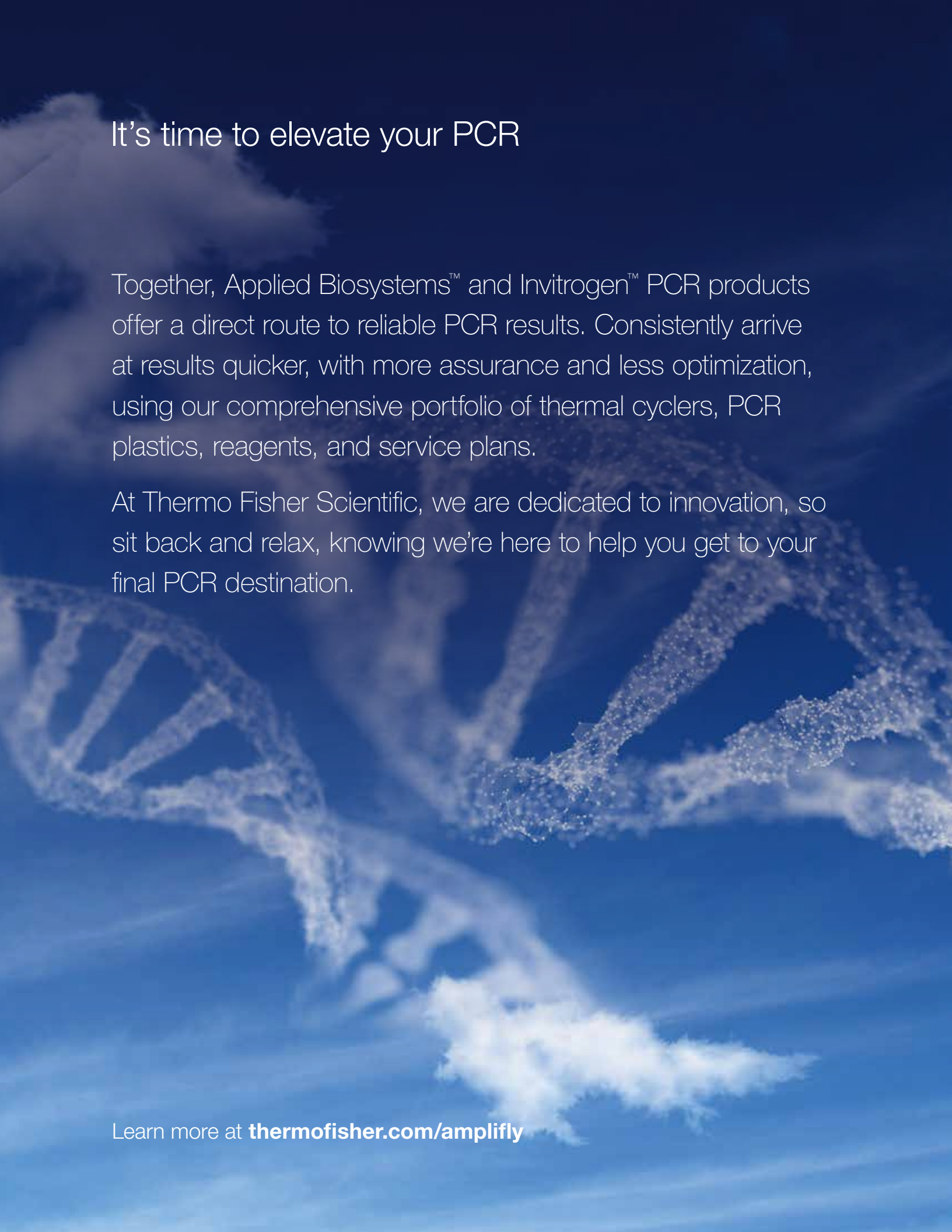
PCR

applied biosystems invitrogen

PCR solutions brochure

Enhanced performance for first-class PCR results

ThermoFisher SCIENTIFIC


It’s time to elevate your PCR
Together, Applied Biosystems™ and Invitrogen™ PCR products offer a direct route to reliable PCR results. Consistently arrive at results quicker, with more assurance and less optimization, using our comprehensive portfolio of thermal cyclers, PCR plastics, reagents, and service plans.
At Thermo Fisher Scientific, we are dedicated to innovation, so sit back and relax, knowing we’re here to help you get to your final PCR destination.
Learn more at **thermofisher.com/amplifly**

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Which instrument fits your needs?

Our engineers have been designing and manufacturing high-quality thermal cyclers since 1987. In that time, Applied Biosystems™ thermal cyclers have built a reputation for reliability, accuracy, and user-friendly interfaces. Our instruments enable precise, consistent results for every challenge, application, and budget.

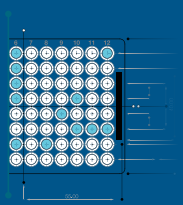
Key features:	Ultimate flexibility and throughput	Elegantly simple and precise	Proven reliability, precise PCR optimization	Routine PCR, elevated	Routine PCR	Designed for easy robotic integration
	ProFlex PCR System	SimpliAmp Thermal Cycler	Veriti Thermal Cycler*	MiniAmp Plus Thermal Cycler	MiniAmp Thermal Cycler	Automated Thermal Cycler
						
Max. sample throughput	480,000 reactions	96 reactions	384 reactions	96 reactions	96 reactions	384 reactions
Max. block ramp rate	6.0°C/sec	4.0°C/sec	5.0°C/sec	3.5°C/sec	3.0°C/sec	3.5°C/sec
Block formats (temperature optimization)	• 3 x 32-well 0.2 mL (2-zone VeriFlex Block) • 96-well 0.2 mL (6-zone VeriFlex Block) • 2 x 96-well 0.2 mL • 2 x flat block • 2 x 384-well 0.02 mL	• 96-well 0.2 mL (3-zone VeriFlex Block)	• 96-well 0.2 mL (6-zone VeriFlex Block) • Fast 96-well 0.1 mL • 384-well 0.02 mL • 60-well 0.5 mL	• 96-well 0.2 mL (3-zone VeriFlex Block)	• 96-well 0.2 mL	• 96-well 0.2 mL compatible with full- or semi-skirted plates • 384-well 0.02 mL

* Also available as an FDA Class 1/CE-IVD labeled device.

= cloud-enabled instrument

Don't forget reagents—choose from the PCR enzymes you know and trust, such as Invitrogen™ SuperScript™ reverse transcriptases and Invitrogen™ Platinum™ SuperFi™ reagents (see pg. 22–25).

Interested in private-label thermal cyclers or PCR plastics? To find out more, go to **thermofisher.com/oem-partner**




ProFlex™ PCR System
95°C
00:43:27
95°C
01:30:00
20°C
00:45:00
My Account
New Method
Open Method
Incubate
Settings
ProFlex

Ultimate flexibility and throughput

ProFlex PCR System

The Applied Biosystems™ ProFlex™ PCR System combines flexible configuration and control features to fit how you work today and tomorrow with the reliability you've come to expect from Applied Biosystems™ products. Interchangeable block formats allow you to maximize your throughput or run independent experiments concurrently.

The ProFlex PCR System is cloud-enabled, giving you the freedom to design and securely upload your methods, monitor runs, and check instrument availability from any mobile device or desktop computer with Thermo Fisher Connect.

- **Multi-user accessible**—run three experiments at once
- **Flexible block configuration**—accepts five different block formats for optimization and throughput
- **Cloud-enabled**—conveniently access your instrument anytime and from anywhere with Thermo Fisher Connect

Five interchangeable block options

The ProFlex PCR System has five different blocks that can be changed with the flip of a switch, including a 3 x 32-well block. This allows up to three experiments to be run simultaneously, completely independently of each other.

Dual 96-well and dual 384-well blocks are available for high-throughput needs. A dual flat block is also available to support Applied Biosystems™ OpenArray™ plate technology for genotyping analysis on the Applied Biosystems™ QuantStudio™ 12K Flex Real-Time PCR System as well as our sealed chip technology on the QuantStudio™ 3D Digital PCR System.

3 x 32-well

96-well

Dual 96-well

Dual 384-well

Dual flat

Find out more at **thermofisher.com/proflex**

Specifications

Block format	3 x 32-well, 0.2 mL 2-zone VeriFlex Block independent control	96-well, 0.2 mL 6-zone VeriFlex Block	2 x 96-well, 0.2 mL	2 x flat block for chips and arrays	2 x 384-well, 0.02 mL
Features	Run three experiments at once or at different times	Perform complete optimization work with full 96-well VeriFlex Block	High throughput in 96-well format	Highest throughput capability: 8 x 3,072 OpenArray Plate* or 24 x 20K Chip**	High throughput in 384-well format
Max. block ramp rate	6.0°C/sec	6.0°C/sec	3.0°C/sec	1.6°C/sec	3.0°C/sec
Max. sample ramp rate	4.4°C/sec	4.4°C/sec	1.6°C/sec	N/A	1.6°C/sec
Temperature accuracy	±0.25°C (35–99.9°C)				
Temperature range	0°–100.0°C				
Temperature uniformity	<0.5°C (20 sec after reaching 95°C)				
Dimensions (H x W x D)	27.2 x 33.0 x 56.5 cm (10.6 x 13 x 22 in)				
Weight	18.8 kg (41 lb)		20.4 kg (45 lb)		
PCR volume range	10–80 µL	10–80 µL	10–100 µL	33 nL	5–20 µL
Instrument memory	USB, onboard				
Display interface	8.4-inch color TFT LCD				
Power	100–240 V, 50–60 Hz, max: 950 VA				
VeriFlex Block	2 temperature zones per block (5°C zone-to-zone)	6 temperature zones 25°C range (5°C zone-to-zone)	N/A		
Data connectivity†	Cloud or mobile via Ethernet or WiFi				

* OpenArray Plate is compatible with the QuantStudio 12K Flex Real-Time PCR System.
** 20K Chip is compatible with the QuantStudio 3D Digital PCR System.
† The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument.
Thermo Fisher Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Complete system Cat. No.	Block only Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
ProFlex 96-well PCR System	4484075	4483637	A27934
ProFlex 3 x 32-well PCR System	4484073	4483638	A28986
ProFlex 2 x 96-well PCR System Kit	4484076	4484071	A27937
ProFlex 2 x flat PCR System	4484078	4484074	A27931
ProFlex 2 x 384-well PCR System	4484077	4484072	A30229

Recommended plastics

3 x 32-well block	Cat. No.	96-well block	Cat. No.	384-well block	Cat. No.
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
		MicroAmp 32-Well Clear Adhesive Film	A32812		
MicroAmp Reaction Tube with Cap, 0.2 mL	N8010540	MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp 32-Well Clear Adhesive Film	A32812	MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311

Did you know?

The Veriti, ProFlex, SimpliAmp, and MiniAmp Plus Thermal Cyclers feature Applied Biosystems™ VeriFlex™ temperature control technology, which enables more precise and efficient PCR optimization.

Find out more at **thermofisher.com/veriflextechnology**

Elegantly simple and precise

SimpliAmp Thermal Cycler

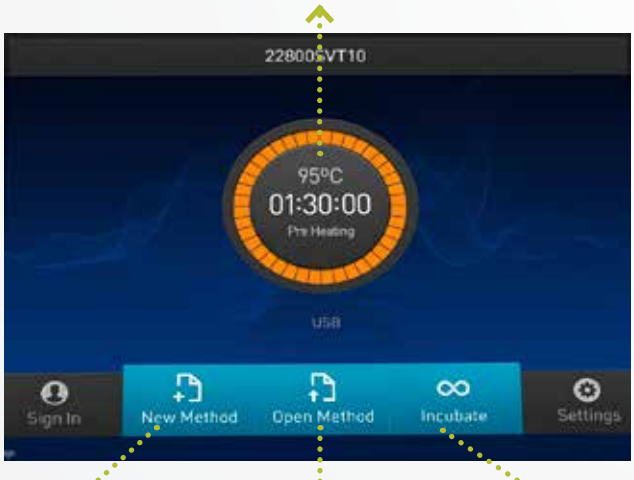
The Applied Biosystems™ SimpliAmp™ Thermal Cycler is an easy-to-use, compact, and accurate thermal cycler designed to fit every lab's essential PCR workflow. Features like a responsive color touch screen and VeriFlex temperature control technology enable simple, accurate optimization. Plus, the SimpliAmp Thermal Cycler is cloud-enabled, giving you the freedom to design and securely upload your methods, monitor runs, and check instrument availability from any mobile device or desktop computer with Thermo Fisher Connect.

- **Intuitive interface**—large, easy-to-use color touch screen for easy programming and quick status checks
- **VeriFlex Blocks**—three independent temperature zones for PCR optimization
- **Cloud-enabled**—conveniently access your instrument anytime and from anywhere with Thermo Fisher Connect
- **Compact design**—helps save bench space

= cloud-enabled instrument

Simple, intuitive user interface

The SimpliAmp Thermal Cycler has an 8-inch color touch screen, making navigation of the intuitive menu options fast and efficient.



Find out more at **thermofisher.com/simpliamp**

Specifications

Block format	96-well, 0.2 mL 3-zone VeriFlex Block	
Features	• Enabled to run Fast chemistry • Controllable ramp rate • Program overwrite protection	• Auto restart (after power outages) • Edit program during experiment • One-touch incubation
Max block ramp rate*	4°C/sec	
Max sample ramp rate*	3°C/sec	
Temperature accuracy	±0.25°C (35–99.9°C)	
Temperature range	0–100.0°C	
Temperature uniformity	<0.5°C (30 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology	
Dimensions (H x W x D)	21.0 x 24.0 x 46.0 cm (8.3 x 9.5 x 18.1 in.)	
Weight	8.3 kg (18.3 lb)	
PCR volume range	10–100 µL	
Instrument memory	2,000 MB onboard memory (capacity for >1,000 protocols); USB port for additional external storage	
Display interface	8-inch color TFT LCD	
Power	100–240 V, 50–60 Hz, max. 600 W	
VeriFlex Blocks	3 temperature zones, 20°C range (10°C zone-to-zone)	
Data connectivity**	Cloud or mobile via Ethernet or WiFi	

* At reaction volume of 1 µL.

** The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument. Thermo Fisher Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
SimpliAmp Thermal Cycler	A24811	A27603
High-Power USB Wi-Fi Module	A26774	N/A
Recommended plastics		
96-well block	**Cat. No.**	
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	
MicroAmp Optical 96-Well Reaction Plate	N8010560	
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	
MicroAmp 32-Well Clear Adhesive Film	A32812	
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	
MicroAmp Clear Adhesive Film	4306311	

Did you know?

MiniAmp, SimpliAmp, ProFlex, and Veriti Thermal Cyclers have thermal simulation modes that make the transition from other thermal cyclers simple, accurate, and efficient. A library of modes that mimic the ramp rates of other instruments is available on each instrument.

Proven reliability, precise PCR optimization

Veriti Thermal Cycler

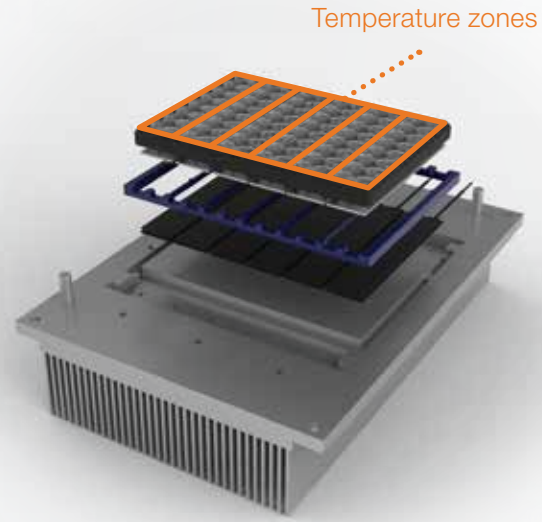
The Applied Biosystems™ Veriti™ Thermal Cycler delivers proven reliability and simple programming. The VeriFlex temperature control technology inside makes it possible to run up to 6 different temperatures in the same protocol step, providing precise control over your PCR optimization.

- **VeriFlex Blocks**—six independent temperature zones for PCR optimization
- **Easy-to-operate interface**—fast protocol setup and convenient protocol transfer with a USB memory stick

Precise control with VeriFlex temperature control technology

VeriFlex Blocks are constructed of segmented metal blocks with separate heating/cooling elements below each, enabling:

- **More precise control over PCR optimization**—each block can be set with up to six specific temperatures
- **Precise incubation**—use the six temperature zones of the VeriFlex Blocks to do enzyme studies, restriction digests, or any other process that requires precise temperature control



Find out more at **thermofisher.com/veriti**

Specifications

	96-well Fast, 0.1 mL 6-zone VeriFlex Block	96-well, 0.2 mL 6-zone VeriFlex Block	384-well, 0.02 mL	60-well, 0.5 mL
Block format	0.1 mL alloy	0.2 mL alloy	0.02 mL aluminum	0.5 mL aluminum
Max. block ramp rate	5.0°C/sec	3.9°C/sec	3.7°C/sec	3.3°C/sec
Max. sample ramp rate	4.25°C/sec	3.35°C/sec	3.1°C/sec	2.7°C/sec
Enabled to run Fast chemistry	Yes	Yes	No	No
Temperature accuracy	±0.25°C (35–99.9°C)			
Temperature range	0–100.0°C			
Temperature uniformity	<0.5°C (20 sec after reaching 95°C)			
Dimensions (H x W x D)	24.5 x 23.7 x 48.5 cm (9.6 x 9.3 x 19.1 in.)			
Weight	11.4 kg (25 lb)			
PCR volume range	10–30 µL	10–80 µL	5–20 µL	25–100 µL
Instrument memory	USB and onboard memory; onboard capacity >500 protocols			
Display interface	6.5 inch VGA 32K color with touch screen			
T_m calculator	Menu-driven through touch screen			
Power	100–240 V, 50–60 Hz, max. 800 VA			
VeriFlex Block range	25°C (5°C zone-to-zone)	25°C (5°C zone-to-zone)	N/A	N/A

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
Veriti 96-Well Fast Thermal Cycler	4375305	A27924
Veriti 96-Well Thermal Cycler	4375786	A26659*
Veriti 384-Well Thermal Cycler	4388444	A27927
Veriti 60-Well Thermal Cycler	4384638	A26656**

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical 96-Well Reaction Plate	N8010560	MicroAmp Fast Optical 96-Well Reaction Plate, 0.1 mL	4346907	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate	A32811	MicroAmp Fast 8-Tube Strip, 0.1 mL	4358293	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp 32-Well Clear Adhesive Film	A32812				
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	MicroAmp 8-Cap Strip, clear	N8010535	MicroAmp Clear Adhesive Film	4306311
MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311		

* A26567 in Denmark, Switzerland, and UK.
** A26563 in Denmark, Switzerland, and UK.

Tired of water baths?

Incubate samples at up to six different temperatures simultaneously for enzyme activation studies, restriction digests, or sequencing library preps with the Veriti Thermal Cycler.

Routine PCR, elevated

MiniAmp Thermal Cyclers

Applied Biosystems™ MiniAmp™ Plus and MiniAmp Thermal Cyclers deliver the reliability you've come to expect from Applied Biosystems™ technology now for routine PCR at every lab bench.

- **Compact design**—fits in everyone's lab space at just 7.5 in (19 cm) wide
- **Cloud-enabled**—conveniently access your instrument anytime, anywhere with Thermo Fisher Connect

The Applied Biosystems™ MiniAmp™ Plus Thermal Cycler features a VeriFlex Block for easy PCR optimizations. If PCR optimization is not part of your routine PCR, the Applied Biosystems™ MiniAmp™ Thermal Cycler has an isothermal block for basic PCR.

MiniAmp MiniAmp Plus

= cloud-enabled instrument

Secure remote access with cloud-enabled instruments

The ProFlex, SimpliAmp, and MiniAmp Thermal Cyclers are cloud-enabled instruments, allowing you secure, private access with a Thermo Fisher Connect account. Anywhere, anytime, with any mobile device or desktop computer you can:

- Design and share protocols
- Schedule an instrument
- Start or stop a run
- Check run status

Find out more at **thermofisher.com/miniamp**

Did you know?

Most Applied Biosystems thermal cyclers come with a two-year standard warranty and a starter kit that includes Applied Biosystems PCR plate and tube samples and all the tools you need. Packages that include the instrument, an extended warranty, and consumables are available. Visit the instrument webpage to view packages available.

Specifications

	MiniAmp Plus Thermal Cycler	MiniAmp Thermal Cycler
Block format	96-well, 0.2 mL 3-zone VeriFlex Block	96-well, 0.2 mL isothermal block
Max block ramp rate*	3.5°C/sec	3.0°C/sec
Max sample ramp rate*	2.7°C/sec	2.2°C/sec
Temperature accuracy	±0.25°C (35–99.9°C)	
Temperature range	0–100.0°C	
Temperature uniformity	<0.5°C (30 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology	
Dimensions (H x W x D)	20 x 19 x 39 cm (7.9 x 7.5 x 15.4 in.)	
Weight	5.9 kg (13.0 lb)	
PCR volume range	10–100 µL	
Instrument memory	2,000 MB onboard memory (capacity for >1,000 protocols); USB port for additional external storage	
Display interface	5-inch color TFT LCD	
Power	100–240 V, 50–60 Hz, max. 500 W	
VeriFlex Blocks	3 temperature zones, 20°C range (10°C zone-to-zone)	N/A
Data connectivity**	Cloud or mobile via Ethernet or WiFi	

* At reaction volume of 1 µL.

** The Instrument Connect app, available at Apple™ and Google™ app stores, can be used to monitor your instrument. Thermo Fisher Connect can be used to create and share protocols, schedule an instrument, and start and monitor runs remotely.

Ordering information

Product	Cat. No.	Instrument + 5-year warranty with Rapid Exchange Cat. No.
MiniAmp Plus Thermal Cycler	A37835	A38077
MiniAmp Thermal Cycler	A37834	A38081
High-Power USB Wi-Fi Module	A26774	N/A
Recommended plastics		
96-well block		**Cat. No.**
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode		4483354
MicroAmp Optical 96-Well Reaction Plate		N8010560
MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate		A32811
MicroAmp 32-Well Clear Adhesive Film		A32812
MicroAmp 8-Tube Strip with Attached Domed Caps, 0.2 mL		A30589
MicroAmp Clear Adhesive Film		4306311

Want to learn more about thermal cycler ramp rates and how they are calculated?
Visit **thermofisher.com/ramprate**

Designed for easy robotic integration

Automated Thermal Cycler

The Applied Biosystems™ Automated Thermal Cycler offers the flexibility, reliability, and performance needed in a complete PCR automation system. The small, easy-to-integrate format of the Automated Thermal Cycler enables hands-free PCR results.

- **Flexible modular design and small footprint**—helps save space on deck
- **Automated lid**—easy, hands-free operation with a liquid handler or plate stacker
- **Free desktop software**—for PCR optimization prior to robotic integration
- **Plug-and-play drivers and SiLA compatibility**—for easy integration on your liquid handler of choice

Designed for any stage of your workflow automation journey

Stand-alone

Optimize assays before robotic integration with our direct software.

Plug-and-play drivers

Ask about available drivers for leading robotic platforms.

SiLA-compatible

Maximum robotic platform integration flexibility with SiLA rapid integration coding.

Find out more at **thermofisher.com/atc**

Specifications

	96-well, 0.2 mL*	384-well, 0.02 mL
PCR volume range	10–100 µL for full-skirted plates; 20–100 µL for semi-skirted plates	5–20 µL for full-skirted plates
Hardware integration features	• Predrilled mounting and/or alignment points at each corner of the chassis • 3-side and top-plate access • Available in 3-connector configurations	
Software features	• Application programming interfaces (APIs) available for integration with robotics systems • SiLA Rapid Integration software–standardized programming access** • Free software available for instrument demonstration and stand-alone operation	
Block module dimensions (H x W x D)	13.3 x 17.9 x 31.7 cm (5.2 x 7.0 x 12.5 in)	
Control module dimensions (H x W x D)	7.0 x 25.7 x 33.1 cm (2.8 x 10.1 x 13.0 in)	
Temperature accuracy	±0.25°C (35.0–99.9°C)	
Max. block ramp rate†	3.5°C/sec	2.8°C/sec
Max. sample ramp rate†	1.8°C/sec	1.6°C/sec
Temperature range	4–105°C (no condensation risk with sub-ambient temperatures)	
Temperature uniformity	≤0.50°C (20 sec after reaching 95°C)	
Temperature calibration	Calibrated to standards traceable to the National Institute of Standards and Technology (NIST)	
Service options	• 2-year standard warranty includes Rapid Exchange Service plan • NIST-traceable temperature probe equipment available	
Weight	9.4 kg/20.7 lb total (block module 6.0 kg/13.2 lb, control module 3.4 kg/7.5 lb)	
Power	100–240 V, 50–60 Hz, max. 600 W	
Flexible ramp rates	Program your own ramp rates, or use preprogrammed simulation modes	
Data connectivity	LAN	

* Compatible with full- or semi-skirted plates. ATC semi-skirted adaptor required for use with semi-skirted 96-well plates. ATC ships with the full-skirted adaptor installed, which is required for use with full-skirted 96-well plates.

** sila-standard.org

† At reaction volume of 1 µL.

Ordering information

Product	96-well Cat. No.	384-well Cat. No.	3-year extended warranty* with Rapid Exchange Cat. No.
Automated Thermal Cycler System, laptop, 1 m cable	A31486	A33977	ZGEXSCATC3Y
Automated Thermal Cycler System, laptop, 3 m cable	A31487	A33978	ZGEXSCATC3Y
Automated Thermal Cycler System, laptop, 10 cm cable	A31488	A33979	ZGEXSCATC3Y
Automated Thermal Cycler System, 1 m cable	A31489	A33980	ZGEXSCATC3Y
Automated Thermal Cycler System, 3 m cable	A31490	A33981	ZGEXSCATC3Y
Automated Thermal Cycler System, 10 cm cable	A31491	A33982	ZGEXSCATC3Y
Automated Thermal Cycler Semi-skirted Adaptor	A33044	N/A	N/A
Automated Thermal Cycler Full-skirted Adaptor	A33045	N/A	N/A

* The Automated Thermal Cycler comes standard with a 27-month warranty.

Recommended plastics

96-well block	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Full-Skirted Plates with Barcode, Clear	A31728	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483273
MicroAmp EnduraPlate Optical Semi-Skirted Plates with Barcode*	4483356	MicroAmp EnduraPlate Optical 384-Well Multicolor Reaction Plates with Barcode	4483317
MicroAmp Clear Adhesive Film	4306311	MicroAmp Clear Adhesive Film	4306311

* Requires semi-skirted plate adapter (Cat. No. A33044).

The Applied Biosystems™ MicroAmp™ EnduraPlate™ (Cat. No. A31728) was specifically designed for the Automated Thermal Cycler and has three-way barcoding.

Peace of mind, for the life of your thermal cycler

Flexible service plans protect your instruments and your investment

Our service and support teams can help increase laboratory productivity and give you peace of mind. Protect your thermal cycler investment with these service plans.

Rapid Exchange Service

The Rapid Exchange Service plan is available for thermal cyclers, benchtop devices, and selected other instruments. When you call our Remote Service Center, you will get the assistance you need to resolve many types of technical problems. If the instrument needs service, the service center will coordinate shipment of a factory-certified, refurbished replacement instrument on the same day of the call. All you need to do is repackage the problem instrument and return it to us. Thermo Fisher pays for shipping.

Rapid Exchange process:

1. Call the Remote Service Center
2. Receive refurbished instrument
3. Ship back the instrument being replaced

AB Repair Center (RC) Support

This provides a cost-efficient way to service your compact instruments, including thermal cyclers, benchtop devices, and customer-installable real-time PCR systems. This mail-in option employs factory-trained engineers skilled in maintaining and repairing your instrument. You also receive priority phone support from our experienced staff for technical, software, and hardware inquiries. AB RC Support is ideal for those customers in regulated environments that must maintain asset tag consistency to comply with regulated protocols.

Service	Rapid Exchange	AB Repair Center Support
Repair time	Replacement shipped out in 1 business day	Your instrument repaired and returned in ~3 weeks
Off-site repair service including shipping, parts, and labor	•	•
Priority access to technical support	•	•

Planned maintenance, temperature verification, and loaner instrument service* can be added to any off-site service plans.

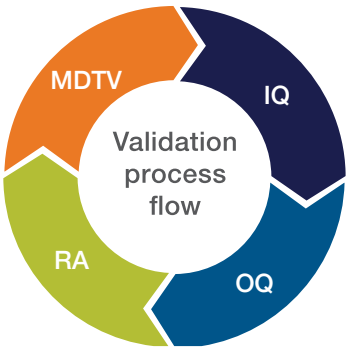
* Loaner instruments are not available in all regions. Contact your services and support representative for availability.

First-class service and support

Compliance and verification services

We've designed our compliance services to help you balance business and regulatory requirements. From risk assessment and hardware/software qualification to full system validation, we can partner with you.

All services come with audit-ready documentation.



- **Installation qualification (IQ)**–verifies and documents that your instruments are installed per our specifications.
- **Operation qualification (OQ)**–verifies that your instruments, at the time of testing, are performing according to the manufacturer's specifications. Our OQ service verifies and records performance after installation, repetitive use, and major service events.
- **Risk assessment (RA)**–identifies opportunities for improving your procedures, training, and verification processes—to help ensure your laboratory is running at top productivity levels.
- **Multiplex Dynamic Temperature Verification (MDTV) and Multiplex Dynamic Temperature Measurement (MDTM) Services**–designed to deliver fast, accurate readings of temperature on your PCR unit, these valuable services are available for Applied Biosystems instruments as well as most thermal cyclers from other manufacturers.**

* IQ/OQ service not currently offered on the Applied Biosystems™ 2700 and 2720 Thermal Cyclers.

** MDTV service not currently offered on the 60-well Applied Biosystems™ GeneAmp™ PCR System 9700.

Planned maintenance

For our plan customers, we automatically schedule routine maintenance visits, where field service engineers (FSEs) verify, inspect, calibrate, and clean your instruments to help ensure they're performing according to specifications.

Remote monitoring and instrument diagnostics

We offer a real-time remote instrument monitoring service that helps you maximize system uptime and improve productivity. Our engineers and the Remote Service Center support team are notified when a situation is developing or exists that could lead to instrument problems or failure. This proactive monitoring allows us to take action before you experience unscheduled instrument downtime.

Application and instrument training

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 training centers or in your lab.

Technical support

Access the free award-winning online Instrument Management tool that enables faster responses to requests for service or service quotes, plus instant connection to key instrument and service information.

Find out more at **thermofisher.com/instrumentservices**

High-performance PCR plastics for optimal PCR results

Engineer Approved MicroAmp PCR plastics

Applied Biosystems™ PCR plastics have been designed and validated to work with our thermal cyclers for more than 25 years. That's why they are Engineer Approved to enable optimal PCR performance.

Applied Biosystems MicroAmp PCR plastics are:

- Validated on Applied Biosystems thermal cyclers for optimal fit and performance
- Designed for optimal heat transfer with thin-walled polypropylene wells
- Designed to reduce cross-contamination with raised-well rims for effective sealing

MicroAmp TriFlex 3 x 32-Well PCR Reaction Plate and adhesive film

- One plate that can be used as separated, individual 32-well plates or as a full 96-well plate
- Easy-to-tear dual side tabs
- Alphanumeric labeling on each plate segment
- Precut MicroAmp 32-Well Clear Adhesive Film

Unique, high-performance features of the MicroAmp EnduraPlate plastic consumables

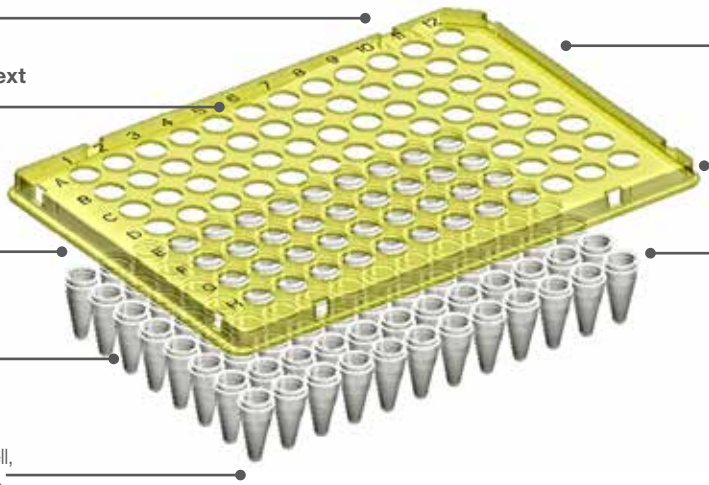
Easy visual organization
5 colors of choice

Easy-to-read well identification text
Black text for excellent contrast

Non-warp, even after thermal cycling
Polycarbonate (hard shell) for mechanical stability and flatness

Snug fit to thermal blocks
Thin-wall polypropylene for excellent mechanical fit and heat transfer

Available in common formats
96-well standard, 96-well Fast, 384-well, 5-piece sample packs, 20 & 500 packs



Constructed to ANSI/SBS standard
Well suited for SBS standard robotic handling

Certified DNA, RNase, and PCR inhibitor–free

Compatible and optimized for performance with Applied Biosystems instruments

Options for every format and throughput need

Choose from tubes, tube strips, plates, adhesive film, and accessories for any throughput need. MicroAmp EnduraPlate plastics offer a solution for experiments that require special handling, such as automated or high-throughput workflows, and an even greater degree of durability for use with multi-instrument experiments.

MicroAmp 8-tube strip with attached optical, flat caps are also available for qPCR.

The Applied Biosystems™ MicroAmp™ 8-Tube Strip with attached optical or domed caps offers a combination of features to help prevent cross-contamination, pipetting errors, and sample identification errors in your PCR and real-time PCR applications.

- Attached caps that open and close independently of each other
- Etched A–H letter labeling for individual tubes and caps
- Dual side tabs for strip labeling
- Graduated 20 µL measuring markers on every tube
- Available exclusively for Applied Biosystems™ thermal cyclers to enable optimal PCR results

Find out more at **thermofisher.com/pcrplastics**

Did you know?

Proper plate sealing helps reduce evaporation and well-to-well contamination.

1. Remove the backing of the Applied Biosystems™ adhesive film.
2. Align the adhesive film so as to cover all wells while placing on the plate.
3. Rub the flat edge of the applicator along the long edge (length) of the plate, then along the short edge (width). Finally, rub the applicator between all the wells and around the outside edges of the plate using small back-and-forth motions to form a complete seal.

Which PCR plastic fits your needs?

Find the PCR plastic format with the throughput and features for your application

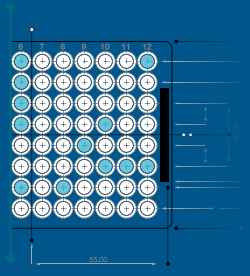
Use for:	Small-scale experiments with a few samples	Routine experiments	Automation	Laboratory use
	Single tubes, strips, caps, adhesive film, & accessories	**MicroAmp optical microplates**	**MicroAmp EnduraPlate optical microplates**	**MicroAmp EnduraPlate optical microplates GPLE**
Formats	• Single tubes • Single tubes with caps • 8-strip tubes with caps • 12-strip caps • Adhesive film/plate seal	• 32-well • 48-well Fast • 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well
DNA/RNase/PCR inhibitor-free	Yes	Yes	Yes	Yes
ANSI/SBS standard dimension color	Clear, or mixed packs containing red, orange, blue, green	Clear	Single-color packs (red, blue, green, yellow, or clear) & 5-plate sampler (1 of each color)	Clear
Instrument compatibility	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool
Barcode	No	Yes (1 or 2 sides)	Yes (3 sides)	Yes (3 sides)
Multiple applications	No	No	Yes	Yes
Optical compatibility	Yes (applicable for optical version)	Yes	Yes	Yes
Use	Research use only	Research use only	Research use only	For laboratory use*

* Lot-based contamination test with Certificate of Analysis.

Did you know?

Need high-quality PCR plastics for non-Applied Biosystems instruments? Visit **thermofisher.com/thermoscientificplastics** for a wide range of Thermo Scientific™ PCR plastics.

Custom and OEM plastics for PCR and qPCR are available. Learn more at **thermofisher.com/oem-partner**



Find the plastics and accessories you need for your instrument quickly

Product	Cat. No.	3 x 32-well	96-well			96-well Fast	384-well		Genetic analyzers	
		ProFlex	ProFlex, SimpliAmp, Veriti, MiniAmp Plus, MiniAmp	2720	9700	Veriti	ProFlex, Veriti	9700	310	3130, 3130xl, 3500, 3500xL, 3730, 3730xl
96-well 0.2 mL reaction plates										
Optical 96-Well Plate	N8010560, 4316813		•	•	•					•
Optical 96-Well Plate with Barcode	4306737, 4326659		•	•	•					•
96-Well Plate with Barcode & Optical Caps	403012		•	•	•					
Optical 96-Well Plate with Barcode & Optical Adhesive Films	4314320		•	•	•					
EnduraPlate Optical 96-Well Clear Plate with Barcode*	4483354, 4483352		•	•	•					•
TriFlex 3 x 32-Well Reaction Plate	A32810, A32811	•**	•	•	•					
96-well 0.1 mL reaction plates										
Fast Optical 96-Well Plate, 0.1 mL	4346907					•			•	•
Fast Optical 96-Well Plate with Barcode, 0.1 mL	4346906, 4366932					•			•	•
EnduraPlate Optical 96-Well Fast Clear Plate with Barcode*	4483485, 4483494					•			•	•
384-well reaction plates										
Optical 384-Well Plate	4343370						•	•		•
Optical 384-Well Plate with Barcode	4309849, 4326270, 4343814						•	•		•
EnduraPlate Optical 384-Well Clear Plate with Barcode*	4483285, 4483273						•	•		•
Strip tubes and caps										
Fast 8-Tube Strip, 0.1 mL	4358293					•				
Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	•	•	•	•					
8-Tube Strip with Attached Domed Caps, 0.2 mL	A30589	•	•	•	•					
8-Tube Strip, 0.2 mL*	N8010580	•	•	•	•				•	
Optical 8-Tube Strip, 0.2 mL	4316567	•	•	•	•					
8-Cap Strip*	N8010535, N8011535	•	•	•	•	•				
Optical 8-Cap Strip	4323032	•	•	•	•	•				
12-Cap Strip*	N8010534, N8011534		•	•	•	•				
Single tubes										
Fast Reaction Tube with Cap, 0.1 mL	4358297, 4358293					•				
Reaction Tube with Cap, 0.2 mL*	N8010540, N8010612, N8011540	•	•	•	•					
Reaction Tube without Cap, 0.2 mL*	N8010533, N8011533	•	•	•	•					
Optical Tube without Cap, 0.2 mL	N8010933	•	•	•	•					
Seals and covers										
Clear Adhesive Film	4306311		•		•	•	•	•		
Optical Adhesive Film	4360954, 4311971		•		•	•	•	•		
96-Well Full Plate Cover	N8010550			•	•					
32-Well Clear Adhesive Film	A32812	•**	•	•	•					
Accessories										
Splash-Free 96-Well Base	4312063		•	•	•	•				
96-Well Support Base	4379590		•	•	•	•				•
96-Well Base	N8010531		•	•	•					
96-Well Reaction Tube/Tray/Retainer Set, 0.2 mL	403083, 403086			•	•					

* Multiple colors are available.

** Do not use MicroAmp™ 3 x 32-Well Retainer (Cat. No. 4481669).

Note: Experiments using one or two 8-tube strips with attached caps require blank tube strips to balance lid pressure on the block or the use of the MicroAmp™ 96-Well Tray/Retainer Set (Cat. No. 4381850)—bottom part of tray *only*. For use with 96-well block of Applied Biosystems™ ProFlex™, SimpliAmp™, and Veriti™ thermal cyclers.

Visit our online plastics selection guide at **thermofisher.com/pcrplasticsselection**

Superior cDNA synthesis for any application

SuperScript IV Reverse Transcriptase

With over 50,000 citations, reviews, and publications, Invitrogen™ SuperScript™ reverse transcriptases are among the most trusted and widely used products for cDNA synthesis. Invitrogen™ SuperScript™ IV Reverse Transcriptase is the latest enzyme in the portfolio, engineered to deliver superior cDNA synthesis performance with even the most challenging RNA samples.

- **Super-efficient**—up to 100x higher cDNA yields than with other reverse transcriptase enzymes
- **Super-sensitive**—transcribes even from degraded or inhibitor-containing RNA, with low input amounts
- **Super-robust**—high thermostability and processivity for superior cDNA synthesis
- **Super-fast**—10 min cDNA synthesis protocol

Find out more at **thermofisher.com/ssiv**

Reverse transcription reagent selection guide

We offer a comprehensive portfolio of enzymes and kits within the SuperScript IV family to suit your research needs. Start with the selection guide below to find the best format for common cDNA synthesis applications.

Would you like to have ...	... the ability to optimize reaction components and conditions?	... a complete kit with all cDNA synthesis reaction components?	... ultimate convenience and minimal pipetting steps for RT-PCR?
Product format	**Stand-alone enzyme**	**First-strand cDNA synthesis kit**	**One-Step RT-PCR kit**
Recommended product	SuperScript IV Reverse Transcriptase	SuperScript IV First-Strand Synthesis System	SuperScript IV One-Step RT-PCR System
Applications	RT-PCR, RT-qPCR, sequence detection, gene expression analysis, transcript variant detection, cloning, cDNA library construction, RACE, RNA-Seq	RT-PCR, RT-qPCR, sequence detection, gene expression analysis, transcript variant detection, cloning, cDNA library construction, RACE, RNA-Seq	RT-PCR, sequence detection, cloning, genotyping, high-throughput analysis
Input total RNA	1 pg–5 µg	1 pg–5 µg	0.01 pg–1 µg
Optimal reaction temperature	50–55°C	50–55°C	50–55°C
Reaction time	10 min	10 min	10 min
cDNA synthesis with challenging or degraded RNA	Yes	Yes	Yes

Complete kit with flexible priming options

SuperScript IV First-Strand Synthesis System

The Invitrogen™ SuperScript™ IV First-Strand Synthesis System is optimized for synthesis of first-strand cDNA from purified poly(A)+ or total RNA. The kit contains all components needed for reverse transcription, plus an additional control gene and primers, providing the flexibility to customize the reaction setup to fit the needs of your application.

Find out more at **thermofisher.com/ssiv-firststrand**

Enabling faster, more efficient RT-PCR

SuperScript IV One-Step RT-PCR System

Find out more at
thermofisher.com/ssiv-onestep

Even with challenging RNA samples, you can get more efficient results faster and easier than with any other RT-PCR reagent. The Invitrogen™ SuperScript™ IV One-Step RT-PCR System combines high-processivity SuperScript IV Reverse Transcriptase and high-fidelity Invitrogen™ Platinum™ SuperFi™ DNA Polymerase to provide superior one-step RT-PCR performance.

- **Two-phase hot-start activation mechanism**—for high specificity, improved yields, and easy room-temperature setup
- **Superior sensitivity and speed**—down to 0.01 pg of RNA, target length up to 13.8 kb, and the fastest one-step RT-PCR protocol
- **Reliable target detection**—even in RNA samples with suboptimal purity
- **Fast and easy gDNA removal**—for superior accuracy and confidence in your results

Doing RT-qPCR?
Invitrogen™ SuperScript™ IV VILO™ Master Mix offers exceptional cDNA synthesis for RT-qPCR applications, while maintaining superior linearity across the broadest range of input RNA. Learn more when you flip the brochure to the qPCR side. Learn more at **thermofisher.com/4vilo**

Ordering information

Product	Quantity	Cat. No.
SuperScript IV Reverse Transcriptase	2,000 units	18090010
	10,000 units	18090050
	4 x 10,000 units	18090200
SuperScript IV First-Strand Synthesis System	50 reactions	18091050
	200 reactions	18091200
SuperScript IV One-Step RT-PCR System	25 reactions	12594025
	100 reactions	12594100
SuperScript IV One-Step RT-PCR System with ezDNase Enzyme	50 reactions	12595025
	500 reactions	12595100

Which PCR enzyme is right for your application?

We offer a comprehensive portfolio of PCR enzymes and master mixes with the high performance and consistency you need. Start with the selection guide below to find the best enzyme for common PCR applications.

Visit our online selection guide at **thermofisher.com/pcrenzymes**

PCR type	High-fidelity PCR	Hot-start PCR	Hot-start PCR	Standard PCR
Do you need …	… accurate DNA sequences?	… cleaner bands or to detect low-abundance targets?	… a chemical hot start?	… to detect presence or absence of sequence?
Recommended DNA polymerase	Platinum SuperFi DNA Polymerase	Platinum II *Taq* Hot-Start DNA Polymerase	AmpliTaq Gold 360 DNA Polymerase	*Taq* DNA Polymerase
Applications				
Cloning and subcloning	•			
Site-directed mutagenesis	•			
GC-rich templates	•	•	•	
Template generation for sequencing	•		•	
High-throughput PCR	•	•		
Long PCR (up to 20 kb)	•			
Genotyping	•	•	•	•
Amplification of samples with suboptimal purity	•	•		
Colony PCR	•	•	•	•
Multiplex PCR	•		•	
Fast PCR	•	•		
Direct PCR	•	•		
Routine PCR		•	•	•
Technical specifications				
Fidelity versus *Taq* DNA Polymerase	>100x	1x	1x	1x
Target length	Up to 20 kb*	Up to 5 kb	Up to 5 kb	Up to 5 kb
Hot-start modification	Antibody-mediated	Antibody-mediated	Chemical modification	None
Speed	15–30 sec/kb	15 sec/kb	1 min/kb	1 min/kb
Inhibitor resistance	Yes	Yes	No	No
Blunt or 3´-A end	Blunt	3´-A	3´-A	3´-A
Formats				
Master mix	Colorless/green**	Colorless/green**	Colorless	Colorless
Stand-alone enzyme	Colorless/green**	Colorless/green†	Colorless	Colorless

* Amplification of >20 kb fragment sizes is possible (up to 40 kb), but may require additional optimization of reaction conditions and primer design.

** Direct gel loading with green buffer options.

† Green buffer available as separate item for use with stand-alone enzyme.

Did you know?

High-throughput PCR: Assembled PCR reactions with Platinum SuperFi and Platinum II *Taq* Hot-Start DNA Polymerases are stable for 24 hours at room temperature, enabling high-throughput applications.

Ultimate accuracy and robustness

Platinum SuperFi DNA Polymerase

Invitrogen™ Platinum™ SuperFi™ DNA Polymerase is an enzyme engineered with exceptional fidelity, trusted Platinum™ hot-start technology, and high processivity. Platinum SuperFi DNA Polymerase is ideally suited for cloning, mutagenesis, and other applications benefiting from superior sequence accuracy.

Highlights

- **Exceptional fidelity**—>100x more accurate than *Taq* DNA polymerase
- **Robust and versatile**—ideal for difficult targets (e.g., long amplicons, suboptimal purity, GC-rich amplicons)
- **Platinum™ hot-start technology**—enables superior specificity, sensitivity, and yields; allows for room temperature reaction setup

Find out more at **thermofisher.com/platinumsuperfi**

PCR simplified with universal annealing

Platinum II *Taq* Hot-Start DNA Polymerase

Invitrogen™ Platinum™ II *Taq* Hot-Start DNA Polymerase is an enzyme engineered to get you to your research destination, faster. A universal primer annealing feature reduces optimization and allows co-cycling of all assays together.

Highlights

- **Innovative universal primer annealing buffer**—reduces tedious optimization and saves time by enabling co-cycling of all assays together
- **Engineered *Taq* DNA polymerase**—allows fast cycling and successful amplification even in the presence of inhibitors
- **Platinum hot-start technology**—enables superior specificity, sensitivity, and yields; allows for room temperature reaction setup

Find out more at **thermofisher.com/platinumiitaq**

Ordering information

Product	Quantity	Cat. No.
Platinum SuperFi DNA Polymerase	100 units	12351010
Platinum SuperFi Green DNA Polymerase	100 units	12357010
Platinum SuperFi PCR Master Mix	100 reactions	12358010
Platinum SuperFi Green PCR Master Mix	100 reactions	12359010
Platinum II *Taq* Hot-Start DNA Polymerase	100 reactions	14966001
Platinum II Hot-Start PCR Master Mix (2X)	50 reactions	14000012
Platinum II Hot-Start Green PCR Master Mix (2X)	50 reactions	14001012

* Additional product sizes available.

Everything you need for reliable PCR

PCR essentials

Oligonucleotides

We offer high-quality Invitrogen™ Custom DNA Oligos for successful PCR. Our oligos feature over 20 years of customer service and a popular primer design tool to meet your needs. Invitrogen Custom DNA Oligos offer:

- Purity that you require: desalted, cartridge, HPLC, or PAGE
- Scales that suits your research needs: 25 nmol, 50 nmol, 200 nmol, 1 µmol, and 10 µmol
- Affordable price
- Quick next-day delivery*

Find out more at **thermofisher.com/primers**

Our free Invitrogen™ OligoPerfect™ Primer Designer enables you to:

- **Design with confidence**—Primer3-based design algorithm
- **Save time**—design primers for up to 50 genes at the same time
- **Store your data**—ability to save your projects
- **Order easily**—seamless integration with the Invitrogen™ ordering portal

Try OligoPerfect Primer Designer at **thermofisher.com/oligoperfect-designer**

* Next day delivery available, depending on region and country.

dNTPs

Our dNTPs have been extensively tested and verified for use in a wide variety of molecular biology applications, including highly sensitive techniques such as RT-qPCR and next-generation sequencing.

Learn more at **thermofisher.com/dntp**

Water

Our Invitrogen™ UltraPure™ Water is optimized for performance in molecular biology applications. Be confident using ultrafiltered and DNase- and RNase-free water.

Learn more at **thermofisher.com/ultrapure**

Specialty enzymes for molecular diagnostics development and commercial supply

Whether you need flexibility in assay design or custom functional testing, we can help accelerate your nucleic acid–based assay development with our innovative DNA-free and lyo-ready enzymes.

DNA-free PCR enzymes

We've pioneered the use of single-use systems (SUS) to manufacture DNA-free PCR enzymes. The advantages include:

- Manufactured in a completely closed system using dedicated or single-use equipment
- Verified free of contaminating DNA from host, human operator, and environment
- Produced in a ISO 13485–certified facility for high standards of quality

Learn more at **thermofisher.com/dna-free**

Lyo-ready DNA polymerases and reverse transcriptases

From Platinum *Taq* DNA polymerases to SuperScript reverse transcriptases, we offer the largest selection of lyophilization-compatible enzymes, providing:

- Same functional enzyme performance as with conventional formats
- Tailor-made solutions for your specific applications, including custom packaging
- Higher confidence in results with low residual DNA contamination (human and bacterial) of enzymes

Learn more at **thermofisher.com/lyoreadyenzymes**

PCR and molecular biology education

Have you ever had questions about PCR but didn't want to ask? Find answers in our online education hub for molecular biology that features free technical content, fun videos, educational webinars, and application notes. Learn PCR, reverse transcription, and more—at your own pace and on your own time—to amplify your research to the next level.

Find out more at **thermofisher.com/molbioschool**

Tips and considerations

Technical videos

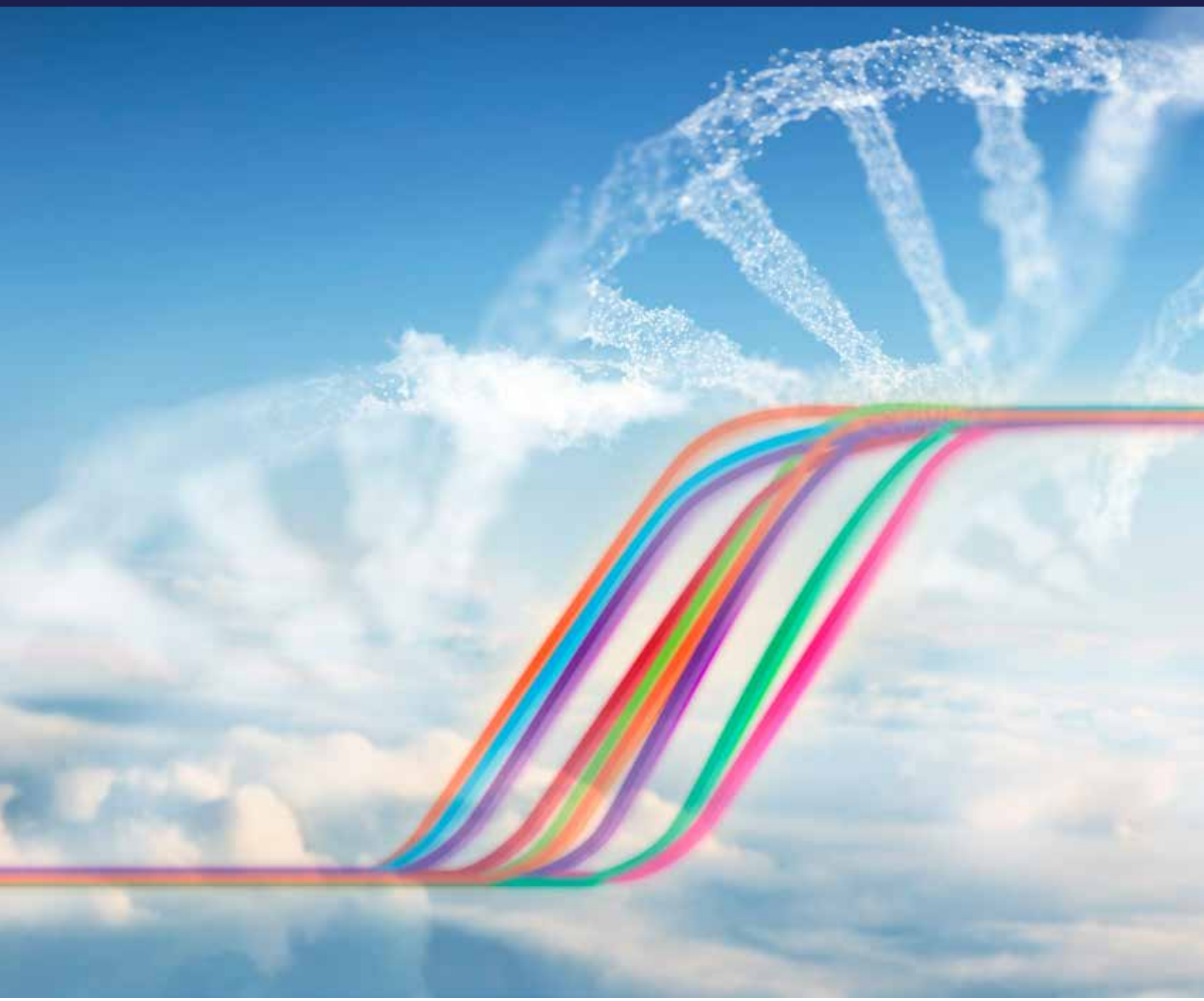
Educational webinars

Application notes

Find out more at **thermofisher.com/amplifly**

ThermoFisher SCIENTIFIC

applied biosystems



Real-time PCR solutions brochure

The power of optimized results across diverse applications

ThermoFisher SCIENTIFIC

Real-time PCR (qPCR)

Every lab is unique. That's why you deserve a real-time PCR platform that fits your needs.

Perhaps you're looking for simplicity on a budget, or reliable results from limited samples. Maybe your research requires high throughput for maximum productivity, or absolute answers to take your work to the next level. Whatever you need, there's an Applied Biosystems™ QuantStudio™ real-time PCR system that's just right for your research. We also have Applied Biosystems™ assays and reagents that support a variety of applications to fit your needs.

There's an Applied Biosystems™ PCR plastic that's just right for your QuantStudio real-time system too. Our instruments and plastics are Engineer Approved: built and validated to enable optimal PCR performance.

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Which instrument fits your needs?

QuantStudio real-time PCR and digital PCR systems

For when you need:	Ultimate simplicity	Total control	Room to grow	More versatility	Maximum productivity	Absolute answers
	QuantStudio 3 System	QuantStudio 5 System	QuantStudio 6 Flex System	QuantStudio 7 Flex System	QuantStudio 12K Flex System	QuantStudio 3D System
	Real-time PCR				Digital PCR	
						
Colors	4 colors	5 or 6 colors (21 filter combinations)	5 colors	6 colors (21 filter combinations)	6 colors (21 filter combinations)	2 colors (endpoint detection)
Available formats*	96-well (0.2 mL block) 96-well Fast (0.1 mL block)	96-well (0.2 mL block) 96-well Fast (0.1 mL block) 384-well	96-well 96-well Fast 384-well	96-well 96-well Fast 384-well TaqMan Array card (384-well microfluidic card)	96-well 96-well Fast 384-well TaqMan Array card (384-well microfluidic card) OpenArray plates (3,072 through-holes)	20,000 partitions/chip
Dimensions	27 x 50 x 40 cm	27 x 50 x 40 cm	90.7 x 74.7 x 12.5 cm	90.7 x 74.7 x 12.5 cm	50.5 x 67.2 x 73.8 cm	21 x 13.5 x 23.25 cm
Block change	Fixed	Fixed	Block change from front in less than 1 min; no tools required			N/A
VeriFlex temperature control	3 zones	6 zones (96-well blocks only)	N/A	N/A	N/A	N/A
Automation-compatible	No	No	No	Yes	Yes	No
Throughput	Medium	Medium	Medium	High	Very high	Low
21 CFR Part 11–enablement	Security	Security, auditing, e-signature package	Optional security, auditing, e-signature packages available			No
Touch screen	Yes, interactive	Yes, interactive	Yes	Yes	Yes	Yes
Key applications	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics	• Gene expression • miRNA profiling • SNP genotyping • Copy number variation • Protein thermal shift • High resolution melt • Pathogen detection • Pharmacogenomics • Growing menu of qualified solutions	• Quantification of molecular standards • Absolute quantification • Pathogen detection • Load determination • Copy number variation • Digital PCR

Some instruments are also available in a diagnostic format. Learn more at **thermofisher.com/qsdx**

= cloud-enabled instrument

Real-time PCR applications

Real-time PCR is used for sensitive, specific detection and quantification of nucleic acid targets. We have developed powerful assay design algorithms, optimized master mixes, intuitive data analysis software, and flexible instrumentation to help harness the power of qPCR across a rich and diverse set of applications. Discover solutions for your qPCR-based research.

Infectious disease research

See our growing catalog of sensitive, specific real-time PCR probe and primer sets for human viruses and other areas of infectious disease research.

Food pathogen detection

Detect multiple bacteria in the same run, including *Salmonella, Campylobacter, E. coli* O157:H7, *Listeria monocytogenes*.

Waterborne pathogen detection

Designed to detect and monitor waterborne pathogens in recreational and drinking water supplies.

Pharmaceutical analytics

Designed to detect mycoplasmas, viruses, and residual host cell contamination for pharmaceutical, cosmetics, and personal care product manufacturing.

Qualified solutions

A growing menu of new and valuable content for you to use on your high-throughput real-time PCR systems, including pharmacogenomics, vaginal microbiota, and *CFTR* mutation analysis.

Stem cell research

Solutions for analyzing stem cells, determining stemness, and studying gene regulation and translation in stem cells.

Pharmacogenomics

Predesigned Applied Biosystems™ TaqMan® Assays for more than 175 ADME and CYP targets, including >95% of ADME core markers and a warfarin metabolism panel.

Oncology and genetic disease research

Enabling robust, reliable detection and quantitation of markers for cancer and genetic diseases.

Plant sciences and agricultural biotechnology

Instruments, reagents, and kits designed for plant researchers that enable remarkable agricultural discoveries—from improved crops that feed more people to sustainable biofuels.

Other key applications include gene expression, genotyping, and sequencing.

Intuitive and easy to use for all levels of experience

QuantStudio 3 and 5 Real-Time PCR Systems

The Applied Biosystems™ QuantStudio™ 3 and QuantStudio™ 5 Real-Time PCR Systems provide our latest advancements in touch-screen usability, allowing you to stay connected to your data easily. They're designed for both new and experienced users who need simple and affordable instruments without compromising performance or quality.

Get a premium instrument at an affordable price

Access, analyze, and share data anytime, anywhere with Thermo Fisher Connect—remotely monitor your runs in real time, analyze sophisticated datasets in minutes, securely store data, and share results online with colleagues across institutions and around the world.

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

Multiplex with ease—up to six excitation and six emission filters offer 21 different color combinations, allowing a broad range of detection chemistries and maximum multiplexing.

Helps save valuable time—3 or 6 independent temperature zones for flexibility to run multiple experiments simultaneously. Fast thermal cycling enables results in less than 30 minutes.

Get up and running quickly—instrument is factory-calibrated for accuracy, quick installation, and immediate use. Preoptimized protocol templates help minimize training for new users, and the included SmartStart™ orientation provides basic qPCR training and setup for both the Thermo Fisher Cloud and the Instrument Management tool.

Maximize benchtop space—compact instrument can be configured as a stand-alone or with a computer.

= cloud-enabled instrument

Find out more at **thermofisher.com/quantstudio3-5**

Specifications

	QuantStudio 3 system	QuantStudio 5 system
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 96-well 0.2 mL block: 10–100 µL 384-well: 5–20 µL
Footprint (H x W x D)	40 x 27 x 50 cm	40 x 27 x 50 cm
Excitation source	Bright white LED	Bright white LED
Optical detection	4 coupled filters	96-well: 6 decoupled filters 384-well: 5 coupled filters
Excitation/detection range	450–600 nm/500–640 nm	96-well: 450–680 nm/500–730 nm 384-well: 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	3 VeriFlex zones	96-well: 6 VeriFlex zones 384-well: N/A
Max block ramp rate	0.2 mL block: 6.5°C/sec 0.1 mL block: 9.0°C/sec	0.2 mL block: 6.5°C/sec 0.1 mL block: 9.0°C/sec 384-well block: 6.0°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-min runs	96-well block: <30-min runs 384-well block: <35-min 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/Cy3, 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
Detection sensitivity	1 copy	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions	Detect differences as small as 1.5-fold in target quantities in singleplex reactions

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Assurance Cat. No.*
QuantStudio 3 Real-Time PCR System (96-well, 0.1 mL block)**	A28136	A33777
QuantStudio 3 Real-Time PCR System (96-well, 0.2 mL block)**	A28137	A33779
QuantStudio 5 Real-Time PCR System (96-well, 0.1 mL block)**	A28138	A33619
QuantStudio 5 Real-Time PCR System (96-well, 0.2 mL block)**	A28139	A33624
QuantStudio 5 Real-Time PCR System (384-well block)**	A28140	A33628

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

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Flexibility when you need it

QuantStudio 6 Flex and QuantStudio 7 Flex Real-Time PCR Systems

The Applied Biosystems™ QuantStudio™ 6 Flex Real-Time PCR System is ideal for laboratories with multiple applications or end users on a limited budget. Easily interchangeable thermal cycling block formats let you select the format that best suits your project without having to move attached peripherals or computers. Choose from standard or 96-well Fast and 384-well formats.

With an upgrade path to the Applied Biosystems™ QuantStudio™ 7 Flex Real-Time System, the QuantStudio 6 System is a great choice if you anticipate your needs will change in the future. The QuantStudio 7 System allows you to run hundreds of real-time PCR reactions using Applied Biosystems™ TaqMan® Array Microfluidic Cards for maximum throughput in an automated environment.

- **Flexibility that minimizes large upfront capital investment**—interchange between 96-well, 96-well Fast, or 384-well formats
- **Skip the learning curve**—the intuitive software, easy touch-screen setup, and easy block change help you get started right away
- **Performance you can trust**—detect as small as 1.5-fold changes in singleplex reactions and 10x dynamic range
- **Upgrade capabilities when you need them**—easily upgrade to a QuantStudio 7 Flex System for additional automation, throughput, and multiplexing capabilities

Find out more at **thermofisher.com/quantstudioqpcrfamily**

Specifications

	QuantStudio 6	QuantStudio 7
Block configuration	96-well, 96-well Fast, 384-well	96-well, 96-well Fast, 384-well, TaqMan Array Cards (TAC)
Dimensions (H x W x D)	12.5 x 90.7 x 74.7 cm	12.5 x 90.7 x 74.7 cm
Block change design	Block change from front in less than 1 min; no tools required	Block change from front in less than 1 min; no tools required
Run time	30 min (96-well Fast) 35 min (384-well)	30 min (96-well Fast) 35 min (384-well)
Upramp rates	3.9°C/sec (96-well) 6.5°C/sec (96-well Fast) 3.5°C/sec (384-well)	3.9°C/sec (96-well) 6.5°C/sec (96-well Fast) 3.5°C/sec (384-well) 4.3°C/sec (TAC)
Downramp rates	3.6°C/sec (96-well) 6.0°C/sec (96-well Fast) 3.0°C/sec (384-well)	3.6°C/sec (96-well) 6.0°C/sec (96-well Fast) 3.0°C/sec (384-well) 3.7°C/sec (TAC)
Well-to-well variability	±0.25°C	±0.25°C
Excitation source	OptiFlex System lamp	OptiFlex System lamp
Detection channels	Excitation 455–672 nm Emission 505–723 nm	Excitation 455–672 nm Emission 505–723 nm

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Assurance Cat. No.*
QuantStudio 6 Flex 96-well Real-Time PCR System, laptop configuration	4485689	A27163
QuantStudio 6 Flex 96-well Fast Real-Time PCR System, laptop configuration	4485699	A27161
QuantStudio 6 Flex 384-well Real-Time PCR System, laptop configuration	4485691	A27960
QuantStudio 6 Flex 96-well Real-Time PCR System, desktop configuration	4485692	A27146
QuantStudio 6 Flex 96-well Fast Real-Time PCR System, desktop configuration	4485697	A27162
QuantStudio 6 Flex 384-well Real-Time PCR System, desktop configuration	4485694	A27958
QuantStudio 7 Flex 96-well Real-Time PCR System, laptop configuration	4485688	A27154
QuantStudio 7 Flex 96-well Fast Real-Time PCR System, laptop configuration	4485698	A27155
QuantStudio 7 Flex 384-well Real-Time PCR System, laptop configuration	4485695	A27152
QuantStudio 7 Flex TaqMan Array Card Real-Time PCR System, laptop configuration	4485700	A27150
QuantStudio 7 Flex 96-well Real-Time PCR System, desktop configuration	4485690	A27157
QuantStudio 7 Flex 96-well Fast Real-Time PCR System, desktop configuration	4485693	A27156
QuantStudio 7 Flex 384-well Real-Time PCR System, desktop configuration	4485701	A27153
QuantStudio 7 Flex TaqMan Array Card Real-Time PCR System, desktop configuration	4485696	A27151
QuantStudio 6/7 Flex 96-well block upgrade kit	4453543	N/A
QuantStudio 6/7 Flex 96-well Fast block upgrade kit	4453544	N/A
QuantStudio 6/7 Flex 384-well block upgrade kit	4453545	N/A
QuantStudio 7 Flex TaqMan Array Card block upgrade kit	4453546	N/A

* Includes SmartStart orientation.

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Maximum productivity with minimum effort

QuantStudio 12K Flex Real-Time PCR System

This one instrument enables multiple users to conduct a wide range of experiments, from low- to high-throughput sample processing and virtually any PCR application, such as:

- Drug discovery
- Pharmacogenomics research
- MicroRNA profiling
- Agriculture molecular testing
- *CFTR* mutation analysis
- Vaginal microbiota research

Miniaturization at a lower cost
Applied Biosystems™ OpenArray™ technology is a broadly applicable nanoliter fluidics platform for low-volume solution-phase reactions, and enables lower reagent and assay costs, and rapid parallel processing.

Unparalleled throughput
The Applied Biosystems™ QuantStudio™ 12K Flex System can simultaneously run up to four 3,072-reaction OpenArray plates in about 4 hours. You can produce up to 110,000 data points in an 8-hour day with the addition of a single Applied Biosystems™ ProFlex™ PCR System.

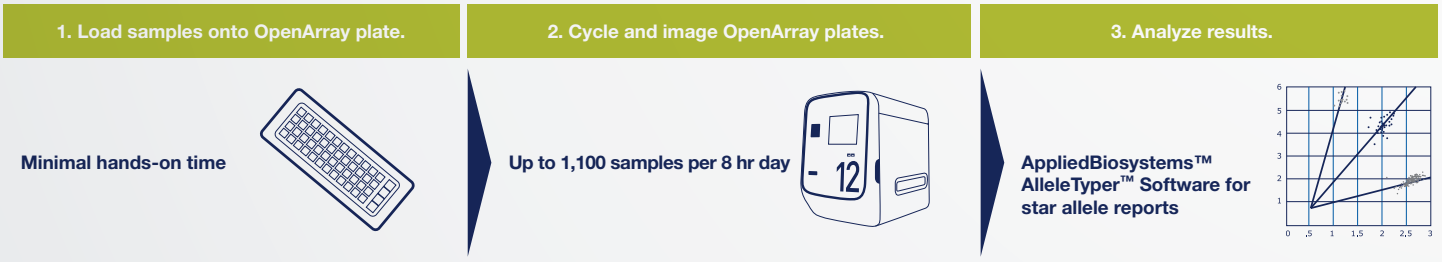
Outstanding flexibility
Easily switch between five available thermal cycling blocks: OpenArray plate, TaqMan Array card, 384-well, and standard or Fast 96-well blocks. Load the thermal-cycling block in less than 1 minute—no tools required.

Increased data integrity and quality control—with results you can trust
The integrated sample tracking and security, auditing, and electronic signature (SAE) module assist you in supporting 21 CFR Part 11 compliance.

Application spotlight

Pharmacogenomics research
Pharmacogenomics is the study of drug efficacy based on a subject's unique genomic composition. The QuantStudio 12K Flex System and OpenArray technology provide a simple, cost-effective, and fast workflow for the analysis of mutations and copy number variants associated with drug metabolism enzyme (DME) genes.

OpenArray workflow



Find out more at **thermofisher.com/quantstudio12k**

Specifications

	QuantStudio 12K	
Block change design	• 96-well (10–100 µL reactions) • Fast 96-well (15–30 µL reactions) • 384-well (5–20 µL reactions) • TaqMan Array Cards (~1 µL reactions) • OpenArray Plates (33 nL reactions)	
Block change design	Block change from front in less than 1 min; no tools or service call required	
Excitation source	Enhanced OptiFlex system, white LED	
Instrument control	Instrument touch screen, networked computer, or attached computer	
Detection channels	• Decoupled: 6 emission, 6 excitation (96-well/Fast, 384-well, TaqMan blocks) • Coupled: 4 emission, 4 excitation (OpenArray blocks)	
21 CFR p11–enablement	Optional software module	
Dimensions (H x W x D)	73.8 x 50.5 x 67.2 cm (29.1 x 19.9 x 26.5 inww)	
Weight	69 kg (152 lb)	
Remote monitoring	Available to monitor up to 15 networked instruments simultaneously	
	96-well, 96-well Fast, 384-well, TaqMan Array Card blocks	**OpenArray block**
Detection channels	Decoupled: 6 emission, 6 excitation	Coupled: 4 emission, 4 excitation
Well-to-well variability	± 0.25°C	± 0.75°C
Max. block ramp rate	3.0°C/sec (384-well)	3.0°C/sec
Run time	• 30 min expected (Fast 96-well block) • 35 min (384-well block, using Fast master mix)	• 2 hr (gene expression) • 4 hr (genotyping)
Demonstrated sensitivity	To 1 copy	To 1 copy
Dynamic range	To 9 logarithmic units	To 7 logarithmic units
Resolution	As low as 1.5-fold change for singleplex reaction	As low as 2-fold change for singleplex reaction

Ordering information

Product	Cat. No.	Instrument + 1-year extended warranty with AB Complete Cat. No.*
QuantStudio 12K Flex Real-Time PCR System, OpenArray block with AccuFill System, desktop configuration	4471090	4480621
QuantStudio 12K Flex Real-Time PCR System with OpenArray Block without AccuFill system, desktop configuration	4472380	N/A
QuantStudio 12K Flex Real-Time PCR System with TaqMan Array Card instrument, desktop configuration	4471089	4480622
QuantStudio 12K Flex Real-Time PCR System 384-well instrument, desktop configuration	4471134	4480623
QuantStudio 12K Flex Real-Time PCR System 96-well Fast, desktop configuration	4471088	4480625
QuantStudio 12K Flex Real-Time PCR System 96-Well, desktop configuration	4471087	4480631
96-Well Block Upgrade Kit	4453543	N/A
96-Well Fast Block Upgrade Kit	4453544	N/A
384-Well Block Upgrade Kit	4453545	N/A
TaqMan Array Card Block Upgrade Kit	4453546	N/A
OpenArray Block with AccuFill System	4471067	N/A
QuantStudio 12K Flex AccuFill Upgrade Kit (For existing AccuFill system users)	4471022	N/A

* Includes SmartStart orientation.

Recommended plastics

96-well block	Cat. No.	96-well block Fast	Cat. No.	384-well block	Cat. No.
MicroAmp EnduraPlate Optical 96-Well Clear Reaction Plates with Barcode	4483354	MicroAmp EnduraPlate Optical 96-Well Fast Clear Reaction Plates with Barcode	4483485	MicroAmp EnduraPlate Optical 384-Well Clear Reaction Plates with Barcode	4483285
MicroAmp Optical 96-Well Reaction Plate with Barcode	4306737	MicroAmp Fast Optical 96-Well Reaction Plate with Barcode, 0.1 mL	4346906	MicroAmp Optical 384-Well Reaction Plate with Barcode	4309849
MicroAmp Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588	MicroAmp Fast 8-Tube Strip	4358293	MicroAmp Optical 384-Well Reaction Plate	4343370
MicroAmp Optical Adhesive Film	4360954	MicroAmp Optical 8-Cap Strips	4323032	MicroAmp Optical Adhesive Film	4360954
		MicroAmp Optical Adhesive Film	4360954		

Multiple colors are available for most Cat. Nos.

Absolutely attainable chip-based digital PCR

QuantStudio 3D Digital PCR System

The Applied Biosystems™ QuantStudio™ 3D Digital PCR System leverages high-density nanofluidic chip technology for detecting rare events, analyzing small differences between two targets, or counting the exact number of targets in a sample. The higher precision, sensitivity, and absolute nature of digital PCR is ideal for research in:

- Qualification of molecular standards used in traditional real-time PCR experiments
- Pathogen detection and load determination
- Rare-target detection such as somatic mutation detection in oncology research
- GMO detection and contamination assessment
- Generation of references and standards
- Copy number variation

Simple workflow
A streamlined workflow with minimal sample handling enables turnkey processing. Just load and go.

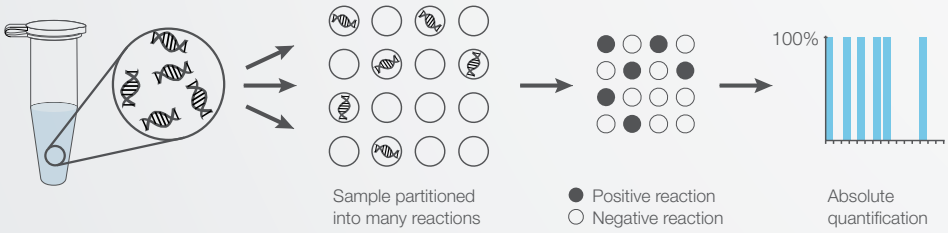
Affordable
Less than half the price of competing platforms, making digital PCR technology within reach for most labs.

Absolute quantification
20,000 reaction wells yield data in copies/µL, enabling high precision and sensitivity without the need for a standard curve.

Sealed system
Helps limit contaminants with a sealed chip and no exposed sample transfer steps.

Easily fits in populated spaces
Small footprint (17.8 x 12.7 x 22.9 cm, 7 x 5 x 9 in.) will fit most benchtops and can be moved when needed.

Compatible
Use your existing Applied Biosystems™ TaqMan® Real-Time PCR Assays for a digital result.



Application spotlight

Determining low copy number in equivocal tissue

Many cancers are regulated by mutations in a specific gene or group of genes, or by copy number changes. These aberrations may be associated with aggressiveness of the disease or prognosis. Research using digital PCR provides a fast and easy workflow to precisely identify low copy numbers that have small differences. Compared to immunohistochemistry by fluorescence *in situ* hybridization, digital PCR is less impacted by tissue heterogeneity and provides clearer research results.

Find out more at **thermofisher.com/quantstudio3d**

Specifications

QuantStudio 3D Digital PCR Instrument	
Time to read 1 sample	~30 sec
PCR detection method	Endpoint
Sample illumination	LED
Sample detection	CMOS
Detection channels	FAM/SYBR Green, VIC, ROX
Reader size (H x W x D)	21 x 13.5 x 23.25 cm (8.3 x 5.3 x 9.2 in.)
Weight	2.4 kg (5.3 lb)
QuantStudio 3D Digital PCR 20K Chip	
Partitions	Chip reaction wells
Samples per chip	1
Targets per chip	2
Chip capacity in thermal cycler	24
Reaction wells per sample	20,000
Loading volume	14.5 µL
Sealed workflow	Yes
Performance	
Dynamic range	5 logarithmic units
Precision at 95% confidence interval	±10%
Compatible chemistries	TaqMan and SYBR Green chemistries

Ordering information

Product	Cat. No.
QuantStudio 3D Digital PCR System Package with Master Mix, Chip Kit v2, and customer site training with 1-year extended warranty	A27545
QuantStudio 3D Digital PCR System Package with Master Mix, Chip Kit v2, and customer site training	A29154
QuantStudio 3D Digital PCR Instrument	4481097
QuantStudio 3D Digital PCR Chip Loader	4482592
QuantStudio 3D Digital PCR Chip Adapter Kit for Flat Block Thermal Cycler	4485513
QuantStudio 3D Digital PCR 20K Chip Pack (includes consumables)	4485507
ProFlex Dual Flat PCR System	4484078
QuantStudio 3D Digital PCR Master Mix (1.5 mL)	4482710

First-class service and support

Online instrument management

Sign in to your thermofisher.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 qualifying repairs, including engineer time and travel, are covered.

Flexible service plans help reduce downtime

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.

Professional services

Our services are designed to help you balance business and regulatory requirements—from risk assessment, hardware/software qualification, full system verification, and LIMS interfacing services to data storage and backup solutions. We partner with you to help mitigate regulatory risks, get your processes up and running, and help ensure data integrity across your lab.

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 experimental design, data analysis, or troubleshooting, contact our team of technical support scientists or access our online product and application support tools.

How to reach us

To find your local support or technical support team, go to **thermofisher.com/contactus**
For product FAQs, protocols, training courses, and webinars, go to **thermofisher.com/technicalresources**

* 2012 Oracle™ Fusion Middleware Innovation Award.
** Instruments and Services Portal not available in all regions.

Service plans at a glance

	On-site service plans			Repair Center service plans*	
	AB Complete	AB Assurance	AB Maintenance Plus	AB Repair Center Support Plus Care	AB Repair Center Support Plus
On-site response time	Guaranteed next business day**	Guaranteed 2 business days**	Target 2 business days**		
Scheduled on-site planned maintenance (PM)	•	•	•	•	
Remote diagnostics	•	•	•	•	•
Parts, labor, and travel for repair included	•	•	10% discount optional add-on in selected regions	•	•
Computer repair and replacement included	•	•		•	•
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)				•	•

* Repair Center service plans available for QuantStudio 3 and 5 Real-Time PCR Systems only.

** Response times vary by region.

High-performance real-time PCR plastics for optimal qPCR results

Engineer Approved MicroAmp qPCR plastics

Applied Biosystems™ PCR plastics have been designed and validated to work with our thermal cyclers for more than 25 years. That's why they are Engineer Approved to enable optimal PCR performance.

Applied Biosystems MicroAmp qPCR plastics are:

- Validated on Applied Biosystems thermal cyclers for optimal fit and performance
- Designed to perform on all Applied Biosystems qPCR instruments
- Designed for optimal heat transfer with thin-walled polypropylene wells
- Designed to reduce cross-contamination with raised well rims for effective sealing

applied biosystems
by Thermo Fisher Scientific

Engineer **Approved**

Unique, high-performance features of MicroAmp EnduraPlate plastic consumables

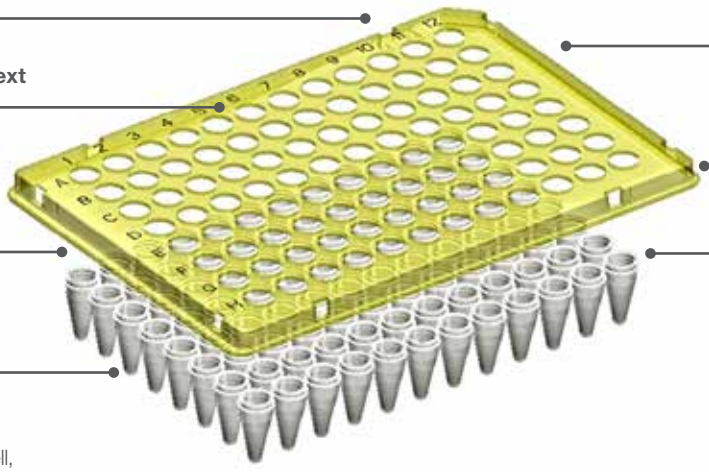
Easy visual organization
5 colors of choice

Easy-to-read well identification text
Black text for excellent contrast

Non-warp, even after thermal cycling
Polycarbonate (hard shell) for mechanical stability and flatness

Snug fit to thermal blocks
Thin-wall polypropylene for excellent mechanical fit and heat transfer

Available in common formats
96-well standard, 96-well Fast, 384-well, 5-piece sample packs, 20 & 500 packs



Constructed to ANSI/SBS standard
Well suited for SBS standard robotic handling

Certified DNA, RNase, and PCR inhibitor–free

Compatible and optimized for performance with Applied Biosystems instruments

Options for every format and all of your throughput needs

Choose from tubes, tube strips, plates, sealing, and accessories for any throughput need. Applied Biosystems™ MicroAmp™ EnduraPlate plastics offer a solution for experiments that require special handling, such as automated or high-throughput workflows, and an even greater degree of durability for use with multi-instrument experiments.

Our Applied Biosystems™ MicroAmp™ 8-Tube Strips with Attached Optical Caps* are optimally designed for precise real-time PCR with lid and tube labeling, dual end tabs, and 20 µL graduation marks on each tube to prevent pipetting errors. The 8-tube strips fit in all 0.2 mL Applied Biosystems real-time PCR instruments.

* MicroAmp 8-tube strip with Attached Domed Caps are also available for PCR.

Find out more at **thermofisher.com/pcrplastics**

Did you know?

Proper plate sealing helps reduce evaporation and well-to-well contamination.

1. Remove the backing of the Applied Biosystems adhesive film.
2. Align the adhesive film so as to cover all wells while placing on the plate.
3. Rub the flat edge of the applicator along the long edge (length) of the plate, then along the short edge (width). Finally, rub the applicator between all the wells and around the outside edges of the plate using small back-and-forth motions to form a complete seal.

Which qPCR plastic fits your needs?

Find the plastic format with the throughput and features for your application

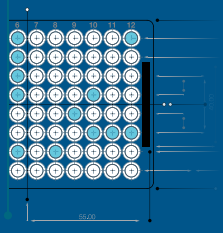
Use for:	Small-scale experiments with a few samples	Routine experiments	Automation	Laboratory use
	Single tubes, strips, caps, adhesive film & accessories	MicroAmp optical microplates	MicroAmp EnduraPlate optical microplates	MicroAmp EnduraPlate optical microplates GPLE
Formats	• Single tubes • Single tubes with caps • 8-strip tubes with caps • 12-strip caps	• 48-well Fast • 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well	• 96-well • 96-well Fast • 384-well
DNA, RNase, and PCR inhibitor-free	Yes	Yes	Yes	Yes
SBS standard dimension color	Clear, or mixed packs containing red, orange, blue, green	Clear	Single-color packs (red, blue, green, yellow, or clear) and 5-plate sampler (1 of each color)	Clear
Instrument compatibility	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool	Use our plastics selection tool
Barcode	No	Yes (1 or 2 sides)	Yes (3 sides)	Yes (3 sides)
Multiple application	No	No	Yes	Yes
Optical compatibility	Yes (applicable for optical version)	Yes	Yes	Yes
Use	Research use only	Research use only	Research use only	For laboratory use*

* Lot-based contamination test with Certificate of Analysis.

Did you know?

Need high-quality PCR plastics for non-Applied Biosystems instruments or need a white plate for your qPCR application? Visit **thermofisher.com/thermoscientificplastics** for a wide range of Thermo Scientific™ PCR plastics.

Custom and OEM plastics for PCR and qPCR are available. Learn more at **thermofisher.com/oem-partner**



Find the plastics and accessories you need for your instrument quickly

Product	Cat. No.	48-well	96-well			96-well Fast			384-well
		StepOne	7000	7300, 7500	QuantStudio 3/5/6/7/12K, ViiA 7, 7900HT	StepOnePlus	7500	QuantStudio 3/5/6/7/12K, ViiA 7, 7900HT	QuantStudio 5/6/7/12K, ViiA 7, 7900HT
96-well 0.2 mL reaction plates									
Optical 96-Well Plate	N8010560, 4316813		•	•	•				
Optical 96-Well Plate with Barcode	4306737, 4326659		•	•	•				
Optical 96-Well Plate with Barcode & Optical Caps	403012		•	•	•				
Optical 96-Well Plate with Barcode & Optical Adhesive Films	4314320		•	•	•				
EnduraPlate Optical 96-Well Clear Plate with Barcode*	4483354, 4483352			•**	•				
96-well 0.1 mL reaction plates									
Fast Optical 96-Well Plate, 0.1 mL	4346907					•	•	•	
Fast Optical 96-Well Plate with Barcode, 0.1 mL	4346906, 4366932					•	•	•	
EnduraPlate Optical 96-Well Fast Clear Plate with Barcode*	4483485, 4483494					•	•	•	
384-well reaction plates									
Optical 384-Well Plate	4343370								•
Optical 384-Well Plate with Barcode	4309849, 4326270, 4343814								•
EnduraPlate Optical 384-Well Clear Plate with Barcode*	4483285, 4483273								•
48-well reaction plates									
Fast Optical 48-Well Plate	4375816	•							
Fast 8-Tube Strip, 0.1 mL	4358293	•				•	•	•	
Optical 8-Tube Strip with Attached Optical Caps, 0.2 mL	A30588		•	•	•				
Optical 8-Tube Strip, 0.2 mL	4316567		•	•	•				
Optical 8-Cap Strip	4323032	•	•	•	•	•	•	•	
Single tubes and caps									
Fast Reaction Tube with Cap, 0.1 mL	4358297	•				•		•	
Optical Tube without Cap, 0.2 mL	N8010933		•	•					
Seals and covers									
Optical Adhesive Film	4360954, 4311971		•	•	•	•	•	•	•
48-Well Optical Adhesive Film	4375323	•							
Reaction trays									
96-Well Tray/Retainer Set	403081		•						
Fast 48-Well Tray	4375282	•							
96-Well Tray for VeriFlex Blocks	4379983					•			
Accessories									
Splash-Free 96-Well Base	4312063		•	•	•	•	•	•	
96-Well Support Base	4379590		•	•	•	•	•	•	
96-Well Base	N8010531		•	•	•	•	•	•	

* Multiple colors are available.

** Requires use of proper adapter, Cat. No. A24820.

Note: Experiments using one or two 8-tube strips with attached caps require blank tube strips to balance lid pressure on the block or the use of the MicroAmp™ 96-Well Tray/Retainer Set (Cat. No. 4381850)—bottom part of tray *only.* For use with 96-well block of Applied Biosystems™ 7000, 7300, 7500, and ViiA 7 systems, and QuantStudio 3/5/6/7/12K instruments.

Visit our online plastics selection guide at **thermofisher.com/pcrplasticsselection**

TaqMan chemistry and SYBR Green chemistry for real-time PCR

We offer two types of chemistries to detect PCR products using real-time PCR instruments:

- Applied Biosystems™ TaqMan® Assay chemistry (also known as fluorogenic 5´ nuclease chemistry)
- Applied Biosystems™ SYBR™ Green I dye chemistry

	TaqMan Assay—based detection	SYBR Green—based detection
Chemistry overview	Uses a fluorogenic probe to enable detection of a specific PCR product as it accumulates during PCR cycles	Uses SYBR Green I, or similar dye that binds to double-stranded DNA to detect PCR product as it accumulates during PCR

	TaqMan Assay reagents	SYBR Green reagents
Specificity	High	Low
Sensitivity—low copy number	High	Variable*
Reproducibility	High	Variable*
Multiplexing	Yes	No
Predesigned assays	Yes	No
Custom assays	Yes	No
User design and optimization	No	Yes
Cost	High	Low*
Gene expression quantitation	High	Low
DNA quantitation	Yes	Yes (pathogen detection)
ChIP	Yes	Yes
SNP genotyping	Yes	No
microRNA	Yes	No
Copy number	Yes	No
Somatic mutation detection	Yes	No
Pathway analysis	Yes	No
Digital PCR	Yes	No

* Depends on template quality, and primer design and optimization.

With over 10 million assays, including gene expression assays for more than 25 species, 5 assay formats, and >40,000 publications, Applied Biosystems™ TaqMan® Assays represent the most trusted and comprehensive collection of qPCR assays available.

The TaqMan Assays qPCR guarantee

We guarantee the performance of all our predesigned TaqMan® Assays for real-time PCR and digital PCR experiments. Our gene expression, noncoding RNA, SNP genotyping, copy number, drug metabolism enzyme, mutation detection, and protein assays enable you to obtain the highest quality and performance available.

If a TaqMan® Assay does not perform according to specifications, we'll replace it at no cost, or credit your account.*

* Restrictions and terms and conditions apply.
For complete details, go to **thermofisher.com/taqmanguarantee**

Find your assay at **thermofisher.com/taqman** or **thermofisher.com/sybr**

TaqMan Assays—the largest selection of predesigned assays

Spend time on results, not assay design and optimization

With TaqMan predesigned assays, spend your time generating results, not designing and optimizing assays

- Detect virtually any gene product—more than 1.5 million predesigned assays, and custom design for everything else
- Assays for nearly every human, mouse, and rat gene in the RefSeq database
- Available for 25 species and some pathogens
- Assays for multiple locations per transcript and across nearly every exon junction in human
- Strain-neutral assays for mouse and rat

To learn more and order, go to **thermofisher.com/taqmangex**

- Not finding what you're looking for in our predesigned assay collection? The Applied Biosystems™ Custom TaqMan® Assay Design Tool lets you design and order a TaqMan Assay to detect any gene from any organism.
- Also, try Applied Biosystems™ TaqMan® Endogenous Controls—a collection of TaqMan Assays targeting commonly used control gene products for sample input normalization in real-time PCR.

Predesigned TaqMan Gene Expression Assays
(as of November 2015)

Species	Number of assays	Gene coverage (%)*
Human *(H. sapiens)*	205,707	99.8%
Mouse *(M. musculus)*	176,510	99.5%
Chinese hamster *(C. griseus)*	154,743	88.2%
Rat *(R. norvegicus)*	146,589	89.2%
Cow *(B. taurus)*	103,562	99.6%
Rice *(O. sativa)*	99,822	95.6%
Arabidopsis *(A. thaliana)*	97,879	93.8%
Nematode *(C. elegans)*	92,687	95.1%
Rhesus monkey *(M. mulatta)*	69,310	55.8%
Zebrafish *(D. rerio)*	63,712	77.3%
Frog *(X. tropicalis)*	56,764	87.3%
Dog *(C. familiaris)*	55,558	64.3%
Chicken *(G. gallus)*	48,432	85.1%
Fruit fly *(D. melanogaster)*	41,607	94.0%
Sweet corn *(Z. mays)*	38,493	59.5%
Cynomolgus monkey *(M. fascicularis)*	37,652	80.5%
Pig *(S. scrofa)*	16,247	90.3%
Fission yeast *(S. pombe)*	6,538	94.3%
Rabbit *(O. cuniculus)*	5,927	80.9%
Baker's yeast *(S. cerevisiae)*	5,524	93.4%
Horse *(E. caballus)*	3,891	72.8%
Soybean *(G. max)*	3,456	13.5%
Guinea pig *(C. porcellus)*	2,037	64.3%
Grape *(V. vinifera)*	965	25.3%
Wheat *(T. aestivum)*	760	43.6%
Summary	**1,534,372**	**81.1%, 25 species**

*** Percent coverage refers to genes in the RefSeq database.**

Flexible formats

A variety of formats for different research needs

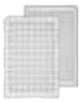
Configurations to fit your research goals

Are you analyzing hundreds (or thousands) of samples, and expression from a handful of genes? Or does your research involve a few samples that need to be analyzed for a long list of mRNA targets? No matter what experiment you're performing, there's a TaqMan Gene Expression Assay format and real-time PCR instrument for your research needs.

TaqMan Gene Expression Assay formats

Single tubes
- Low entry price
- Flexible
- Run on any real-time PCR instrument

384-well microfluidic cards
- Low cost per reaction
- Optimal for medium to large projects
- Run on QuantStudio 7 & 12K Flex, ViiA 7 and 7900HT Real-Time PCR Systems



96- or 384-well plates
- Optimal for small to medium projects
- Balance flexibility with streamlined reaction setup
- Run on any 96- or 384-well real-time PCR instrument

OpenArray plates
- Lowest cost for large projects
- Ultimate throughput
- Run on QuantStudio 12K Flex Real-Time PCR System

High-performance miRNA assays

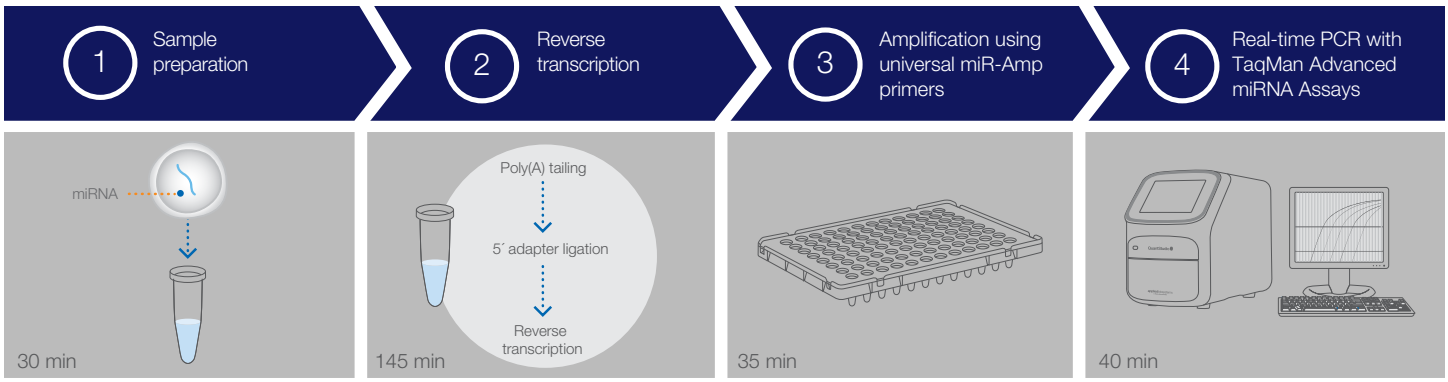
TaqMan Advanced miRNA Assays are available in flexible formats

With over 25 years of proven expertise and performance, we offer a fully integrated suite of gold-standard assays to help you achieve maximum productivity and high-quality results from your qPCR research. Whether it's using convenient formats, obtaining the essential cost-effective answers that you want, getting accurate results from limited samples, or high-throughput efficiency, we've got you covered.

Applied Biosystems™ TaqMan® Advanced miRNA Assays employ a universal reverse transcription (RT) step for a streamlined workflow and a universal miR-Amp step to enable highly sensitive detection by real-time PCR.

Key features

- **Universal RT**—one RT step for all TaqMan Advanced miRNA Assays
- **Sensitive**—detect as few as 60 copies of input microRNA (miRNA)
- **Specific**—detect only mature miRNA and distinguish between highly homologous miRNAs
- **Small sample input**—detect and quantify mature miRNA from as little as 1 ng or 2 µL of purified total RNA from plasma or serum
- **Versatile**—compatible with total RNA from tissue, FFPE tissues, and biofluids, including serum and plasma



Superior cDNA synthesis performance in RT-qPCR applications

SuperScript IV VILO Master Mix

Invitrogen™ SuperScript™ IV VILO™ Master Mix is a first-strand cDNA synthesis reaction mix for two-step RT-qPCR. The master mix format elevates the trusted VILO technology (Variable Input, Linear Output) to the next level by combining further-optimized buffer conditions with the highly processive and thermostable Invitrogen™ SuperScript™ IV Reverse Transcriptase. The master mix offers exceptional performance features while maintaining superior linearity across the broadest range of input RNA.

- **Super-efficient**—C_t values earlier by on average 2 cycles compared to other reverse transcription reagents, in a 10-minute reaction
- **Super-strong**—reliable results even with degraded or inhibitor-containing RNA samples
- **Super-reliable**—improved RT-qPCR data reproducibility due to single-tube master mix format
- **Super-safe**—integrated, easy, and RNA-friendly genomic DNA removal

Find out more at **thermofisher.com/4vilo**

Doing other cDNA synthesis applications?

The SuperScript IV Reverse Transcriptase portfolio of products is engineered to offer superior cDNA synthesis performance with even the most challenging RNA samples. The portfolio includes a stand-alone enzyme, first-strand cDNA synthesis kit, and one-step RT-PCR kit. Learn more when you flip the brochure to the PCR side.

thermofisher.com/ssiv

Ordering information

Product	Quantity	Cat. No.
SuperScript IV VILO Master Mix	50 reactions	11756050
	500 reactions	11756500
SuperScript IV VILO Master Mix with ezDNase Enzyme	50 reactions	11766050
	500 reactions	11766500

Did you know?

SuperScript IV VILO Master Mix is available in a format with the novel dsDNA-specific Invitrogen™ ezDNase™ enzyme, which offers convenient and fast genomic DNA removal from RNA samples to help ensure high confidence in RT-qPCR results.

Connect with your instrument and achieve lab/life balance

Instrument Connect app

Thermo Fisher Scientific has pioneered a way to connect you to your instruments, giving you real-time updates on your run and access to data as they come up. We connect you to your cloud-enabled instruments and benchtop devices anytime, anywhere using the Instrument Connect mobile app.

The Instrument Connect remote monitoring app allows you to stay connected to any Thermo Fisher Cloud–enabled instrument, including the QuantStudio 3 and 5 real-time PCR instruments, as well as endpoint PCR devices including Applied Biosystems™ ProFlex™, SimpliAmp™, and MiniAmp™ Thermal Cyclers.

= cloud-enabled instrument

With the Instrument Connect app, you can:

- Check the availability of your Thermo Fisher Cloud–enabled, network-connected device
- Monitor run progress
- View amplification plots in real time (available for QuantStudio 3 and 5 instruments)
- View plots and filter by sample or target in real time
- Schedule an instrument

It's easy to get started. Just download the Instrument Connect App from the Apple™ App Store and log in to your Thermo Fisher Cloud account. You can view your connected QuantStudio 3 and 5 instruments, monitor remaining time in your run, and view your amplification plots in real time.

Learn more about the Instrument Connect app at **thermofisher.com/qpcrconnect**

Specialty enzymes for molecular diagnostics development and commercial supply

We offer innovative enzymes, dNTPs, and buffers for your molecular assay development. Our products are manufactured in-house, conform to internationally acceptable standards of quality, and provide you with 24/7 access to our dedicated OEM support team to meet your unique applications.

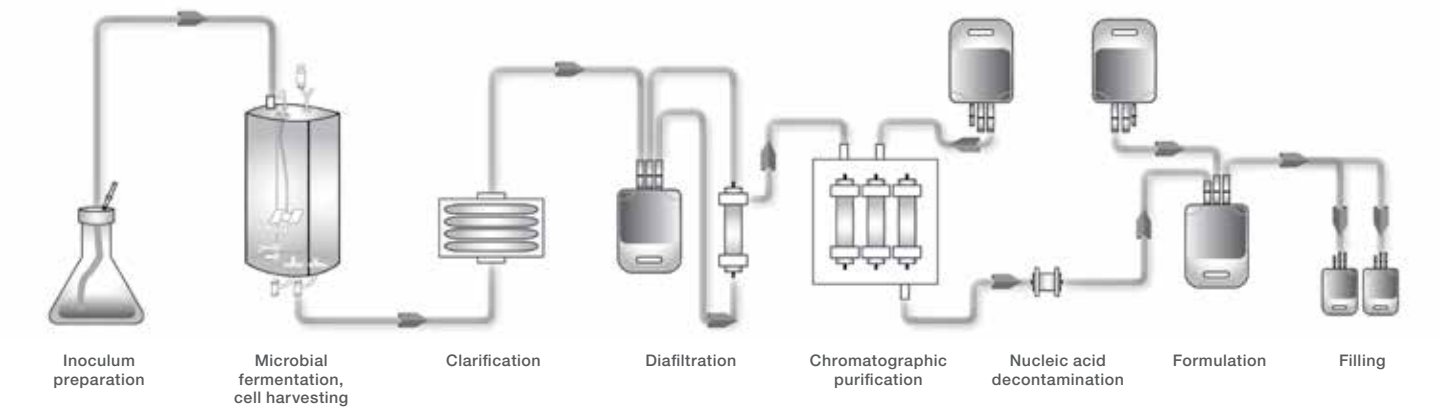
For more information about our enzymes for commercial supply, go to **thermofisher.com/oemenzymes**

DNA-free enzymes

DNA-free PCR enzymes are manufactured using our single-use system (SUS). These enzymes are:

- Manufactured in a completely closed system using dedicated or single-use equipment
- Verified free of contaminating DNA from host, human operator, and environment

Learn more at **thermofisher.com/dna-free**



Closed SUS–based manufacturing process for recombinant enzymes. A completely closed system using disposable single-use bags, tubes, and connectors reduces the potential DNA contamination from the environment, human operator, and cross-contamination to a negligible level.

Lyo-ready enzymes

From Platinum *Taq* DNA polymerases to SuperScript reverse transcriptases, we offer the largest selection of lyophilization-compatible enzymes, providing:

- Flexible assay designs while retaining the same functional enzyme performance as with conventional formats
- Tailor-made solutions for your specific applications, including custom packaging
- Higher confidence in results with low residual DNA contamination (human and bacterial) of enzymes

Learn more at **thermofisher.com/lyoreadyenzymes**

Resources

Real-time PCR and digital PCR	Key online resources
qPCR promotions	thermofisher.com/qpcrpromotions
Webinars	thermofisher.com/gawebinars
Ask TaqMan videos	thermofisher.com/ask
qPCR handbook	thermofisher.com/qpcrhandbook
Behind the bench blog	thermofisher.com/blog/behindthebench
Assay search	thermofisher.com/taqman

Real-time PCR and digital PCR	Key online resources
Master mix sample request	thermofisher.com/mmsample
General qPCR support	thermofisher.com/qpcrsupport
Training offered	thermofisher.com/events
Instrument Management tool	thermofisher.com/easiertomanage

Find out more at **thermofisher.com/qpcr**

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