Applied Biosystems 3130 and 3130*xl* Genetic Analyzers

Key Features

- 16 capillaries for the 3130*xl* and 4 capillaries for the 3130 system
- 24-hour unattended operation
- Easy instrument set-up
- Polymer filling via the Automated Polymer Deliver System
- Detection cell heater for improved thermal control
- Automated sample injection from both 96- and 384-well microtiter plate formats
- 3130 POP-7™, POP-6™, and POP-4™ separation polymers
- Multiple dye detection
- One polymer, one array, multiple applications

Components

The Applied Biosystems 3130 and 3130*xl* Genetic Analyzers consist of the following components:

- Capillary electrophoresis instrument
- Computer workstation for instrument control and data analysis
- Software for instrument control, data collection, and autoanalysis of sample files

- Available analysis software and algorithms:
  - Sequencing Analysis software for basecalling
  - GeneMapper®/GeneMapper® *ID* software for microsatellite, SNP, AFLP, and LOH analysis
  - SeqScape® software for comparative sequencing, mutation detection, and detection of heterozygote insertions and deletions
  - BioTrekker™ software for electrophoresis and sequence detection system (SDS) to download finished genotypes from GeneMapper™ Software v3.5 and SDS Enterprise Database v2.2 into a single results database.

Capillary Arrays

The internally uncoated capillaries are supplied in pre-assembled sets of 4 or 16 arrays. Arrays are available in several lengths to provide support for multiple applications and run methodologies. They are specified for 100 runs on the 3130*xl* system, and 150 runs on the 3130 system. These arrays are also designed for use with industry-standard 96- and 384-well microtiter plates.

Separations Matrix

The 3130 POP-7,™ POP-6,™ and POP-4™ polymers (Performance Optimized Polymers) can be used on the Applied Biosystems 3130 and 3130*xl* Genetic Analyzer as the

separation matrix. Before each run, the capillaries are automatically replenished with fresh polymer that dynamically coats the capillary wall to eliminate electro-osmotic flow.

Reagents
Applied Biosystems provides the following reagents for use on the 3130 Series Systems:

- Sequencing Analysis Reagents
  - BigDye® Terminator Kits
  - dGTP BigDye® Terminator Kits
  - BigDye® Primer Cycle Sequencing Ready Reaction Kit, M13Rev/-21 M13
  - dRhodamine Dye Terminator Kit
- Fragment Analysis Reagents
  - Linkage Mapping Set Version 2.5
  - GeneScan™-400 HD Size Standard
  - GeneScan™-500 Size Standard
  - GeneScan™-120 Liz® Size Standard
  - Application-Specific Kits

Contact Applied Biosystems for products in the following categories:

- Agriculture
  - StockMarks® Kits for Canine, Bovine, and Equine Genotyping
- AFLP® Kits for Plants
- Disease Research
- Human Identification
- Microbial Identification
  - Microseq® Kits for Microbial Identification
  - AFLP® Kits for Microorganisms
- SNP Analysis
  - ABI PRISM® Snapshot® Multiplex System

Software
The Applied Biosystems 3130 and 3130*xl* Genetic Analyzers include software for data collection and auto-analysis of sample files. Sample-file analysis is performed with Sequencing Analysis Software v5.2, SeqScape Software v2.5, and GeneMapper Software v3.7, running on the Windows XP® platform. The new KB™ Basecaller software tool with quality values is used for sequencing sample files. Basecalling and size-calling algorithms have been optimized for data from the 3130 system.

Additional Applied Biosystems Software
- Sequencing Analysis Software v5.2
- SeqScape® Software v2.5
- GeneMapper® Software v3.7
- GeneMapper® *ID* Software v3.2
- MicroSeq® ID™ Software v1.0
- BioTrekker™ Software

Sample Requirement
The 3130 Series Systems can analyze many types of templates prepared by a variety of sample preparation protocols. Samples are automatically injected directly from 96- to 384-well microtiter plates.

Laser
- Argon-ion multi-line, single mode laser, primary excitation lines: 488 and 514.5 nm.

Detection Optics
Applied Biosystems 3130 Series Genetic Analyzers use excitation and detection optics for enhanced signal uniformity. These detection optics provide low-noise, full-spectrum data simultaneously from all capillaries. The outer diameter (od), inner diameter (id), and pitch of the capillary have been optimized to minimize loss of signal caused by refraction.

Electrophoresis Voltage
- Up to 20 kV

Operating Temperature Range
- 18°C–65°C

Minimum Computer Requirements
- Hardware: Pentium® IV Processor, 2.00 GHz Processor
- Operating System: Windows XP® Professional Edition
- Installed RAM: 1 GB
- Hard Disk Storage: Dual 36 GB hard drives
- Peripheral: CD/RW

Operating Environment
- Temperature: 15°C–30°C
- Room temperature should not fluctuate ±2° when the instrument is running.
- Humidity: 20%–80% (non-condensing)

Main Power Voltage
- 200–220V or 230–240V ±10%
- 50–60 Hz ±10%

Current
- Maximum: 15 amps

Maximum Power Dissipation
- 2,000 watts (approximately)

Performance and Throughput

Sequencing Run Modules

Sequencing Run Modules	Array Length	Polymer	Run Time (min)	24-hr Throughput*		KB™ Basecaller Q_{20} LOR**†
				3130 Analyzer	3130*xl* Analyzer	
UltraSeq36_POP7	36 cm	POP-7	35	164	656	500
RapidSeq36_POP7	36 cm	POP-7	60	96	384	600
UltraSeq36_POP4	36 cm	POP-4	40	144	576	400
RapidSeq36_POP6	36 cm	POP-6	60	96	384	500
FastSeq50_POP7	50 cm	POP-7	60	96	384	700
StdSeq50_POP7	50 cm	POP-7	120	48	192	850
StdSeq50_POP4	50 cm	POP-4	100	56	224	600
StdSeq50_POP6	50 cm	POP-6	150	36	144	600
LongSeq80_POP7	80 cm	POP-7	170	32	128	950
LongSeq80_POP4	80 cm	POP-4	210	24	96	700

** Number of samples*
***Sequencing Analysis Software v5.2 provides a metric Length Of Read (LOR), defined as the usable range of high-quality or high-accuracy bases determined by Quality Values (QV) generated by KB Basecaller Software v1.2. The LOR is determined using a sliding window of 20 bases, which have an average QV greater than 20.*
† 98.5% basecalling accuracy, less than 2% N's.

Fragment Analysis Run Modules

Fragment Analysis Run Modules	Array Length	Polymer	Run Time (min)	24-hr Throughput		Resolution (bp)	Performance SD**
				3130 Analyzer GT*	3130*xl* Analyzer GT*		
Fragment Analysis 22_POP4	22 cm	POP-4	20	5,760	23,040	400	0.50
SNP22_POP4	22 cm	POP-4	15	3,840***	15,360***	120	0.50
Fragment Analysis 36_POP7	36 cm	POP-7	35	3,280	13,120	500	0.15
Fragment Analysis 36_POP4	36 cm	POP-4	45	2,560	10,240	500	0.15
HID Fragment Analysis 36_POP4	36 cm	POP-4	45	2,560	10,240	500	0.15
SNP36_POP4	36 cm	POP-4	30	3,840	15,360	120	0.15
Fragment Analysis 50_POP7	50 cm	POP-7	50	2,240	8,960	500	0.15
Fragment Analysis 50_POP4	50 cm	POP-4	65	1,760	7,040	500	0.15
Fragment Analysis 50_POP6	50 cm	POP-6	90	1,280	5,120	500	0.15

** 20 genotypes/injection*
*** Standard deviation: 1 base pair (bp) resolution at 99.99% accuracy*
*** 10 genotypes/injection*

Dimensions

Electrophoresis Unit:

- Width (closed-door): 74 cm
- Width (open-door): 148.6 cm (left and right door open simultaneously)
- Depth: 54.8 cm
- Height: 81 cm
- Weight: 130 kg (approximately)

Service and Warranty

- One-year limited warranty on parts and labor
- Service installation
- Application training

Support

Worldwide applications support and service is offered from expert technical specialists and scientists.

iScience. To better understand the complex interaction of biological systems, life scientists are developing revolutionary approaches to discovery that unite technology, informatics, and traditional laboratory research. In partnership with our customers, Applied Biosystems provides the innovative products, services, and knowledge resources that make this new, **Integrated Science** possible.

Worldwide Sales Offices

Applied Biosystems vast distribution and service network, composed of highly trained support and applications personnel, reaches 150 countries on six continents. For international office locations, please call the division headquarters or refer to our Web site at **www.appliedbiosystems.com**

Applera is committed to providing the world's leading technology and information for life scientists. Applera Corporation consists of the Applied Biosystems and Celera Genomics businesses.

Headquarters
850 Lincoln Centre Drive
Foster City, CA 94404 USA
Phone: 650.638.5800
Toll Free: 800.345.5224
Fax: 650.638.5884

For Research Use Only.
Not for use in diagnostic procedures.

Printed in the USA, 11/04, P+s,
Publication 106SP07-01

Applied Biosystems