



Data Sheet

GeneChip® AutoLoader for the GeneChip® Scanner 3000 7G

From the company that invented the GeneChip® brand DNA microarray and the high-density microarray scanner, Affymetrix introduces the AutoLoader for the GeneChip® Scanner 3000 7G. The advanced design improvements, including space saving, speed, superior performance, and reduced scanner-to-scanner variation, are now enhanced by true automation and walk-away freedom with the addition of the AutoLoader.

The Affymetrix GeneChip Scanner 3000 7G is the cornerstone of the GeneChip instrument system and is designed to enable high-resolution scanning to support high-content, high-density arrays.

Temperature-Controlled Environment

The GeneChip® AutoLoader provides a temperature-controlled environment to maintain long-term sample stability and integrity for up to 16 hours. The environment for the 48-sample carousel is maintained at 15°C for all arrays, both pre- and post-scan. Extensive testing on the temperature stability of the GeneChip® arrays has shown that data concordance and assay integrity are maintained for arrays cooled at 15°C for at least 16 hours. *New high-resolution/high-density arrays prepared with Array Holding Buffer are stable for up to 48 hours at 15°C.

48-Array Carousel for Walk-Away Freedom

The AutoLoader includes a 48-array, removable carousel for unattended loading and unloading of the experiments for complete walk-away automation.

Ease of Use

The AutoLoader, with its convenient, user-friendly front-loading position, is designed to maximize ease of operation with a simple user interface controlling the AutoLoader. The user interface also shows the carousel inventory and experiments completed for a run in progress. The AutoLoader is supplied with an external handheld barcode reader for easy experiment creation with the information-rich Affymetrix® 2D barcode.

INTEGRATED EXPERIMENT/SAMPLE TRACKING

The AutoLoader provides integrated experiment and sample tracking using the unique ID and probe array information contained in the 2D barcode on each GeneChip probe array:

- Part number
- Lot number
- Expiration date
- Unique identifier

For:

- Tracking
- Inventory control
- Automation

SPACE SAVING FOOTPRINT

The AutoLoader mounts to the top of the GeneChip Scanner 3000 7G, maintaining the space-saving advantages of the scanner without requiring any additional bench space.

MODES OF OPERATION

Automatic, manual—the AutoLoader provides flexible options in workflow to accommodate unattended operation, manual operation for scanning single arrays without barcodes, or continued operation if the AutoLoader is disabled. The AutoLoader also features “load-on-demand capability” to add probe arrays while a run is in progress.

AUTOMATIC E-MAIL NOTIFICATION FOR SYSTEM FAILURES

The AutoLoader includes e-mail notification to designated users in the event of a system failure.

PERFORMANCE

The AutoLoader is designed to have no effect on the GeneChip Scanner 3000 7G while scanning, maximizing its throughput and walk-away automation. A typical 48-array carousel scanning at 18 µm features and 2.5 µm pixel resolution will take approximately 4.5 hours or less, depending on the array format of the experiments run.

RELIABILITY

The Affymetrix GeneChip® Scanner 3000 7G System with AutoLoader has been designed and tested to operate in environments running up to 7,000 probe arrays per year for a mean time before failure (MTBF) of one year.

ELECTRICAL

- No dedicated or special power requirements.
- Power supplied by the Affymetrix GeneChip Scanner 3000 7G.
- Tested to EN61326-1 EMC standard for industrial environments.
- System certified by UL and TÜV America to the following Product Safety standards for Electrical Equipment for Measurement, Control, and Laboratory Use: UL 61010A-1 Class OGTK and OGTK7, EN 61010-1, EN 60825-1.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

The AutoLoader can be configured with an optional Uninterruptible power supply capable of maintaining the temperature-controlled carousel environment for at least four hours in the event of a power failure.

RECOMMENDATIONS

Recommendations for network settings and hardware for use with the GeneChip® Scanner 3000 7G configured with an AutoLoader and GeneChip® Operating Software Server.

- Network Specification: 100 mbps full duplex
- Server Hardware: Four 3.0 GHz Xeon Processors, 4 GB RAM, 4 x 73 GB Hard drives

- Client Hardware: Dual 3.0 GHz Xeon Processors, 2 GB of RAM, 2 x 250 GB Hard Drives, DVD RW drive

The AutoLoader may add up to 30 seconds per array in processing time for inventory, microarray load and unload,

barcode read, and microarray warm-up functions. The typical time required for these operations will be lower. Please contact your local site IT Staff to discuss your planned workflow requirements and network/server capacity.

Specifications

Probe Array Types:	The AutoLoader supports all GeneChip® brand probe arrays, both with and without barcodes.
Temperature:	<ul style="list-style-type: none">– Operating temperature range—15-30°C and 10%-90% non-condensing humidity– Cooling—storage temperature of pre-scan and post-scan arrays at 15°C ± 3°C**– Warms each cartridge prior to scanning to prevent condensation
Capacity:	The AutoLoader uses a removable carousel to hold up to 48 GeneChip probe arrays for unattended operation with automatic loading and unloading.
Weight:	Approximately 30 pounds (13.6 kg)
Power:	Supplied by GeneChip Scanner 3000
Dimensions:	13"W (33cm) x 22"D (56cm) x 7.5"H (19cm) (18"H (46cm) with Loading Door Open). Loading Clearance 36" (91.4 cm) above lab bench
User Interface:	Requires GeneChip® Operating Software v1.3 or later for instrument control, data analysis, and e-mail notification utility
Barcodes:	The AutoLoader, GeneChip Operating Software, External Barcode Reader, and the GeneChip Scanner 3000 7G support the Affymetrix barcode.

**Arrays employing non-stringent buffer A are validated to 16 hours for data integrity at 15°C storage.

Typical File Sizes

File Type	Standard Resolution	2.0 Resolution
DAT	60MB	150MB
CEL	12MB	32MB
CHP	15MB	34MB

*New high-resolution/small-feature arrays employ Array Holding Buffer to retain data integrity for up to 48 hours when stored in the 15°C environment of the GeneChip Autoloader. Due to the increased density and higher pixel resolution required, scan times can be significantly longer than the scan times for current catalog arrays prepared with Wash Buffer A, depending on array type. Refer to the *GeneChip® Expression Analysis Technical Manual* for more detailed information.

Please refer to the Affymetrix GeneChip AutoLoader Quick Reference Cards (QRC) for loading instructions on arrays prepared with Wash Buffer A and Array Holding Buffer.

Typical Scan Times for GCS 3000 7G/4C equipped with AutoLoader

Array Format	GeneChip® Scanner 3000 – Typical Scan times for 2.5 µm pixelation (minutes:seconds)	GeneChip® Scanner 3000 – Typical Scan times for 1.56 µm pixelation, 2.0 format (minutes:seconds)
49	5:30	11:00
64	5:40	8:45
100	3:55	6:15
169	3:50	5:00
400	3:20	3:35

(Average scan times were generated on a DELL Precision 670 client-server setup operating GeneChip Operating Software (GCOS) in local mode. Average AutoLoader run completion times will vary based on server hardware, data storage capacity, processor speed, and network demand during processor-intensive activities such as automated CEL file generation and analysis.)

Ordering Information

GeneChip® AutoLoader

00-0090 AutoLoader with External Barcode Reader-GeneChip® Scanner 3000 S/N 501 (includes one 00-0094 Carousel)

00-0129 AutoLoader with External Barcode Reader-GeneChip® Scanner 3000 S/N 502 (includes one 00-0094 Carousel)

Optional Items

00-0093 Holder for External Barcode Reader

00-0094 AutoLoader Carousel

00-0111 Power Supply Kit, Uninterruptible Power Supply, US

00-0112 Power Supply Kit, Uninterruptible Power Supply, International

System Configurations

00-0217 GeneChip® Scanner 3000 7G System with AutoLoader, North America

00-0218 GeneChip® Scanner 3000 7G System with AutoLoader, International

00-0215 GeneChip® Scanner 3000 7G System with Workstation and AutoLoader

To Order

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