AB **Applied Biosystems**

Applied Biosystems 3130 and 3130*xl* DNA Analyzers

Key Features

- 16 capillaries for the 3130*xl* and 4 capillaries for the 3130 system

- 24-hour unattended operation

- Easy instrument setup

- 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

Capillary Arrays

The internally uncoated capillaries are supplied in preassembled 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 Analyzers as the separation matrix. Before each run, the capillaries are automatically replenished with fresh electro-osmotic flow (EOF) suppression polymer.

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 Kits, M13Rev/-21 M13
- dRhodamine Dye Terminator Kits
- Fragment Analysis Reagents
- Linkage Mapping Set Version 2.5
- GeneScan™ 400 HD Size Standard
- GeneScan™ 500 Size Standard
- GeneScan™ 120 Liz® Size Standard
- GeneScan™ 600 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
- Methylation

Software

The Applied Biosystems 3130 and 3130*xl* Genetic Analyzers include software for data collection and autoanalysis of sample files. Sample-file analysis is performed with Sequencing Analysis Software v5.2, SeqScape® Software v2.5, and GeneMapper® Software v4.0, running on the Windows XP® platform. The KB™ basecaller algorithm is integrated with Data Collection v3.0 for autoanalysis, Sequencing Analysis v5.2, and SeqScape® v2.5. The algorithm generates pure and mixed basecalls with quality values for sequencing sample files.

Additional Applied Biosystems Software

- Sequencing Analysis Software v5.2
- SeqScape® Software v2.5
- GeneMapper® Software v4.0
- GeneMapper® *ID* Software v3.2
- MicroSeq® *ID* Software v1.0
- Sequencer Scanner Software v1.0
- Methyl Primer Express® Software v1.0

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)

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.

Performance and Throughput

SEQUENCING RUN MODULES

Sequencing Run Modules	Array Length, cm	Polymer	Run Time, min	24-hr Throughput*		KB™ Basecaller Q20 LOR**†
				3130 Analyzer	3130xl Analyzer	
UltraSeq36_POP7	36	POP-7	35	164	656	500
RapidSeq36_POP7	36	POP-7	60	96	384	600
UltraSeq36_POP4	36	POP-4	40	144	576	400
RapidSeq36_POP6	36	POP-6	60	96	384	500
FastSeq50_POP7	50	POP-7	60	96	384	700
StdSeq50_POP7	50	POP-7	120	48	192	850
StdSeq50_POP4	50	POP-4	100	56	224	600
StdSeq50_POP6	50	POP-6	150	36	144	600
LongSeq80_POP7	80	POP-7	170	32	128	950
LongSeq80_POP4	80	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, cm	Polymer	Run Time, min	24-hr Throughput*		Resolution, bp	Performance SD**
				3130 Analyzer GT*	3130xl Analyzer GT*		
Fragment Analysis 22_POP4	22	POP-4	20	5,760	23,040	400	0.50
SNP22_POP4	22	POP-4	15	3,840***	15,360***	120	0.50
Fragment Analysis 36_POP7	36	POP-7	35	3,280	13,120	500	0.15
Fragment Analysis 36_POP4	36	POP-4	45	2,560	10,240	500	0.15
HID Fragment Analysis 36_POP4	36	POP-4	45	2,560	10,240	500	0.15
SNP36_POP4	36	POP-4	30	3,840	15,360	120	0.15
Fragment Analysis 50_POP7	50	POP-7	50	2,240	8,960	500	0.15
Fragment Analysis 50_POP4	50	POP-4	65	1,760	7,040	500	0.15
Fragment Analysis 50_POP6	50	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

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