

# Applied Biosystems 7500 Fast and 7500 Real-Time PCR Systems

*Real Fast. Real Versatile. Real Performance.*

## Software Highlights

- High Resolution Melting (HRM) Software available on the 7500 Fast System
- Powerful New Gene Expression Study Package
- Customizable 21 CFR Part 11 module
- Export to JPEG and PowerPoint®
- Configurable graphs and plots



Applied Biosystems® 7500 Fast Real-Time PCR System

## The Applied Biosystems Advantage

Built on over ten years of real-time expertise, the Applied Biosystems® 7500 Fast and 7500 Real-Time PCR Systems are versatile platforms for the detection and quantification of nucleic acids in standard 96-well formats. Our integrated real-time PCR solutions combine innovative thermal cycling systems, powerful software, optimized reagents, your choice of off-the-shelf or custom assays, and superior support for a variety of applications.

## Applied Biosystems® 7500 Fast and 7500 Real-Time PCR Systems

- Flexible five-color detection systems are easily calibrated for your choice of dyes without requiring the addition of new filter sets
- Plate Setup Wizard walks you effortlessly through experimental design
- Advanced optical multicomponenting algorithm minimizes spectral cross talk—superior for multiplexing
- Variable excitation capacity allows greater sensitivity for the greatest range of dyes including FAM™/SYBR® Green, VIC®/JOE™, NED™/TAMRA™/Cy3®, ROX™/Texas Red®, and Cy5®

## Results in 30 Minutes

The Applied Biosystems® 7500 Fast Real-Time PCR System offers maximum performance in the minimum time for labs running a variety of applications, including High Resolution Melting (HRM) analysis. Fully optimized for Fast cycling, the 7500 Fast System delivers high-quality results in as little as 30 minutes.

The specially designed Peltier-based 7500 Fast block ensures thermal uniformity at top speeds. Faster ramp rates and novel well design enable rapid results without compromising extension times or assay quality.

The Applied Biosystems® 7500 Fast System is the original Fast solution including validated Fast reagents and over 785,000 available TaqMan® Gene Expression Assays.

## Applied Biosystems 7500 Fast Real Time PCR System

Applied Biosystems provides pre-formulated, ready-to-use, quality tested 5' nuclease TaqMan® assays for use with 7500 Fast and 7500 Systems.

Assay Details	Applications	
	Gene Expression	SNP Genotyping
TaqMan® Genomic Assays	www.allgenes.com	www.allsnps.com
Custom TaqMan® Genomic Assays		
Genome Availability (non-custom)	Number of Assays	
Human	196,370	>4,500,000
Mouse	174,469	10,000
Rat	150,001	N/A
<i>D. Melanogaster</i> (Drosophila)	40,520	N/A
<i>A. Thaliana</i> (Arabidopsis)	97,232	N/A
Rhesus Macaque	11,788	N/A
Canine	22,616	N/A

## 7500 Software v2.0

The 7500 software v2.0 for the 7500 Fast and 7500 Real-time PCR Systems runs on the Windows® XP and Microsoft Vista OS operating systems. The 7500 Software v2.0 can be used for instrument control, data collection, and advanced data analysis.

### Powerful and user-friendly, 7500 Software v2.0 includes:

- Design Wizard to walk you through experimental design
- Advanced setup option offers flexibility for more complex applications, such as multiplexing
- Quick-start setup option allows you to begin a run immediately and enter plate information later
- Pipetting protocols and recipes help you set up experiments quickly
- Troubleshooting flags to help you diagnose and resolve problematic experiments
- Email notification when a run is complete
- One-click graphical export to PowerPoint and JPEG



The 7500 Software v2.0 simplifies plate setup with setup wizards, grouping of biological replicate groups, and the option to import previously used genes and samples from libraries.

## More Powerful Gene Expression Study Package

- Import an unlimited number of Comparative C<sub>t</sub> (Relative Quantitation) plates to one study
- View data by biological replicate group or technical replicate group
- Normalize to multiple endogenous controls
- Enter known efficiencies to adjust RQ values for each target
- View amplification plot, multicomponent plot and QC summary within the study to easily identify and eliminate outliers
- Preview the effect of modified analysis settings before permanently applying them to results

### Expanded Melt Curve Options

- Option to use either a continuous melt for standard post PCR melt curves, or step and hold melt curve for melting experiments that require more resolution and accuracy
- More flexible melt curve protocols allow you to customize the ramp rate, temperature span and data acquisition
- Identify the T<sub>m</sub> of up to three melt curve products per well
- Melt curve data can be imported into the Applied Biosystems® High Resolution Melting (HRM) Software for in depth analysis

## HRM Software

Use the Applied Biosystems® High Resolution Melting (HRM) Software to perform more sophisticated melting analysis with an easy to follow workflow and minimal subjective data analysis steps.

- Shortens analysis time by autocalling genotypes and automatically omitting the no template controls
- Minimizes subjective analysis by automatically grouping unknown variant clusters
- Allows easy data review with customizable multi-plot views, expandable windows and one-click color assignment to highlight curves of interest
- Facilitates data presentation with the option to export data and graphs directly to PowerPoint or as JPEG files
- No temperature shift required – distinguish between homozygous mutants and wild type more easily



The Applied Biosystems® High Resolution Melting (HRM) Software is the easiest to use melting analysis software enabling real-time PCR melt curve assays to be used more accurately for mutation scanning and genotyping.

## Reagents and Disposables

A complete line of reagents including TaqMan® Fast Universal PCR Master Mix, TaqMan® Universal PCR Master Mix, Power SYBR® Green PCR Master Mix, and disposables including 96-well plates, is available for use with the 7500 Fast and 7500 Real-Time PCR Systems.

## Complete Validation Solutions

- IQ/OQ—A certified Applied Biosystems Service Engineer will assist you with your Installation Qualification and Operational Qualification (IQ/OQ) or Instrument Performance Verification (IPV) process as part of your overall system validation
- 21 CFR Part 11 compliance—The SDS 21 CFR Part 11 Module is the most flexible module available to assist with 21 CFR Part 11 compliance using real-time PCR systems. Customize the 21 CFR Part 11 support tools to meet your compliance needs

## Performance Specifications

Once installed, an Applied Biosystems Field Service Engineer will ensure your 7500 Fast or 7500 System is performing to specifications. Using the RNase P Instrument Verification Plate, we will verify that:

- Your 7500 Fast or 7500 System can distinguish between samples containing 5,000–10,000 DNA template copies, with a statistical confidence level of 99.7%
- A 7500 Fast System can complete this analysis in as little as 30 minutes

“I was very impressed with the performance of the Applied Biosystems® 7500 Fast instrument coupled with Applied Biosystems® Fast PCR Master Mix. Conversion from our standard real time PCR procedure was very simple and straightforward. We saw an increase in sensitivity, and the run only took about 35 minutes.”

Karen, Associate Scientist,  
Veterinary Diagnostic Laboratory

## Demonstrated Performance

Instrument	7500 Fast System	7500 System
<b>Performance</b>		
Dynamic Range	9 logs of linear dynamic range	
Sensitivity	Detection of 1 copy of template in a 20 µL reaction for a single reporter TaqMan <sup>®</sup> assay, with 99.7% confidence.	Detection of 1 copy of template in a 50 µL reaction for a single reporter TaqMan <sup>®</sup> assay, with 99.7% confidence.
Run Time	< 30 minutes	< 2 hours

## System Specifications

Thermal Cycling System	Peltier-based, 96-well block	
Optical System	CCD camera with halogen lamp excitation; five-excitation and five-emission filters	
Calibrated Dyes at Installation	FAM <sup>™</sup> /SYBR <sup>®</sup> Green, VIC <sup>™</sup> /JOE <sup>™</sup> , NED <sup>™</sup> /TAMRA <sup>™</sup> /Cy3 <sup>®</sup> , ROX <sup>™</sup> /Texas Red <sup>®</sup> , and Cy5 <sup>®</sup>	
Additional Dye Available	Calibration for new dyes within the wavelength range is possible by following the custom dye calibration procedure in the User's Manual. Purchase of additional filter sets is not necessary.	
Passive Reference Dyes	ROX dye or any calibrated dye. Use of a passive reference dye is optional.	
Reaction Volumes	5–30 µL	20–100 µL
Sample Format	Fast 96-well plates optimized for 10 µL reactions	Standard 96-well plates and 0.2 mL tubes
Peak Block Heating Rate	5.5°C	2.5°C
Temperature Range	4–100°C	4–100°C
Temperature Accuracy	+/- 0.25°C of setpoint/display temperature, measured at 3 minutes after clock start	
Temperature Uniformity	+/- 0.50°C, 30 seconds after clock start	
Dimensions (w x d x h)	34 cm (13.99 in) x 45 cm (17.72 in) x 49 cm (19.29 in)	
Weight	34 kg (75 lb)	

## Software Specifications

Applications	Comparative Ct, Standard Curve, Relative Standard Curve, Allelic Discrimination, Plus/Minus
Dye Discrimination	Multicomponenting algorithm
Multiplate Data Comparison	Compare an unlimited number plates of gene expression assays
Multiplex Capability	Multiplex up to five targets per well

## ORDERING INFORMATION

Description	Part Number
7500 Real-Time PCR System with Notebook Computer and SDS Software	4351104
7500 Real-Time PCR System with Tower Computer and SDS Software	4351105
7500 Fast System Upgrade Kit	4362143
7500 Fast Real-Time PCR System with Notebook Computer and SDS Software	4351106
7500 Fast Real-Time PCR System with Tower Computer and SDS Software	4351107
Notebook Computer for 7300/7500/7500 Fast System	4359286
Tower Computer for 7300/7500/7500 Fast System	4359284
7500 System SDS v1.4 Software 21 CFR Part 11 Module	4377354
7500 Fast System SDS v1.4 Software 21 CFR Part 11 Module	4377355

## Service and Support

Applied Biosystems has the most extensive network of Field Application Specialist (FAS) and Support Engineers dedicated to real-time PCR.

Included with the purchase of a 7500 Fast or 7500 System:

- Full instrument installation and performance verification by a certified Field Service Engineer
- One day of FAS training
- One-year warranty

Additionally, Applied Biosystems has a portfolio of flexible service options designed with your lab in mind.

The Applied Biosystems 7500 and 7500 Fast Real-Time PCR Systems are covered by US Patent No. 6,814,934, EP876562, and other patents owned by Applied Biosystems. For further information contact the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

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