psi
Time range	30–150 sec
Display	LCD
Safety conformances	
U.S.	IEC 61010-1, EN 61010-1:2001, and UL 61010-1
Canada	CAN/CSA C22.2 No. 61010-1
EMC compliance	EN 61326: Class A
Weight	1.36 kg (3 lb)
Dimensions	9.5 x 26 x 7.5 cm

Vortex Station II

Material

Casing	Zinc die cast
Paint on casing	Polyester powder coating (gray)
Front panel	Polyester
Vortex adapter	Polycarbonate (green)

Technical

Power adapter	Input 100–240 VAC, 50/60 Hz Output 24 VDC, 800 mA
Time setting	60 sec
Eccentric orbital movement	4.5 mm
Safety conformances	DIN EN IEC 61010-1, -2-051 2006/95/EG, [73/23/EG]
EMC compliance	DIN EN IEC 61326-1 2004/108/EG, [89/336/EG]
Weight	2.9 kg (6 lb 6 oz)
Dimensions	14.8 x 6.3 x 20.5 cm

Appendix C: Bibliography

Visit us on the Web at www.bio-rad.com (search term “Experion”) for a list of technical literature and to download copies of all current documents.

Bulletin Title **General**

5285 Bio-Rad Applies Microfluidics to Automate Gel Electrophoresis

Protein Applications

5299 Performance Comparison of the Experion™ Automated Electrophoresis System and SDS-PAGE for Protein Analysis

5302 Performance Comparison of the Experion Automated Electrophoresis System and a Competing Automated System for Protein Analysis

5328 Experion Automated Electrophoresis System and the Experion Pro260 Analysis Kit: Accurate and Reproducible Protein Sizing and Quantitation in the Presence of High Salt Concentrations

5423 Protein Quantitation: A Comparative Analysis Using the Experion Automated Electrophoresis System, Bradford and Modified Lowry Assays, and SDS-PAGE

5784 Comparison of Protein Quantitation Methods Using the Experion Automated Electrophoresis System

5355 Rapid Screening of Mini Rotofor® Fractions Using the Experion Automated Electrophoresis System

5506 Monitoring Development of Chromatographic Methods with the Experion Automated Electrophoresis System

5453 Application of the Experion Automated Electrophoresis System to Glycoprotein Visualization and Analysis

5501 Rapid, Efficient Purification and Evaluation of His-Tagged Proteins

5514 Automated Purification of a His-Tagged Protein with the Profinia™ Protein Purification System: Comparison with Another Low-Pressure Chromatography System

3176 Monitoring the Expression, Purification, and Processing of GST-Tagged Proteins Using the Experion Automated Electrophoresis System

RNA/DNA Applications

5286 Performance Comparison of the Experion Automated Electrophoresis System and a Competing Automated System for RNA Analysis

5859 A Practical Approach to RT-qPCR — Publishing Data That Conform to the MIQE Guidelines

5315 Using the Experion Automated Electrophoresis System to Assess RNA Quality and Quantity in siRNA-Induced Gene Silencing Experiments

5420 Experion RNA Quantitation Methods: A Comparative Analysis Using the Experion Automated Electrophoresis System, RiboGreen Reagent, and Ultraviolet Spectroscopy

5452 Effect of RNA Degradation on Data Quality in Quantitative PCR and Microarray Experiments

5761 Development and Validation of RQI: An RNA Quality Indicator for the Experion Automated Electrophoresis System

Appendix D: Ordering Information

Catalog # Description

Experion Automated Electrophoresis Systems

700-7000	Experion System, 100–240 V, for protein analysis, includes electrophoresis station, priming station, software, USB2 cable
701-7000	Experion System, 100–240 V, for protein analysis, includes electrophoresis station, priming station, software, USB2 cable, Experion Pro260 starter kit
700-7001	Experion System, 100–240 V, for RNA and DNA analysis, includes electrophoresis station, priming station, vortex station, software, USB2 cable
701-7001	Experion System, 100–240 V, for RNA and DNA analyses, includes electrophoresis station, priming station, vortex station, software, USB2 cable, Experion RNA StdSens starter kit

Experion Automated Electrophoresis Systems With Computers

700-7060	Experion System with Dell Computer and Monitor, 100–240 V, for protein analysis, includes electrophoresis station, priming station, Dell Optiplex computer, monitor, software, USB2 cable
700-7061	Experion System with Dell Computer, 100–240 V, for protein analysis (without monitor)
700-7062	Experion System with Dell Computer and Monitor, 100–240 V, for RNA and DNA analysis, includes electrophoresis station, priming station, vortex station, Dell Optiplex computer, monitor, software, USB2 cable
700-7063	Experion System with Dell Computer, 100–240 V, for RNA and DNA analysis (without monitor)

Experion Automated Electrophoresis Station

700-7010	Experion Electrophoresis Station, 100–240 V, includes USB2 cable
700-7022	Experion USB2 Cable with Ferrite, replacement

Experion Priming Station

700-7030	Experion Priming Station, 100–240 V, includes 2 priming seals
700-7031	Experion Priming Seals, replacement, provide air seal on top of priming well, 2

Experion Vortex Station

700-7043	Experion Vortex Station II, 100–240 V, for preparing Experion RNA/DNA chips
----------	---

Experion Software

700-7050	Experion Software, system operation and standard data analysis tools, includes software CD-ROM
700-7051	Experion Validation Kit, includes 3 test chips, qualification procedures, dongle for PC
700-7052	Experion Software, Security Edition, standard and 21 CFR Part 11 compliance data analysis tools, 3 test chips, qualification procedures, dongle for PC

Experion Analysis Kits

- 700-7101 Experion Pro260 Analysis Kit for 10 Chips, includes 10 Pro260 chips, 1 cleaning chip, 3 x 520 µl Pro260 gel, 45 µl Pro260 stain, 60 µl Pro260 ladder (10–260 kD), 400 µl Pro260 sample buffer, 3 spin filters
- 700-7103 Experion RNA StdSens Analysis Kit for 10 Chips, includes 10 RNA StdSens chips, 2 cleaning chips, 1,250 µl RNA gel, 20 µl RNA StdSens stain, 20 µl RNA ladder, 900 µl RNA StdSens loading buffer, 2 spin filters
- 700-7105 Experion RNA HighSens Analysis Kit for 10 Chips, includes 10 RNA HighSens chips, 2 cleaning chips, 1,250 µl RNA gel, 20 µl RNA HighSens stain, 20 µl RNA ladder, 900 µl RNA HighSens loading buffer, 100 µl RNA sensitivity enhancer, 2 spin filters
- 700-7107 Experion DNA 1K Analysis Kit for 10 Chips, includes 10 DNA chips, 1 cleaning chip, 3 x 250 µl DNA 1K gel, 40 µl DNA 1K stain, 20 µl DNA 1K ladder, 750 µl DNA 1K loading buffer, 3 spin filters
- 700-7108 Experion DNA 12K Analysis Kit for 10 Chips, includes 10 DNA chips, 1 cleaning chip, 650 µl DNA 12K gel, 40 µl DNA 12K stain, 20 µl DNA 12K ladder, 750 µl DNA 12K loading buffer, 3 spin filters

Additional Chips and Reagents

- 700-7151 Experion Pro260 Chips, 10, plus 1 cleaning chip
- 700-7152 Experion Pro260 Reagents and Supplies for 10 Chips, includes 3 x 520 µl Pro260 gel, 45 µl Pro260 stain, 60 µl Pro260 ladder (10–260 kD), 400 µl Pro260 sample buffer, 3 spin filters
- 700-7153 Experion RNA StdSens Chips, 10, plus 2 cleaning chips
- 700-7154 Experion RNA StdSens Reagents and Supplies for 10 Chips, includes 1,250 µl RNA gel, 20 µl RNA StdSens stain, 20 µl RNA ladder, 900 µl RNA StdSens loading buffer, 2 spin filters
- 700-7155 Experion RNA HighSens Chips, 10, plus 2 cleaning chips
- 700-7156 Experion RNA HighSens Reagents and Supplies for 10 Chips, includes 1,250 µl RNA gel, 20 µl RNA HighSens stain, 20 µl RNA ladder, 900 µl RNA HighSens loading buffer, 100 µl RNA sensitivity enhancer, 2 spin filters
- 700-7163 Experion DNA Chips, 10, for DNA 1K and 12K analyses, plus 1 cleaning chip
- 700-7164 Experion DNA 1K Reagents and Supplies for 10 Chips, includes 3 x 250 µl DNA 1K gel, 40 µl DNA 1K stain, 20 µl DNA 1K ladder, 750 µl DNA 1K loading buffer, 3 spin filters
- 700-7165 Experion DNA 12K Reagents and Supplies for 10 Chips, includes 650 µl DNA 12K gel, 40 µl DNA 12K stain, 20 µl DNA 12K ladder, 750 µl DNA 12K loading buffer, 3 spin filters

700-7251	Experion Cleaning Chips, 10
700-7252	Experion Electrode Cleaner, 250 ml
700-7253	Experion DEPC-Treated Water, 100 ml
700-7254	Experion Spin Filters, 10
700-7255	Experion RNA Ladder, 20 µl
700-7256	Experion Pro260 Ladder, 60 µl
700-7261	Experion DNA 1K Ladder, 20 µl
700-7262	Experion DNA 12K Ladder, 20 µl
700-7112	Experion Mouse Liver Total RNA Standard, 500 ng/µl, 20 µl
500-0208	Quick Start™ Bovine γ Globulin Standard, 2 mg/ml, 5 x 2 ml vials
700-7264	Cleaning Swabs, lint free, for electrode deep cleaning, 25
700-7270	Experion Pro260 Sample Buffer, 400 µl, 2 vials
163-2091	ReadyPrep™ Proteomics Grade Water, 500 ml
161-0710	2-Mercaptoethanol, 25 ml
161-0610	Dithiothreitol (DTT), 1 g



**Bio-Rad
Laboratories, Inc.**

Life Science
Group

Web site www.bio-rad.com **USA** 800 424 6723 **Australia** 61 2 9914 2800 **Austria** 01 877 89 01 **Belgium** 09 385 55 11 **Brazil** 55 31 3689 6600
Canada 905 364 3435 **China** 86 20 8732 2339 **Czech Republic** 420 241 430 532 **Denmark** 44 52 10 00 **Finland** 09 804 22 00 **France** 01 47 95 69 65
Germany 089 31 884 0 **Greece** 30 210 777 4396 **Hong Kong** 852 2789 3300 **Hungary** 36 1 459 6100 **India** 91 124 4029300 **Israel** 03 963 6050
Italy 39 02 216091 **Japan** 03 6361 7000 **Korea** 82 2 3473 4460 **Mexico** 52 555 488 7670 **The Netherlands** 0318 540666 **New Zealand** 0508 805 500
Norway 23 38 41 30 **Poland** 48 22 331 99 99 **Portugal** 351 21 472 7700 **Russia** 7 495 721 14 04 **Singapore** 65 6415 3188 **South Africa** 27 861 246 723
Spain 34 91 590 5200 **Sweden** 08 555 12700 **Switzerland** 061 717 95 55 **Taiwan** 886 2 2578 7189 **United Kingdom** 020 8328 2000