QuantStudio® 12K Flex Real-Time PCR System with OpenArray® Block
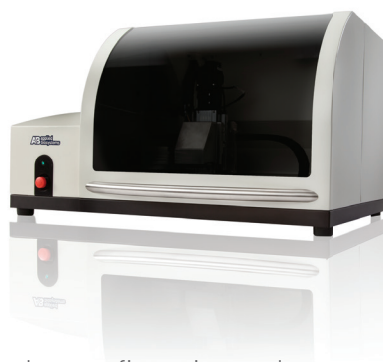
- Throughput—combines speed with comprehensive data analysis capabilities for the power to process hundreds to thousands of samples per day

- Flexibility—runs up to four QuantStudio® 12K Flex OpenArray® plates and a variety of preselected TaqMan® Gene Expression Assay collections, as well as custom plates using predesigned assays, for high-throughput genotyping

- Scalability—supports throughput of a few data points per run to thousands, offering an economical approach to high-quality data

Introduction

The QuantStudio® 12K Flex Real-Time PCR System with OpenArray® Block facilitates real-time PCR–based applications on a state-of-the-art nanofluidic plate, running up to 3,072 reactions in parallel. Flexible formats scaled to research needs enable the rapid analysis of tens to hundreds of genes or gene products across hundreds to tens of thousands of samples, for common applications such as:

- Genotyping as part of a drug/therapeutic discovery pipeline

- SNP QC and screening

- Digital PCR for rare-allele detection

- MicroRNA profiling

- Biomarker confirmation and screening

- Gene expression quantification

- GWAS follow-up studies

- SNP sample tracking for biobanking

- SNP fingerprinting for ancestry

- Marker-assisted selection (MAS)

- Quantitative trait locus (QTL) mapping

- Pathogen detection

A wide variety of fixed-content and fully customizable plates are available to meet a broad spectrum of research needs. For more information about plate formats, refer to the product bulletin "OpenArray® technology on the QuantStudio® 12K Flex Real-Time PCR System" at **lifetechnologies.com/quantstudio**

The QuantStudio® 12K Flex Real-Time PCR System workflow includes real-time thermal cycling and fluorescent data collection from TaqMan® Assays. While you can run the instrument stand-alone, use of the QuantStudio® 12K Flex Software makes it easy to analyze and visualize the data. The QuantStudio® 12K Flex Real-Time PCR System includes:

- QuantStudio® 12K Flex Real-Time PCR Instrument—runs up to four QuantStudio® 12K Flex OpenArray® plates simultaneously

- QuantStudio® 12K Flex OpenArray® AccuFill™ System—loads samples into plates

- QuantStudio® 12K Flex OpenArray® Plate accessories—for all applications

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Fluorescence detection

The QuantStudio® 12K Flex Real-Time PCR Instrument uses the Enhanced OptiFlex® System, a white-light LED optics system with 21 filter combinations, which enables unequivocal illumination for the 5 different block formats. The excitation and emission wavelengths for the OpenArray® block are compatible with FAM™, VIC®, and ROX™ dye detection, making this an ideal platform for running TaqMan® Assays. The emission and excitation wavelengths for the 96-well, 384-well, and TaqMan® Array Card blocks are combatible with FAM™, VIC®, SYBR®, NED™, TAMRA™, and ROX™ dyes.

Software

The QuantStudio® 12K Flex Software includes options that make it easy to acquire, analyze, and manage OpenArray® data. In addition, one-touch runs are enabled for different OpenArray® block types. Sample tracking features also assist with setting up experiments—from a 96-well sample plate to an OpenArray® plate containing 3,072 through-holes. Easily integrate your sample files with the AccuFill™ software as samples are loaded on the QuantStudio® 12K Flex OpenArray® AccuFill™ System.

To manipulate and analyze your QuantStudio® 12K Flex system data, you can choose from many different downstream software solutions, such as ExpressionSuite™ Software. Data from multiple plates can be combined into the same study, and values such as C_t, T_m, ΔC_t, and $\Delta\Delta C_t$ can be quickly calculated. Data can also be analyzed numerically.

For digital PCR, DigitalSuite™ Software fits real-time PCR data to a Poisson statistical model and displays digital results as copies per through-hole. In addition, TaqMan® Genotyper™ Software provides additional single- and multi-plate functionality for powerful downstream analysis.

Interchangeable blocks

The QuantStudio® 12K Flex Real-Time PCR Instrument supports five different interchangeable blocks with formats that enable numerous genotyping, gene expression, and standard PCR applications, including digital PCR.

Sample requirements

Each through-hole accepts 33 ± 1 nL of sample and master mix. For more information on sample requirements, contact your local sales representative.

Enhanced OptiFlex® System

The white-light LED of the Enhanced OptiFlex® System is a powerful light source designed to provide reliable and consistent results. The white-light LED provides a broad spectrum of light-enabled capabilities with a maximum resolution of 12,000 data points. Maximum multiplexing capabilities can be achieved on 96-well (standard or Fast), 384-well, and TaqMan® Array Card blocks, as well as dual-color detection on the OpenArray® block.

Warranty

Purchase of the platform includes a 1-year limited warranty on parts and labor, plus an installation package that includes setup and calibration by a highly trained Life Technologies service support team member.

Service and support

We provide full service and support for the QuantStudio® 12K Flex Real-Time PCR System. The instrument can be remotely monitored using our Smart Monitoring Service, which proactively tracks critical system parameters over the Internet and identifies potential instrument problems before they affect your lab's efficiency.

Specifications

QuantStudio® 12K Flex Real-Time PCR Instrument*
Sample capacity: 4 QuantStudio® 12K Flex OpenArray® plates
Fluorescence excitation: 470 nm, 520 nm, 550 nm, 640 nm, 662 nm
Fluorescence emission: 520 nm, 558 nm, 623 nm, 682 nm, 711 nm
Uniformity: ≤0.5°C
Temperature range: 4°C to 99.9°C
Heating: 3°C/sec
Cooling: 3°C/sec
Dimensions: 50.5 cm x 67.2 cm x 73.8 cm (W x D x H)
Weight: 69.5 kg (152 lb)
Electrical: 100–240 V, 50–60 Hz, 12.5 A
Max power/current: 1,100 VA/12.5 A
Idle power: 450 VA
Average thermal output: 650 W; 2,220 BTU/hr

QuantStudio® 12K Flex OpenArray® AccuFill™ System*
Plate capacity: 4 OpenArray® plates
Dimensions: 79 cm x 64 cm x 76 cm (W x D x H)
Weight: 55 kg (120 lb)
Electrical: 100–240 V, 50–60 Hz, 5 A

* Manufactured in an ISO 13485–certified facility.

Safety and EMC compliance standards for the QuantStudio® 12K Flex Real-Time PCR Instrument

Standard code	Description
EN 61010-1; Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use, Part 1: General Requirements EN 61010-2-081:2002+A1:2003	Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes
EN 61326-1:2006 (Group 1, Class B)	Electrical equipment for measurement, control, and laboratory use—part 1: general EMC requirements
(Australia/New Zealand) AS/NZS 2064 (Canada) ICES-001, Issue 3; Industrial, Scientific, and Medical Radio Frequency Generators	Limits and methods measurement of electromagnetic disturbance characteristics of industrial, scientific, and medical (ISM) radio-frequency equipment

Ordering information

Product	Description	Cat. No.
QuantStudio® 12K Flex Real-Time PCR System with OpenArray® Block	Includes QuantStudio® 12K Flex Real-Time PCR Instrument, QuantStudio® 12K Flex OpenArray® AccuFill™ System, computer/monitor, analysis software, installation and basic training at the time of installation, and 1-year warranty	4471090
QuantStudio® 12K Flex OpenArray® AccuFill™ System	Automated system for transferring samples from 384-well plates into QuantStudio® 12K Flex OpenArray® plates	4471021
OpenArray® AccuFill™ System Tips	Box of 384 loader tips for accurate sample loading	4457246
OpenArray® AccuFill™ System Tips	10-pack of 384 loader tips for accurate sample loading	4458107
QuantStudio® 12K Flex Automation Robot (optional)	Automation robotic arm capable of loading over 100 384-well/96-well plates	4471066

Find out more at **lifetechnologies.com/quantstudio**

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