


 Microarray

# GeneChip Scanner 3000Dx v.2 with preassembled GeneChip AutoLoader Dx

Combining advanced technology with user-friendly features for microarray scanning needs

## Introduction

The Applied Biosystems™ GeneChip™ Scanner 3000Dx v.2 with preassembled GeneChip™ AutoLoader Dx combines advanced design improvements with high-resolution scanning and automation to dramatically improve efficiency in gene expression and genetic analysis applications. The scanner is part of the Applied Biosystems™ GeneChip™ System 3000Dx v.2, **which is the first microarray system for RNA- and DNA-based clinical tests that is cleared by the FDA and compliant with the EU *In Vitro* Diagnostic Medical Devices Regulation 2017/746 (IVDR).**

When used with the Applied Biosystems™ GeneChip™ Fluidics Station 450Dx v.2, the GeneChip Scanner 3000Dx v.2 with preassembled GeneChip AutoLoader Dx allows complete walk-away freedom for scanning arrays. With its compact design, the unit fits easily into a benchtop environment. Its solid-state laser eliminates the need for an external laser power supply or a special cooling system under the bench.

The outstanding performance and enhanced capabilities of the GeneChip Scanner 3000Dx v.2 offer accurate gridding and consistent scanner-to-scanner performance, helping to improve data integrity and data sharing between researchers.

## Highlights

- Compact size for better space utilization
- High-resolution scanning of pixels from 0.51 μm to 2.5 μm, automatically selected by array type
- Optimal image uniformity and collection efficiency across entire scan area with proprietary Flying Objective™ lens technology
- No laser drift and reduced scanner-to-scanner variability
- Automatic adjustment of residual arc correction and x-linearity
- The GeneChip AutoLoader Dx facilitates complete walk-away scanning of up to 48 arrays at a time



## Proprietary Flying Objective lens technology means fast, consistent scanning

The unique design of the GeneChip Scanner 3000Dx v.2 enables consistent optical excitation and emission paths for optimal image uniformity across the entire scan area. High collection efficiency allows a single-scan pass and fast scanning times.

## GeneChip Scanner 3000Dx v.2 hardware features

### Automatic arc correction

- Offers dynamic correction of residual arc correction error and changes in x-linearity on a scan-by-scan basis
- Enables advanced scanner stability and data consistency

### Ultralow background noise

- High-speed, analog-to-digital conversion is implemented on printed circuit boards designed to deliver a low-noise performance
- Fluorescence signal dynamic range is enhanced by a high-speed data acquisition system delivering a full 16 bits of data precision

### Auto-zero subsystem

- A new auto-zero subsystem helps ensure low electronic background, while providing wide dynamic range for Applied Biosystems™ GeneChip™ array scanning

### Auto-set laser power

- Excitation laser power is accurately set for every scan, for long-term stability
- Scanner-to-scanner consistency is improved by eliminating gain drift due to aging laser and optics components
- Periodic checks and laser power adjustments are no longer required

### Optical and mechanical features

- Multi-axis, closed-loop position control for improved geometric scanning accuracy enables excellent gridding accuracy
- Spot size is optimized for GeneChip™ cartridges
- Resolution has been extended to pixel sizes as low as 0.51 μm, enabling scanning of next-generation, high-density GeneChip arrays
- Optical design is optimized to scan at multiple wavelengths from a single excitation wavelength
- Effects of photobleaching are minimized

### Solid-state green laser

- Features a highly reliable, solid-state, self-contained, diode-pumped, frequency-doubled YAG laser
- Eliminates the need for separate laser power supply, decreasing clutter and extra wiring
- Eliminates the need for multi-instrument laboratories to install expensive heat-removal ducts

### Automation-ready

- Preassembled with the GeneChip AutoLoader Dx, which provides the following:
  - Temperature-controlled environment to maintain long-term stability and integrity for up to 16 hours
  - Removable 48-array carousel for unattended loading and unloading of experiments
  - Improved ease of use
  - Integrated experiment and sample tracking

### Advanced instrument control software

The GeneChip System 3000Dx v.2 comes with the newly launched Applied Biosystems™ GeneChip™ Data Collection Dx Software and runs on Microsoft™ Windows™ 64-bit operating systems. The following are the enhancements in the latest instrument control software:

- An updated user interface with remote monitoring capability
- Simplified batch registration of arrays
- Easy management of the client operating system, applications, and security for IT departments
- Notifications for network path interruptions
- Support for more than 14 languages

## The GeneChip Scanner 3000Dx v.2 offers space savings and improved reliability

### Reliability

- Includes a sample transport system that can operate in environments running 10,000 scans per year

### Footprint

- Compact benchtop design for optimal space utilization

## GeneChip Scanner 3000Dx v.2 safety information

### Electrical

- Requires no dedicated or special power setup
- Conforms to the following standards for electromagnetic conformity for Class A industrial, scientific, and medical equipment for use in industrial environments: EN 61326-1, CISPR 11, EN 55011, EN 61000-3-2, EN 61000-3-3, FCC Part 15
- Certified by TÜV SÜD America to the following product safety standards for electrical equipment for measurement, control, and laboratory use: IEC/EN 61010-1, CAN/CSA-C22.2 No. 61010-1, UL 61010-1, IEC/EN 61010-2-081, CAN/CSA-C22.2 No. 61010-2-081

### Optical

- Complies with 21 CFR 1040.10 and 1040.11 for laser products, except for deviations pursuant to Laser Notice No. 50
- Certified by TÜV SÜD America to the following product safety standards for Class 1 laser products: IEC/EN 60825-1

## Specifications

<b>Scan time</b>	5–45 minutes per cartridge, depending on array type
<b>Sensitivity</b>	<0.5 chromophore equivalents/ $\mu\text{m}^2$ (CPSM) at a signal-to-noise ratio of 2:1 at wavelengths appropriate to R-phycoerythrin
<b>Excitation</b>	532 nm, 10 mW maximum
<b>Emission filters</b>	570 nm, longpass; 565 nm, 605 nm, 655 nm, and 705 nm, longpass; 20 nm wide, bandpass
<b>Detector</b>	Meshless photomultiplier tube, red enhanced
<b>Displayed and saved dynamic range</b>	16-bit (65, 535:1)
<b>Dimensions (W x D x H)</b>	22.5 x 31 x 44.5 in. (57.2 x 78.7 x 113 cm)
<b>Weight</b>	~105 lb (47.6 kg) with preassembled GeneChip AutoLoader Dx
<b>Power supply</b>	Voltage: 100–240 V, current: 2–4 A, frequency: 50–60 Hz
<b>Warranty</b>	One-year limited coverage

## Ordering information

Product	Description	Cat. No.
GeneChip System 3000Dx v.2	Includes: <ul style="list-style-type: none"> <li>• GeneChip Scanner 3000Dx v.2 with preassembled GeneChip AutoLoader Dx</li> <li>• GeneChip Fluidics Station 450Dx v.2</li> <li>• Workstation with GeneChip Data Collection Dx Software</li> </ul>	00-0334
GeneChip Fluidics Station 450Dx v.2	Single station available to be purchased separately from the GeneChip System 3000Dx v.2	00-0335



Learn more at [thermofisher.com/microarrays](https://www.thermofisher.com/microarrays)

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