

Automated Electrophoresis

Experion™ Automated
Electrophoresis System

112

Ordering Information

117

See Also

Real-time PCR detection systems: pages 300–302.
 BioLogic DuoFlow systems: pages 77–84.
 Profinia protein purification system: pages 92–93.
 ProteOn protein interaction array system: pages 248–251.

Experion™ Automated Electrophoresis System

The Experion automated electrophoresis system automatically performs all the steps of gel-based electrophoresis, providing a comprehensive platform for the analysis of nucleic acids and proteins.

Rapid Analysis of Proteins, RNA, and DNA

The Experion system performs automated sample separation, staining, destaining, imaging, band detection, quantitation, and data analysis in as little as 30 minutes. Results are digitally stored for easy record keeping and reporting. The software interface and functionality are intuitive, and the system's microfluidic technology provides good reproducibility and accuracy for routine analysis.



Reproducible Separation, Sizing, and Quantitation

- Single-step protein sizing from 10 to 260 kD
- Protein sensitivity down to 2.5 ng/μl
- RNA concentration and integrity (RQI) determination at nanogram and picogram levels
- Single-step sizing and quantitation analysis of DNA fragments
- Simple chip priming — automated method for reproducible, error-free results

Convenient Data Analysis Tools

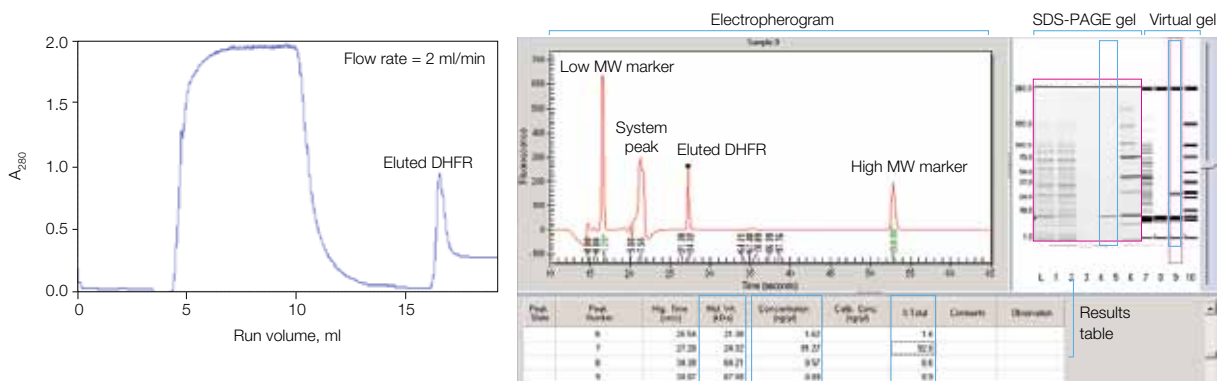
- Automatic sizing and quantitation calculations
- Intuitive navigation of separation and data analysis screens
- Quick comparisons of samples across the chip or from chip to chip
- Digital data storage for easy record keeping and reporting
- Flexible and easy export options and annotation ability for publications, reports, and presentations

A Powerful Complement to Many Applications

The Experion system is the ideal complement to a number of applications including sizing and quantitation of DNA fragments for PCR and restriction digest experiments, RNA integrity assessments prior to real-time PCR, microarray, and next-generation sequencing experiments (for example, using Illumina or Roche sequencers). RNA integrity assessment via RQI has been recommended as part of the MIQE guidelines. Leading scientists have developed these guidelines to increase the quality and reproducibility of quantitative PCR and real-time PCR data. The Experion system also provides quick protein purity analysis and results in digitized formats, which complement protein applications such as laboratory-scale chromatography, crystallography, and process-scale purification.

For More Information

Web: www.bio-rad.com/experion
 Request or download bulletins: 3140, 3169, 3170, 3171, 3184, and 5520



Analysis of chromatographic fractions with the Experion system. Left, chromatogram showing purification of His-tagged DHFR using Profinia™ IMAC resin and the BioLogic DuoFlow™ system. Right, comparison of analysis of fractions using the Experion system and SDS-PAGE (shown as inset). The Experion system generated an electropherogram and virtual gel image of the separation. Note that the virtual gel image is comparable to the SDS-PAGE gel image. The Experion system also automatically reports the size (MW), relative concentration, and percent of each resolved protein in the total sample in the results table.

Experion™ Automated Electrophoresis Station

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The Experion automated electrophoresis station is an electrophoresis cell, power supply, imager, and data storage tool all in a single device.

Easy, Precise Operation

- High quality laser provides precise fluorescence detection
- USB port allows easy installation and connectivity
- Easy-access platform for chip insertion and removal



Experion automated electrophoresis station. The analysis chip is placed on the chip platform; the 16 platinum pins in the electrode manifold line up precisely with the 16 wells on the chip. A large LED "On" light blinks when a run is in progress.

Experion™ Priming Station

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The Experion automated priming station consistently prepares chips for successful automated electrophoresis with minimal hands-on time. It is used with all Experion chips regardless of whether the application is for protein, RNA, or DNA samples. Preset time and pressure settings ensure optimal priming of the gel matrix into the microchannels of the chip in preparation for sample analysis. This device helps ensure higher quality and more reproducible results than those obtainable with less reliable manual priming methods.

Automated Chip Priming

- Large LCD display clearly shows the preset time and pressure settings
- Integrated timer conveniently counts down the time-sensitive priming step
- Coordinating alignment arrows on the chip and priming station ensure proper chip placement
- Built-in, pressure-activated release mechanism ensures precise priming
- Secure locking mechanism prevents early release while priming



Experion priming station. The priming station primes the chip by applying pressure and pushing the gel-stain solution into the microchannels of the chip. This automated priming method helps ensure reproducible chip performance.

Experion™ Vortex Station II

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The Experion vortex station II ensures complete mixing of RNA or DNA samples and analysis reagents. The specially designed vortex adaptor prongs securely hold the chip during the 1-minute vortex cycle. Preset speed and time settings provide single-step, precise mixing of samples and reagents.



Experion vortex station II. The vortex station is needed for nucleic acid analysis.

Experion™ Software

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Experion software adds to the efficiency of the Experion automated electrophoresis system. Results are displayed with peak electropherograms, in a virtual gel view, and as results tables. Additionally, versions 3.0 and above automatically generate a validated RNA quality indicator (RQI) number that correlates with eukaryotic total RNA sample integrity. The RQI complements the electropherogram and reported ribosomal peak area ratio visual assessments.

Key Features

- Real-time display of data acquisition
- Manual integration of peaks
- Automatic sizing, quantitation, and % total calculations
- Statistical evaluations (mean, std deviation, and %CV)
- Multiple protein quantitation method options
- Flexible printing and data export options

Experion Validation Kit (Optional)

The IQ/OQ validation kit includes automated protocols that test the critical functions of the system to verify and validate the system to the specified functionality. Validation should be performed at least biannually, when troubleshooting, and after moving the instrument.

Experion Security Edition Software (Optional)

The optional Security Edition offers tools for compliance with U.S. FDA 21 CFR Part 11 regulations:

- Different levels of access to different software functions
- Audit trail table tracks daily use of the system
- Password protection and auto lock function maintain database and file integrity
- Electronic signatures facilitate record keeping and tracking
- Report generation enables quick viewing and archiving of multiple run parameters, data, audit trail, and electronic signatures

System Requirements

Operating system	Windows XP (Service Pack 3), Windows Vista (Service Pack 1), Windows 7 (32 bit)
Processor (CPU)	Pentium 4 (3 GHz processor) PC only
RAM	1 GB
Hard drive space	80 GB
USB 2.0	1 port
Other drives	CD-ROM

For More Information

Web: www.bio-rad.com/experionsoftware

Request or download bulletins: 3171A; RQI — 5761

Experion™ Analysis Kits

Order Info: Pg 117

See Also

Chromatography systems: pages 76–103.

Real-time PCR detection systems: pages 300–302.

Sample preparation products: pages 2–12.

ProteOn protein interaction array system: pages 248–251.

Experion analysis kits combine innovative chip design with high-quality reagents to perform reproducible, quantitative, and accurate protein, RNA, or DNA analyses in minutes. Streamlined chip preparation methods and low sample and reagent volume requirements result in rapid experiments with minimal hands-on time.

For More Information

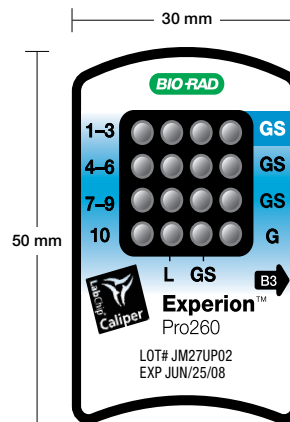
Web: www.bio-rad.com/experionanalysiskits

Request or download bulletins: 3140, 3169, 3170, 3171, 5520, and 5761



Experion Pro260 Analysis Kit

The Experion Pro260 analysis kit makes protein separation, sizing, and quantitation fast and easy. The Pro260 kit offers the ability to analyze 10 protein samples (between 10 and 260 kD) in approximately 30 minutes. Accurate sizing is achieved with the Experion Pro260 ladder, part of the Precision Plus Protein™ family of standards. Refer to the specifications table for more details.



Experion Pro260 Chip

Experion RNA HighSens and RNA StdSens Analysis Kits






For accurate assessment of RNA quality prior to downstream experiments, Experion RNA analysis kits offer rapid single-step quality assessments and the ability to analyze 11 or 12 samples in approximately 30 minutes. Sample concentrations in nanogram or picogram amounts can be analyzed, depending on the kit. Refer to the specifications table for more details. For a fast and objective assessment of total RNA integrity, an RNA quality indicator (RQI) value is automatically generated for eukaryotic samples.

Experion DNA 1K and DNA 12K Analysis Kits

The Experion DNA 1K and DNA 12K analysis kits allow analysis of DNA samples with size ranges between 15 and 1,500 bp and 50 and 17,000 bp, respectively. These DNA assays provide high sensitivity and excellent resolution (down to 5 bp) over a broad dynamic range. Consuming only 1 µl of sample for each analysis, the

Experion automated system can analyze 11 samples in approximately 30–40 minutes. These assays are recommended for analysis of restriction digests, amplified DNA, microsatellites, and AFLPs.

Specifications

	 Pro260 Chip	 RNA HighSens Chip	 RNA StdSens Chip	 DNA 1K Assay	 DNA 12K Assay
Number of samples	1–10	1–11	1–12	1–11	1–11
Sample volume	4 µl	1 µl	1 µl	1 µl	1 µl
Linear dynamic range	5–2,000 ng/µl BSA	—	—	—	—
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	—	—	Between 15 and 1,500 bp	Between 50 and 17,000 bp
Sensitivity	2.5 ng/µl of carbonic anhydrase in 1x PBS	100 pg	5 ng	0.1 ng	0.1 ng

Experion™ Starter Kits

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Experion starter kits include all the necessary consumables to illustrate the utility of the Experion system in protein or RNA applications.

The Experion protein starter kit (using the Pro260 chip) provides information on:

- How best to prepare and load a protein chip
- Protein quantitation and sizing using a known standard
- Creating and running a calibration curve
- The concept of scaling for the virtual gel
- Tips and common mistakes

The Experion RNA starter kit (using RNA StdSens chip) provides information on:

- How best to prepare and load an RNA chip
- How to confirm RNA quality and integrity
- The concept of scaling for the virtual gel
- Tips and common mistakes

Each kit contains:

- Experion reagents
- 3 Experion chips
- Cleaning chips
- RNase-free tips
- RNase-free tubes
- DEPC-treated water
- DTT (protein kit only)
- Spin filters
- Electrode cleaner
- Cleaning swabs (lint free)
- Control sample
- Detailed instruction manual
- CD-ROM with system introduction and chip loading video



For More Information

Web: www.bio-rad.com/experionstarterkits

Request or download bulletin: 5732

Experion Automated Electrophoresis System

Catalog #	Description	
Experion Automated Electrophoresis Systems		Pg 112
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 analyses, 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 (analysis kits sold separately)	
700-7061*	Experion System with Dell Computer , 100–240 V, for protein analysis (without monitor; analysis kits sold separately)	
700-7062	Experion System with Dell Computer and Monitor , 100–240 V, for RNA and DNA analyses, includes electrophoresis station, priming station, vortex station, Dell Optiplex computer, monitor, software, USB2 cable (analysis kits sold separately)	
700-7063	Experion System with Dell Computer , 100–240 V, for RNA and DNA analyses (without monitor; analysis kits sold separately)	
Experion Automated Electrophoresis Station		Pg 113
700-7010	Experion Electrophoresis Station , 100–240 V, includes USB2 cable	
700-7022	Experion USB2 Cable with Ferrite , replacement	
Experion Priming Station		Pg 113
700-7030	Experion Priming Station , 100–240 V, includes 2 priming seals	
700-7031	Experion Priming Seals , replacement, provides air seal on top of priming well, 2	
Experion Vortex Station II		Pg 114
700-7043	Experion Vortex Station II , 100–240 V, for preparing Experion RNA/DNA chips	
Experion Software		Pg 114
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, includes 3 test chips, qualification procedures, dongle for PC	
Experion Analysis Kits		Pg 115
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	
700-7102	Experion Pro260 Analysis Kit for 25 Chips , includes 25 Pro260 chips, 1 cleaning chip, 5 x 520 µl Pro260 gel, 2 x 45 µl Pro260 stain, 2 x 60 µl Pro260 ladder (10–260 kD), 2 x 400 µl Pro260 sample buffer, 5 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	
700-7104	Experion RNA StdSens Analysis Kit for 25 Chips , includes 25 RNA StdSens chips, 2 cleaning chips, 2 x 1,250 µl RNA gel, 2 x 20 µl RNA StdSens stain, 2 x 20 µl RNA ladder, 2 x 900 µl RNA StdSens loading buffer, 4 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	
700-7106	Experion RNA HighSens Analysis Kit for 25 Chips , includes 25 RNA HighSens chips, 2 cleaning chips, 2 x 1,250 µl RNA gel, 2 x 20 µl RNA HighSens stain, 20 µl RNA ladder, 2 x 900 µl RNA HighSens loading buffer, 2 x 100 µl RNA sensitivity enhancer, 4 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	
700-7307	Experion DNA 1K Analysis Kit for 30 Chips , includes 30 DNA chips, 3 cleaning chips, 9 x 250 µl DNA 1K gel, 3 x 40 µl DNA 1K stain, 3 x 20 µl DNA 1K ladder, 3 x 750 µl DNA 1K loading buffer, 9 spin filters	
700-7308	Experion DNA 12K Analysis Kit for 30 Chips , includes 30 DNA chips, 3 cleaning chips, 3 x 650 µl DNA 12K gel, 3 x 40 µl DNA 12K stain, 3 x 20 µl DNA 12K ladder, 3 x 750 µl DNA 12K loading buffer, 9 spin filters	

Ordering Information

Experion Automated Electrophoresis System

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Catalog #	Description
Experion Analysis Kit Accessories	
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	Bovine Gamma Globulin (BGG) Standard , 2 mg/ml, 2 ml
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
Experion Starter Kits	
700-7110	Experion Pro260 Starter Kit , includes 3 Experion chips, 1 cleaning chip, Experion reagents, spin filters, IgG protein standard, DTT, cleaning swabs (lint free), electrode cleaner, narrow bore polypropylene pipet tips, polypropylene 0.5 ml microcentrifuge tubes, DEPC-treated water (0.2 µm filtered)
700-7111	Experion RNA StdSens Starter Kit , includes 3 Experion chips, 2 cleaning chips, Experion reagents, spin filters, total RNA standard, cleaning swabs (lint free), electrode cleaner, narrow bore polypropylene pipet tips, RNase- and DNase-free polypropylene 0.5 ml microcentrifuge tubes, DEPC-treated water (0.2 µm filtered)

Pg 116

* The same system is used for protein, RNA, and DNA analysis with the exception that systems for protein analysis do not include a vortex station (used only with RNA/DNA assays).