



QuantStudio® 3 and QuantStudio® 5 Real-Time PCR Systems

Connect to your data anytime, anywhere

Connect with your future

The modern laboratory is undergoing a technological revolution. Today's scientific breakthroughs emerge in a context of unparalleled connectivity. Lab instruments are not only more compact, automated, powerful, and accessible, but can store and share vast amounts of data, facilitating scientific advances through global collaboration.

As your trusted partner at the leading edge of this era of innovation, we've developed the Applied Biosystems® QuantStudio® 3 and 5 Real-Time PCR Systems. These high-performance benchtop instruments allow you to remotely monitor your runs, as well as easily access and securely share results with colleagues anywhere, anytime, enabled by Thermo Fisher Cloud. With your data always within reach and shareable, the answers shaping the future of science are never far away.



Discover the QuantStudio® 3 and 5 Real-Time PCR Systems

The QuantStudio® 3 and 5 Real-Time PCR Systems are the latest additions to our family of QuantStudio® systems. These instruments provide the latest advancements in touch screen usability, allowing you to stay connected to your data more easily than ever before. They're designed for both new and experienced users who need simple and affordable real-time PCR systems without compromising performance or quality.



Access, analyze, and share data anytime, anywhere— Remotely monitor your runs, analyze sophisticated data sets in minutes, store data in a secure space, and safely share results online with colleagues across institutions and around the world, with Web browser-based software.

Obtain results you can trust— Detect differences in target quantity as small as 1.5-fold in singleplex reactions, and obtain 10 logs of linear dynamic range.

Establish standard operating procedures and compliance with ease— Locked protocol templates, in-run quality control (QC) feedback, and QC traceability of consumables offer greater control of experiment data. Real-time data mark-up language (RDML) export is available for compatibility with MIQE guidelines.

Save valuable time— 3 or 6 independent temperature zones for flexibility to run multiple experiments simultaneously. Fast thermal cycling is also available, enabling results in less than 30 minutes.

Get started quickly— Instrument is factory-calibrated for optical and thermal accuracy, quick installation, and immediate use.

Skip the learning curve— With preoptimized protocol templates, training is minimized for new users, allowing you to focus on your research.

Maximize benchtop space— Compact instrument can be configured as stand-alone or with a computer to fit most laboratory needs.

Get a premium instrument at an affordable price— Innovation doesn't have to come at a premium price. Get the state-of-the-art Applied Biosystems® best-in-class functionality and industrial design that you've come to know, with the QuantStudio® family of instruments.

Interactivity

Simple, intuitive software—at your fingertips

- Interactive touch screen interface and simplified QuantStudio® Design and Analysis Software make it easy to get started and stay organized
- Easily identifiable icons guide you through the workflow to set up runs and analyze experiments
- Graphical interface allows easy editing of experimental conditions (Figure 1A)
- Interactive touch screen allows you to manipulate view to a particular graph or data point (Figure 1B)
- Option to pause a real-time PCR run on demand
- Preoptimized protocol templates allow quick selection of default protocols for standard applications
- Locked workflow feature allows for experiment consistency in tightly controlled environments

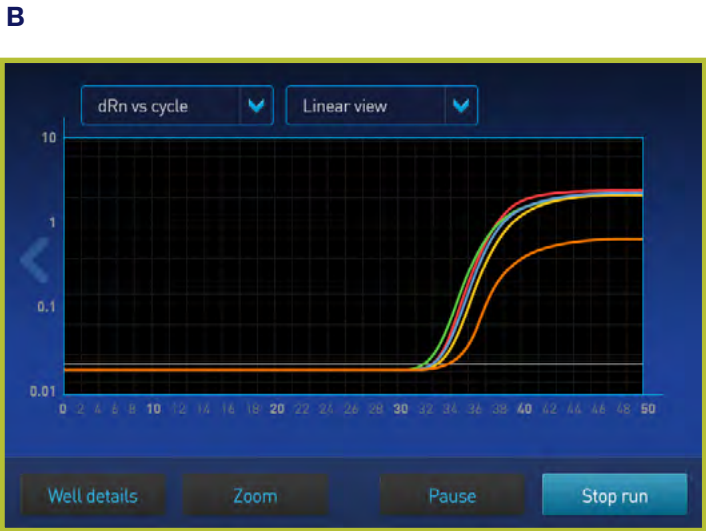
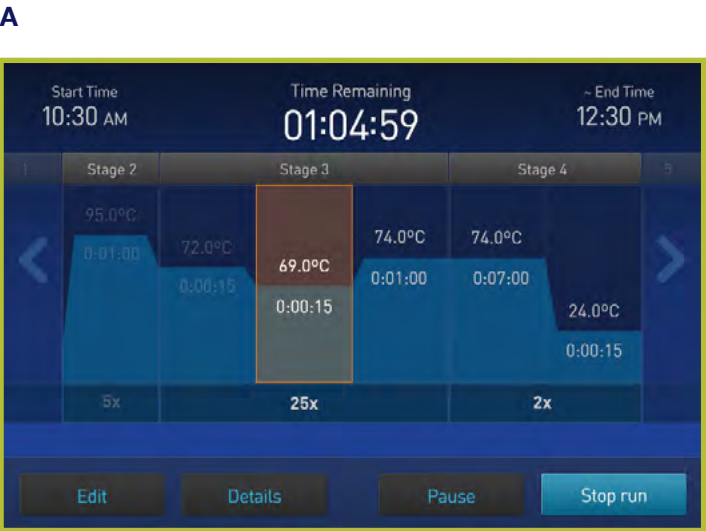


Figure 1. Graphical interface allows (A) easy editing of thermal cycling conditions and viewing of plate layout, as well as (B) viewing of amplification plots in time and drilling down to a subset of sample wells.

Accessibility

Access QuantStudio® Design and Analysis Software two ways



Access with Web browser-based software

Web-based or online:

- Web browser-based system configuration with PC or Mac® computers
- Streamlined software for improved usability and response time
- Enables secure access of your data when and where you want it
- No software to install, no additional fees, and no versions to update
- Monitor and check instrument status



Co-locate with computer

Desktop:

- Traditional co-located computer system configuration
- Streamlined software for improved usability and response time
- No licenses needed and no additional fees

For more information about the Thermo Fisher Cloud platform and data security, go to lifetechnologies.com/thermofishercloud

Collaboration

Fast and powerful secondary analysis software to extract and share results

Applied Biosystems® Analysis Modules are innovative cloud-based data analysis applications that bring together multiple data sets in one convenient place, and render them in stunning data visualizations for enhanced analysis and insights.



Anywhere, anytime access

Access your data with any browser or any device. Each user has a PIN-protected account on Thermo Fisher Cloud.

Fast and powerful analysis

Analysis speeds up to 10 times faster than our desktop software version, to analyze more data and gain insights more quickly than before using Thermo Fisher Cloud.

Easy to use

One-click quality checks and comparisons between different visualizations, for simple and convenient data analysis.

Integrated analysis solution

Integrate all your experiments into a single project—analyze various groups of data, such as time course experiments or cell line comparisons, and pick ideal settings to easily compare data.

Superior security

Powered by Amazon Web Services®, the Thermo Fisher Cloud platform helps protect your data in a highly secure environment using 256-bit encryption and physical security measures.

MIQE guideline support

The instrument software allows users to save predefined analysis settings for auto-exporting run data into their format of choice, including RDML (real-time data mark-up language, compliant with MIQE guidelines) export format.

The Applied Biosystems® Analysis Modules include:

Absolute quantification

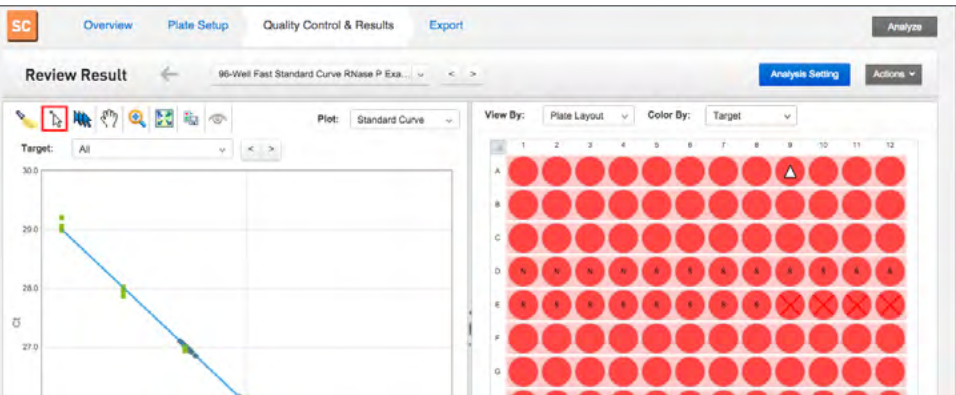


Figure 2. Absolute quantification module for gene expression analysis. The module enables analysis of genes of interest with the use of a standard curve. Additional flexibility is achieved by importing standard curves from other experiments.

Relative quantification

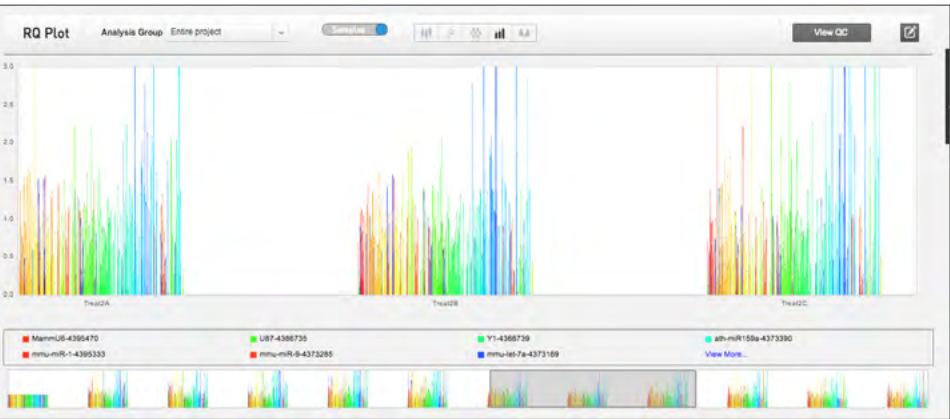


Figure 3. Relative quantification module for gene expression analysis. With this module, you can customize groupings of data within projects for a thorough comparison of data. The module also includes integrated correlation, volcano, and cluster plot analysis, with the ability to drill down to amplification plots.

Genotyping

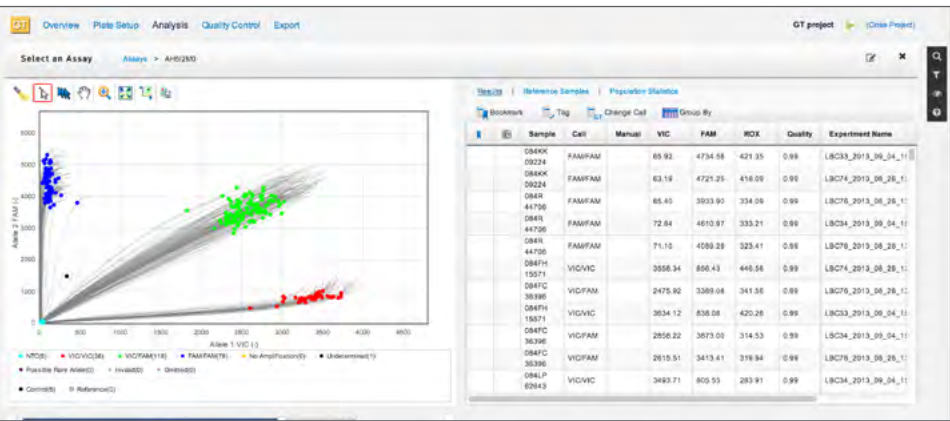


Figure 4. Genotyping analysis module. This module expands on existing TaqMan® Genotyper™ software with improved visuals and integrated traces of allelic discrimination plots. The module allows for thorough quality control of SNP assays to accurately reflect true signals vs. background noise.

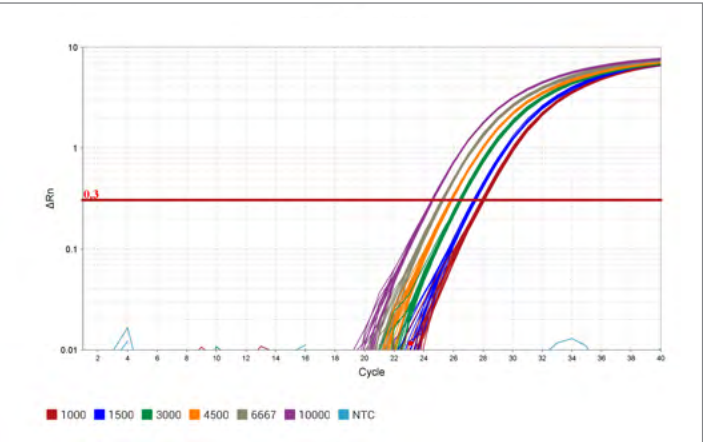
Generate high-quality data for a variety of applications

Performance you can trust

Utilizing proven OptiFlex® technology and VeriFlex™ blocks, QuantStudio® 3 and 5 systems offer improved data accuracy and sensitivity for a broad range of genomic applications, such as analyses of gene expression, microRNAs and noncoding RNAs, SNP genotyping, copy number variation, mutation detection, drug metabolism enzymes, and protein expression.

Precise quantification with 1.5-fold discrimination

A



B

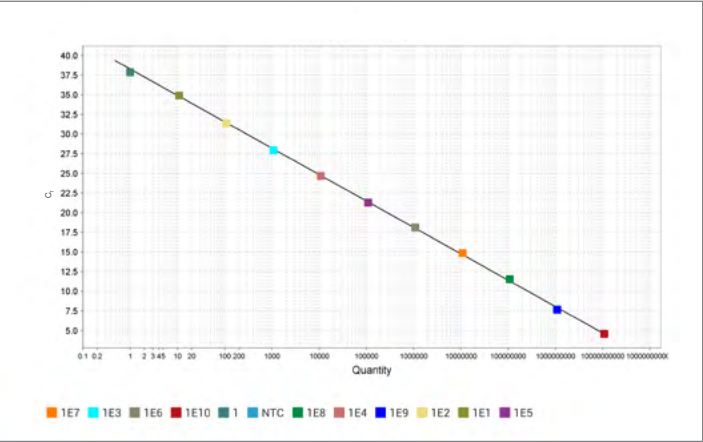


Figure 5. The QuantStudio® 3 and 5 systems provide sensitive detection and high-confidence target discrimination down to 1.5-fold differences. **(A)** Amplification plots for 1.5-fold dilutions of a KAZ plasmid amplified with the PE2 TaqMan® Assay under Fast run conditions using the TaqMan® Fast Advanced Master Mix. Quantities assayed, and C_q (SD): 1,000 copies, 27.9 (0.063); 1,500 copies, 27.4 (0.059); 3,000 copies, 26.4 (0.060); 4,500 copies, 25.8 (0.047); 6,667 copies, 25.2 (0.049); 10,000 copies, 24.5 (0.041). NTC = no-template control. **(B)** Standard curve generated from the C_q values.

Excellent reproducibility and 10-log dynamic range

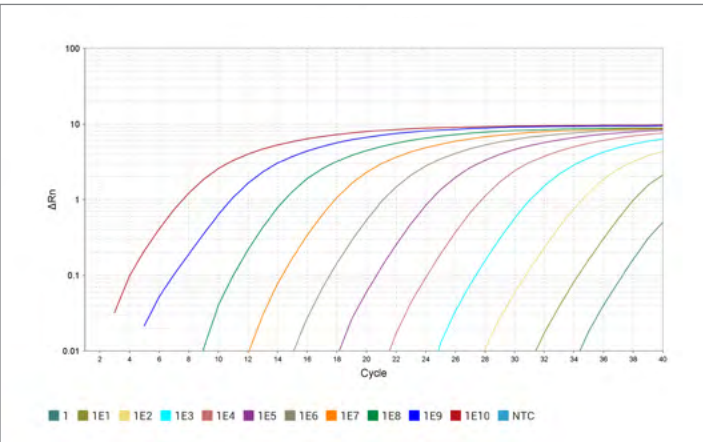


Figure 6. Real-time PCR reproducibility. This plot shows results from amplification of KAZ target plasmid DNA in 10-fold dilutions using the 96-well block. The data show highly reproducible results over 10 logs of input template amount, illustrating the broad linear dynamic range of the system.

Assay flexibility to support your application

The QuantStudio® 3 and 5 systems support probe-based assays as well as intercalating dyes. TaqMan® probe-based assays, developed with powerful algorithms and optimized master mixes, provide outstanding specificity and sensitivity. SYBR® Green chemistry is an economical alternative for target identification or initial screening assays. The QuantStudio® 3 system has 4 filters calibrated for FAM™/SYBR® Green, VIC®/Joe™, NED™/TAMRA™, and ROX™ dyes. The QuantStudio® 5 System offers 96 well and 384 well format options, allowing for a broader range of detection chemistries and assay multiplexing. The 96 well format has 6 excitation filters (450-680nm) and 6 emission filters (500-730nm), and the 384 well format has 5 excitation filters (450-650nm) and 5 emission filters (500-700 nm).

HRM

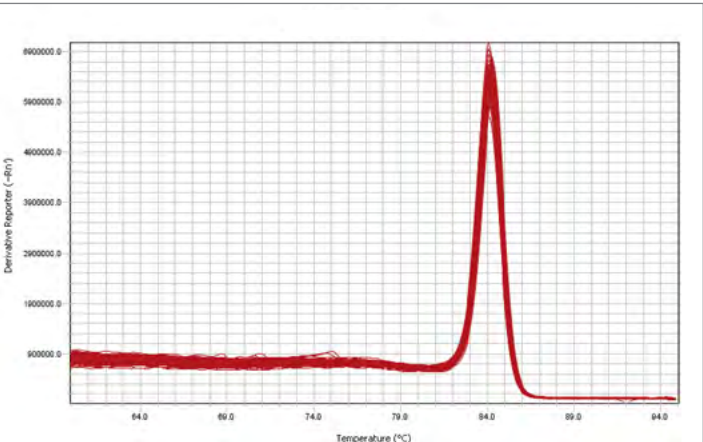


Figure 7. Melt curve analysis using the online version of the software. In this experiment, 96 replicates of human genomic DNA were amplified using the SYBR® Select Master Mix with primers for RNaseP followed by a dissociation step. The reactions were run under Fast run conditions, showing C_i uniformity with a mean of 25.7 (SD 0.077), and thermal uniformity as measured by the derivative peak with a melting temperature (T_m) of 84.17°C (SD 0.07°C).

Multiplex gene expression

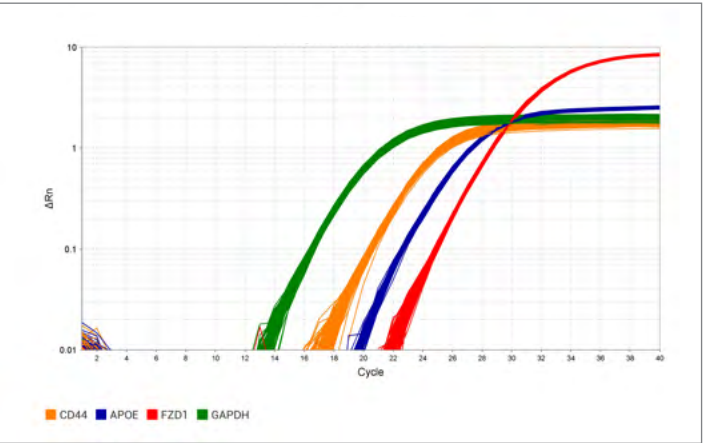


Figure 8. Multiplex reaction with 4 targets plus passive reference. Whole-plate amplification plots of 96 replicates of cDNA made from universal human RNA (UHR) amplified under Fast run conditions using TaqMan® Multiplex Master Mix with Mustang Purple® passive reference dye. Targets and labels: FZD1 labeled with FAM™ dye, APOE labeled with VIC® dye, CD44 labeled with ABY® dye, GAPDH labeled with JUN® dye.

Genotyping analysis

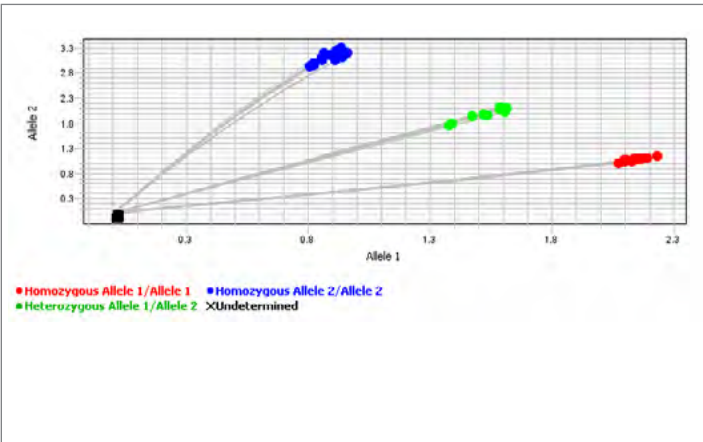


Figure 9. Allelic discrimination plot with traces using real-time PCR data. Cluster plot of 44 gDNA samples and 4 no-template controls (NTCs) genotyped using TaqMan® SNP Genotyping Assay C_29086771_20, with both PCR and allelic discrimination performed on the QuantStudio® 5 Real-Time PCR System. The novel use of real-time PCR data to plot SNP cluster progress aids in calling ambiguous samples and reduces run times by displaying the optimal number of cycles necessary for maximum cluster separation.

For more information about TaqMan® Assays and formats, go to lifetechnologies.com/taqman

Technical specifications



QuantStudio® 3



QuantStudio® 5

Sample capacity (wells)	96	96 or 384
Reaction volume	0.1 mL block: 10–30 µL 0.2 mL block: 10–100 µL	96-well: 0.1 mL block: 10–30 µL 0.2 mL block: 10–100 µL 384-well: 5–20 µL
Footprint (W x D x H)	27 cm x 50 cm x 40 cm	27 cm x 50 cm x 40 cm
Excitation source	Bright white LED	Bright white LED
Optical detection	4 coupled filters	96 wells: 6 decoupled filters 384 wells: 5 coupled filters
Excitation/detection range	450–600 nm/500–640 nm	96 wells: 450–680 nm/500–730 nm 384 wells: 450–650 nm/500–700 nm
Multiplexing	Up to 4 targets	96-well: up to 6 targets 384-well: up to 5 targets
2D barcode reading	Optional	Optional
Heating/cooling method	Peltier	Peltier
Temperature zone function	VeriFlex™ 3 zones	96 wells: VeriFlex™ 6 zones 384 wells: N/A
Max block ramp rate	6.5°C/sec	6.5°C/sec
Average sample ramp rate	3.66°C/sec	3.66°C/sec
Temperature uniformity	0.4°C	0.4°C
Temperature accuracy	0.25°C	0.25°C
Run time	<30-minute runs	<30-minute runs
Dye compatibility (name)	FAM™/SYBR® Green, VIC®/JOE™/HEX/TET, ABY®/NED™/TAMRA™/Cy®3, JUN®, ROX™/ Texas Red®	FAM™/SYBR® Green, VIC®/JOE™/HEX/TET, ABY®/NED™/TAMRA™/Cy®3, JUN®, ROX™/Texas Red®, Mustang Purple®, Cy®5/LIZ®, Cy®5.5
Chemistry capabilities	Fast/standard	Fast/standard
Features to assist with 21 CFR Part 11 compliance	No	Yes, with no additional fees
Number of copies	1 copy	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reaction	Detect differences as small as 1.5-fold in target quantities in singleplex reaction



Service and support to meet your changing needs

 **SmartStart orientation**
Every QuantStudio® 3 and QuantStudio 5 system includes a SmartStart orientation to get you up and running quickly in your lab. The orientation includes basic qPCR training and setup with both Thermo Fisher Cloud and online Instrument Management. QuantStudio® 5 system owners receive a personalized qPCR application training.

 **Online Instrument Management**
Sign in to your lifetechnologies.com account to access the award-winning* free online Instrument Management** tool that enables faster responses to requests for service or service quotes, plus instant connection to key instrument and service information.

 **Comprehensive instrument warranty**
Our factory-trained and certified field service engineers (FSEs) are focused on delivering the highest-quality workmanship. During the warranty period all repairs, including engineer time and travel, are covered.

 **Flexible service plans**
Choose from a variety of service options that balance your budget, productivity, uptime, and regulatory requirements. Plans start with the most basic repair models and scale to premium offerings including advanced support and compliance services. On-site service plans are optimal for labs that have time-sensitive work and need to get their instrument back online quickly. These plans include guaranteed response times in most regions, scheduled planned maintenance, and automatic software updates. The AB Repair Center plan is the cost-effective choice for customers who can allow their instrument to be sent away for repair—this plan provides a loaner instrument so that customers can maintain productivity while their instrument is being repaired.

 **Compliance and validation services**
Our compliance and validation services are designed to help you balance business and regulatory requirements. From risk assessment and hardware/software qualification to full system validation, we partner with you to help mitigate regulatory risks and get your processes up and running.

 **Training courses**
Our application and instrument training programs are led by scientists who aim to enhance your workday through experimental design best practices, workflow training, and instrument troubleshooting. Hands-on classes are available at our Thermo Fisher Scientific training centers or in your lab.

 **Technical support**
If you have questions about product selection or use, assay or experiment design, data analysis, or troubleshooting, contact our team of technical support scientists or access our online product and application support tools.

 **Financing options**
If you're looking for accelerated ROI, technology protection, or cash flow management, our innovative financing options can help meet your company's budgetary needs and bottom-line goals. Contact your local sales representative for more details.

Service plans at a glance

	Repair Center service plans		On-site service plans		
Service plans at a glance	AB Repair Center Support Plus	AB Repair Center Support Plus Care	AB Maintenance Plus	AB Assurance	AB Complete
On-site response time			Target 2 business days*	Guaranteed 2 business days*	Guaranteed next business day*
Scheduled on-site planned maintenance (PM)		✓	✓	✓	✓
Remote diagnostics	✓	✓	✓	✓	✓
Parts, labor, and travel for repair, included	✓	✓	✓	✓	✓
Computer repair and replacement, included	✓	✓	10% discount optional add-on in selected regions	✓	✓
Priority access to Tech Support Mon–Fri, 8 a.m. –5 p.m. local time	✓	✓		✓	✓
Priority access to Remote Service Engineer	✓	✓		✓	✓
Requalification post-PM and critical repairs					✓
Field Application Scientist consultation					✓
Loaner instrument issued during repair (Repair Center plans only)	✓	✓			

For a full schedule of courses, including self-paced online classes, go to learn.lifetechnologies.com/training

*2012 Oracle® Fusion Middleware Innovation Award.
**Online Instrument Management tool not available in all regions.

*Instrument Management not available in all regions.

Ordering information

Product	Cat. No.
QuantStudio® 3 system configurations	
QuantStudio® 3 Real-Time PCR System (96-well, 0.1 mL block)*	A28136
QuantStudio® 3 Real-Time PCR System (96-well, 0.2 mL block)*	A28137
QuantStudio® 3 Real-Time PCR System AB Assurance Service Plan	ZG11SCQS3STD
QuantStudio® 3 Real-Time PCR System IQ/OQ/IPV Service	A28480
QuantStudio® 5 system configurations	
QuantStudio® 5 Real-Time PCR System (96-well, 0.1 mL block)*	A28138
QuantStudio® 5 Real-Time PCR System (96-well, 0.2 mL block)*	A28139
QuantStudio® 5 Real-Time PCR System (384-well block)*	A28140
QuantStudio® 5 Real-Time PCR System AB Assurance Service Plan	ZG11SCQS5STD
QuantStudio® 5 Real-Time PCR System IQ/OQ/IPV Service	A28482

*Does not include computer. Additional Cat. Nos. are available that include laptop or desktop computer.

How to reach us

To find your order support or technical support team, go to lifetechnologies.com/contactus

For product FAQs, protocols, training courses, and webinars, go to lifetechnologies.com/technicalresources

Find out more at lifetechnologies.com/quantstudio3-5

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