

INNOVATIVE TECHNOLOGIES

Real-Time PCR Systems and Quantitative Thermal Cyclers

TT-qPCR Series



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Real-Time PCR Systems and Quantitative Thermal Cyclers

TT-qPCR Series Overview

Real-Time PCR (Polymerase Chain Reaction) systems, also known as Quantitative PCR (qPCR) systems, are advanced laboratory instruments used to amplify and quantify DNA and RNA in real-time.

These systems are integral to modern molecular biology and are widely employed in applications such as clinical diagnostics, genetic research, pathogen detection, and gene expression analysis.

What Are Real-Time PCR Systems?

Real-Time PCR systems are designed to detect and measure the amplification of nucleic acids during the PCR process, eliminating the need for post-PCR analysis. This is achieved through the use of fluorescent dyes or probes that bind to specific target sequences, providing real-time feedback on the progress of the reaction.

What Are Quantitative Thermal Cyclers?

Quantitative Thermal Cyclers are specialized PCR instruments that precisely control temperature cycles to facilitate DNA denaturation, annealing, and extension. When combined with real-time detection capabilities, these cyclers enable researchers to quantify nucleic acids with high accuracy and reproducibility.

Key Features of qPCR Systems

- High Sensitivity and Specificity: Accurate detection of low-copy DNA and RNA.

- Fast Reaction Times: Advanced thermal control for rapid cycling.
- Multiplexing Capabilities: Simultaneous detection of multiple targets in a single reaction.
- Data Analysis Tools: Integrated software for advanced data processing and reporting.

Applications

- Clinical Diagnostics: Detection of infectious diseases and genetic disorders.
- Research: Gene expression profiling, genotyping, and mutation analysis.
- Food Safety and Environmental Testing: Pathogen detection in food and water samples.

Torontech offers an extensive range of state-of-the-art Real-Time PCR systems and Quantitative Thermal Cyclers. Our solutions are designed to meet the demands of diverse applications, providing researchers and clinicians with reliable, efficient, and user-friendly tools to drive their discoveries forward.

Whether for high-throughput laboratories or specialized applications, Torontech's qPCR systems deliver precision and performance at every step.

PRODUCT RANGE



TT-Q9605T



TT-Q320T



TT-QPCR160T



TT-QPCR30



TT-Q4505T



TT-Q9605



TT-Q480



TT-E320T



Real-Time PCR System (qPCR) and Quantitative Thermal Cycler

TT-Q9605T

The TT-Q9605T is a high-performance Real-Time PCR System featuring a 96-well, 5-channel configuration. Its advanced optical fiber detection system ensures faster imaging and minimizes overall cycling time, enhancing efficiency in laboratory workflows.

This versatile system is ideal for a wide range of applications, including the detection and quantification of nucleic acid targets, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. The TT-Q9605T combines precision, reliability, and ease of use to meet the diverse needs of modern laboratories.

TECHNICAL SPECIFICATIONS

PART NUMBER	TT-Q9605T
Product description	96-well Real-Time PCR instrument with 5 dye channel filters & 7-inch touchscreen
Sample capacity	96-well, 0.2mL block
Compatible plates/tubes	96-well plates, 8-well strip tubes, single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–670 nm
Detection method	Photodiodes
Detection range	515–680 nm
Detection channels	5

PART NUMBER	TT-Q9605T
Temperature range	4–100°C
Average heating/cooling rate	3.0°C/sec / 3.0°C/sec
Maximum heating/cooling rate	4.5°C/sec / 4.0°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Gradient	6 Independent temperature zones
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	54.0 x 35.1 x 31.0 cm
Weight	20 kg (44.09 lbs)



Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-Q320T

The TT-Q320T is a compact and efficient Real-Time PCR System designed with a 32-well, 4-channel configuration. Its innovative optical fiber detection system ensures faster imaging and reduces overall cycling time, making it a reliable choice for laboratories with demanding workflows.

The TT-Q320T supports various applications, including the detection and quantification of nucleic acid targets, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. This system delivers precision and adaptability, making it an essential tool for diverse laboratory needs.

TECHNICAL SPECIFICATIONS

PART NUMBER	TT-Q320T
Product description	32-well Real-Time PCR instrument with 4 dye channel filters & 8-inch touchscreen
Sample capacity	32-well, 0.2mL block
Compatible plates/tubes	8-well strip tubes, single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–620 nm
Detection method	Photodiodes
Detection range	515–670 nm
Detection channels	4

PART NUMBER	TT-Q320T
Temperature range	4–100°C
Average heating/cooling rate	3.5°C/sec / 3.0°C/sec
Maximum heating/cooling rate	5.0°C/sec / 4.5°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	37.0 x 28.0 x 25.0 cm
Weight	9.7 kg (21.38 lbs)



Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-QPCR160T

The TT-QPCR160T is a compact and efficient Real-Time PCR System featuring a 16-well, 4-channel configuration. Its advanced optical fiber detection system ensures faster imaging while reducing overall cycling time. Designed for laboratories with limited space, the TT-QPCR160T combines performance and practicality.

This system supports a variety of applications, including the detection and quantification of nucleic acid targets, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. The TT-QPCR160T delivers reliable results, making it an ideal solution for small to mid-scale laboratory workflows.

TECHNICAL SPECIFICATIONS

PART NUMBER	TT-QPCR160T
Product description	16-well Real-Time PCR instrument with 4 dye channel filters & 7-inch touchscreen
Sample capacity	16-well, 0.2mL block
Compatible plates/tubes	8-well strip tubes, single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–620 nm
Detection method	Photodiodes
Detection range	515–670 nm
Detection channels	4

PART NUMBER	TT-QPCR160T
Temperature range	4–100°C
Average heating/cooling rate	3.0°C/sec / 3.0°C/sec
Maximum heating/cooling rate	4.0°C/sec / 4.0°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	32.0 x 25.0 x 17.7 cm
Weight	4.5 kg (9.92 lbs)



Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-QPCR30



The TT-QPCR30 is a compact Real-Time PCR System featuring a 3-well, 4-channel configuration. Its innovative optical fiber detection system ensures faster imaging while minimizing overall cycling time. Specifically designed to be space-efficient, the TT-QPCR30 is ideal for laboratory benchtop use.

This system supports diverse applications, including nucleic acid target detection and quantification, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. The TT-QPCR30 is a reliable and efficient solution for small-scale laboratory workflows.

TECHNICAL SPECIFICATIONS

PART NUMBER	TT-QPCR30
Product description	3-well Real-Time PCR instrument with 4 dye channel filters
Sample capacity	3-well, 0.2mL block
Compatible plates/tubes	Single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–620 nm
Detection method	Photodiodes
Detection range	515–670 nm
Detection channels	4

PART NUMBER	TT-QPCR30
Temperature range	4–100°C
Average heating/cooling rate	5.0°C/sec / 4.5°C/sec
Maximum heating/cooling rate	7.0°C/sec / 6.0°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	13.0 x 13.0 x 23.0 cm
Weight	2.0 kg (4.41 lbs)



Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-Q4505T



The TT-Q4505T is a high-performance Real-Time PCR System featuring 4 independent wells and a 5-channel configuration. Its advanced optical fiber detection system ensures faster imaging and significantly reduces overall cycling time, improving laboratory efficiency.

With its versatile capabilities, the TT-Q4505T supports various applications, including nucleic acid target detection and quantification, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. This system delivers precision and reliability, making it an excellent choice for advanced laboratory workflows.

TECHNICAL SPECIFICATIONS

PART NUMBER	TT-Q4505T
Product description	4-well Real-Time PCR instrument with 5 dye channel filters & 7-inch touchscreen
Sample capacity	4-well, 0.2mL block
Compatible plates/tubes	Single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–670 nm
Detection method	Photodiodes
Detection range	515–680 nm
Detection channels	5

PART NUMBER	TT-Q4505T
Temperature range	4–100°C
Average heating/cooling rate	5.0°C/sec / 5.5°C/sec
Maximum heating/cooling rate	7.0°C/sec / 6.5°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	30.0 x 26.5 x 25.0 cm
Weight	7.5 kg (16.53 lbs)



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Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-Q9605



The TT-Q9605 is a high-capacity Real-Time PCR System featuring a 96-well, 5-channel configuration. Its advanced optical fiber detection system ensures faster imaging and reduces overall cycling time, maximizing laboratory productivity.

Designed for versatility, the TT-Q9605 supports diverse applications, including nucleic acid target detection and quantification, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. With precision and efficiency, the TT-Q9605 delivers reliable results for high-throughput workflows.



TECHNICAL SPECIFICATIONS

PART NUMBER	TT-Q9605
Product description	96-well Real-Time PCR instrument with 5 dye channel filters
Sample capacity	96-well, 0.2mL block
Compatible plates/tubes	96-well plates, 8-well strip tubes, single tube
Reaction volume	20–120 μ L
Excitation source	Halogen lamp
Excitation range	475–670 nm
Detection method	CMOS camera
Detection range	515–680 nm
Detection channels	5
Temperature range	4–100°C

PART NUMBER	TT-Q9605
Average heating/cooling rate	3.0°C/sec / 3.0°C/sec
Maximum heating/cooling rate	4.5°C/sec / 4.0°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Gradient	6 Independent temperature zones
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	60.0 x 39.0 x 32.0 cm
Weight	23 kg (50.71 lbs)



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Real-Time PCR System (qPCR) – Quantitative Thermal Cycler

TT-Q480



The TT-Q480 is a versatile Real-Time PCR System equipped with a 48-well, 4-channel configuration. Its advanced optical fiber detection system ensures faster imaging while significantly reducing overall cycling time, improving laboratory efficiency.

With a wide range of applications, the TT-Q480 supports nucleic acid target detection and quantification, gene expression analysis, genotyping, agri-food safety testing, and veterinary diagnostics. The TT-Q480 is a dependable solution for mid-throughput laboratories requiring precision and consistent performance.



TECHNICAL SPECIFICATIONS

PART NUMBER	TT-Q480
Product description	48-well Real-Time PCR instrument with 4 dye channel filters
Sample capacity	48-well, 0.2mL block
Compatible plates/tubes	8-well strip tubes, single tube
Reaction volume	20–120 μ L
Excitation source	LED
Excitation range	475–620 nm
Detection method	Photodiodes
Detection range	515–670 nm
Detection channels	4
Temperature range	4–100°C

PART NUMBER	TT-Q480
Average heating/cooling rate	3.0°C/sec / 2.0°C/sec
Maximum heating/cooling rate	3.5°C/sec / 3.0°C/sec
Temperature uniformity	\pm 0.25°C
Temperature accuracy	\pm 0.15°C
Detection sensitivity	1 copy
Sensitivity	Detect differences as small as 1.5-fold in target quantities in singleplex reactions
Dynamic range	10 logs of linear dynamic range
Footprint (W x D x H)	46.6 x 31.0 x 27.3 cm
Weight	17.5 kg (38.58 lbs)



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Automated Nucleic Acid Extractor TT-E320T

The TT-E320T is an advanced automatic nucleic acid extractor that uses oscillating magnetic beads and a magnetic device to transfer and separate beads. This process efficiently extracts and purifies nucleic acids from up to 32 samples simultaneously, ensuring streamlined laboratory workflows.

The TT-E320T offers versatile performance for nucleic acid extraction across a wide variety of samples, including plant and animal tissues, whole blood, bacterial cultures, plasmids, viral particles, cell-free fluids, forensic materials, aquatic organisms, and fungi. This system is an ideal solution for laboratories requiring high-throughput, reliable, and consistent nucleic acid purification.



TECHNICAL SPECIFICATIONS


PART NUMBER	TT-E320T
Product description	Automated nucleic acid extractor with 32 magnetic rods & 7-inch touchscreen
Sample capacity	32 Samples
Processing volume	20–1000 μ L
Compatible plates	96 deep well plate
Uniformity yield of wells	CV \leq 3%
Extraction efficiency	\geq 95%
Operating temperature	10–40°C
Heating temperature	Range from room temperature to 80°C

PART NUMBER	TT-E320T
Mixing step	3-stage adjustable, and the travel distance can be set according to the reagent volume
Disinfection/Decontamination	UV light
Reagent Type	Magnetic bead-based
Extraction time	30–60 minutes per run depending on the reagent kits
Voltage	120V, 60Hz, 200VA
Footprint (W x D x H)	40.0 x 42.0 x 44.0 cm
Weight	25 kg (55.12 lbs)




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