

PTC Tempo Thermal Cyclers



MODERN AND INTUITIVE SYSTEMS

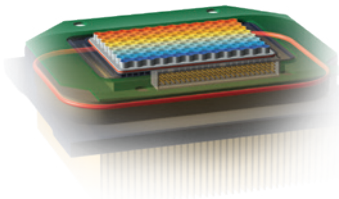
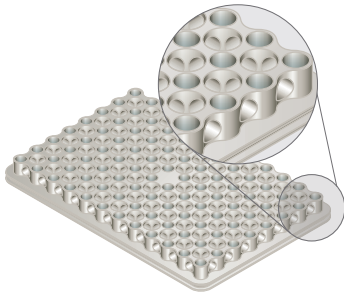


Engineered to maintain thermal performance, the PTC Tempo Thermal Cycler offers the flexibility to scale with your laboratory. This conventional PCR thermal cycler features a refreshed, intuitive user interface and flexible connectivity options for streamlining protocol management. A motorized lid enables automation, taking your PCR to the next level with modern instrument control.

Search your mobile app store for **Bio-Rad AR** or visit bio-rad.com/PTCTempo to launch a virtual demo and see how the instrument fits in your lab. Contact your local sales representative for more information.



UNIFORM THERMAL CYCLING



Superior Uniformity and Fast Ramping

It is critical that all wells maintain the proper temperature throughout each PCR step. Utilizing Peltier effect technology, the PTC Tempo Thermal Cycler has six independently controlled thermal electric modules (the heating and cooling elements of the thermal cycler) to maintain tight temperature uniformity at all points during a run — even during ramping. The patented reduced-mass sample block* heats and cools more quickly than standard blocks, improving thermal uniformity and minimizing edge effects.

* U.S. patents 7,955,573, 8,367,014, 8,557,196, and 7,632,464.

Efficient Optimization

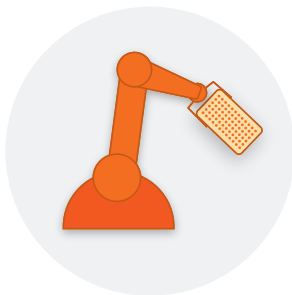
Determining the optimal temperature for primer annealing is crucial for efficient and specific target amplification. The thermal gradient feature of the PTC Tempo Thermal Cycler allows optimization of an assay in a single experiment, minimizing the use of precious samples and reagents and saving valuable research time. At any step in a protocol, users can program a temperature gradient of 30–100°C with a 24°C span across the reaction block,** providing exceptional temperature uniformity and reproducibility within each gradient zone. The gradient feature employs dynamic ramping. The instrument algorithm adjusts ramp rates so that all wells come to their designated incubation temperature at the same time, making the incubation period consistent across all samples. Accurate incubation times are crucial for successful transfer of protocols from a gradient to a nongradient mode.

** U.S. patent 7,051,536.

Rapid Arrival at Target Temperature

The tight temperature control of the PTC Tempo Thermal Cycler produces high average ramp rates and tight uniformity during ramping to quickly reach the target temperature and shorten protocol run times.

STREAMLINED PRODUCTIVITY



Enhanced User Management

- Quickly learn the refreshed graphical user interface on an 8-inch, high-resolution touch screen
- Create new PCR protocols or modify existing ones
- Start runs faster with preprogrammed standard protocols

Organized Workflow

- Share protocols and completed runs via a network folder
- Efficiently arrange protocols and experiments with personalized folders
- Add unique user names and protect your files with optional passwords

Automation-Integration Ready

- Utilize the motorized lid of the PTC Tempo 96, PTC Tempo Deepwell, and PTC Tempo 384 Thermal Cyclers
- Readily integrate PTC Tempo 96, PTC Tempo Deepwell, and PTC Tempo 384 Thermal Cyclers into automated workflows to enable continuous loading of plates with robotic handlers

CONTEMPORARY CONNECTIVITY

More Connectivity Options

Bio-Rad understands that the modern world relies on seamless data connections. In addition to Ethernet connectivity, the PTC Tempo Thermal Cycler has WiFi capability for wireless operation and data retrieval. Protocol sharing is also possible via USB memory device or a local network connection, simplifying collaboration.

Set Up Your Experiment Where and When You Want

The BR.io cloud platform is a Bio-Rad solution for cloud data management. The BR.io cloud platform can be accessed from a web browser, so no software installation is required. Simply type BR.io in the web address bar, log in or create a new account, and set up your dashboard. Link the BR.io cloud platform to your PTC Tempo Thermal Cyclers. Get the most out of your instrument by setting up experiments and retrieving protocols anywhere with internet access, minimizing time needed at the instrument. Monitor instrument status and protocol run status. You can even receive email notifications when runs are completed. All your data are stored securely on the cloud.



BR.io Cloud Platform Benefits for Laboratories



Remote setup and data access

- Create new experiments from anywhere and automatically transfer the protocols to the instrument
- Access data instantly upon completion of an experiment, no matter where you are



Remote instrument monitoring

- Remotely access instrument information, including model, serial number, and firmware version
- Monitor status of instruments located in different rooms, buildings, or sites from a single computer
- Check the progress of experiments without returning to the lab



Automatic data transfer and storage

- Eliminate the hassle of manual data transfer and the risk of data loss
- Mitigate data loss due to local storage malfunction or damage
- Ensure all your data are backed up automatically to the cloud



Cloud-enabled software

- Deploy easily without the need to install and manage software
- Access anytime from any internet-connected computer (Mac or PC) almost anywhere in the world



Enterprise-grade security and privacy controls

- Protect your account and data using our inherent strong password requirements
- Secure your intellectual property — your data are encrypted both in flight and at rest
- Have confidence in the safety of your data — the BR.io cloud platform is regularly tested for security vulnerabilities
- Utilize our data privacy controls for General Data Protection Regulation (GDPR) compliance

DEPENDABLE SERVICE AND SUPPORT



Bio-Rad provides a comprehensive suite of services to ensure that your instruments are cared for and perform to our standard of quality, run after run. Our professional, knowledgeable, and experienced technical support specialists and service engineers are committed to quality and service. From research to regulated environments, Bio-Rad will help care for your investment and keep your projects in motion. Confirm that your PTC Tempo Thermal Cycler is performing at its highest accuracy and uniformity with thermal qualification services. Guarantee with documentation the proper installation and operation of your instrument by taking advantage of Installation Qualification (IQ) and Operational Qualification (OQ) Services.



Thermal Qualification Services

To confirm optimal performance of your PTC Tempo Thermal Cycler, a trained and certified Bio-Rad service engineer will:

- Assess PCR block accuracy, thermal uniformity, and instrument ramp rate
- Complete a rapid temperature cycling protocol mimicking an actual experiment to confirm that thermal block setting times are within specifications
- Provide an accurate qualification in accordance with National Institute of Standards and Technology (NIST) standards

Visit bio-rad.com/ThermalValidation for more information.



Installation Qualification (IQ) and Operational Qualification (OQ) Services

A certified service engineer will document that instruments are installed and functioning properly and ensure that instruments will generate reliable and reproducible data.

- Maximize instrument uptime with planned instrument qualification services that ensure your instruments are performing according to specifications
- Increase your confidence with instrument validation that helps minimize loss of precious samples and valuable time
- Meet regulatory compliance requirements

Visit bio-rad.com/IQOQ for more information.

Expertise

35+ years in **PCR**

Reliability

Thousands of systems installed in **160+** countries

Innovation

Top market leader in PCR

COMPLETE WORKFLOW

Bio-Rad offers a wide selection of reagents, consumables, and nucleic acid gel electrophoresis products to support your PCR workflow.



Reagents

Bio-Rad reagents enable a variety of PCR applications. iTaq DNA Polymerase is an antibody-mediated hot-start DNA polymerase suitable for both standard PCR and real-time PCR applications. For high-fidelity applications, iProof PCR Reagents featuring Sso7d* fusion polymerase technology are offered in kit or master mix formats.

Visit bio-rad.com/PCRreagents and bio-rad.com/PCRReagentSelector to learn more.

* U.S. patent 7,560,260.



Agarose Powders and Precast Gels

Bio-Rad offers a wide selection of Certified Agarose and ReadyAgarose Precast Gels for optimal and convenient nucleic acid electrophoresis. Certified Agaroses are genetic quality tested (GQT) grade to guarantee product quality and ensure confidence in both routine separations and downstream molecular biology applications.

Visit bio-rad.com/Agarose and bio-rad.com/ReadyAgarose to learn more.



Consumables

Ensure amplification success with a variety of Bio-Rad consumables, such as Hard-Shell™ PCR Plates and PCR plate seals. Hard-Shell PCR Plates are precisely manufactured for optimal fit and cycling performance. Adhesive foils and optically clear seals are designed with a strong adhesive that minimizes sample evaporation.

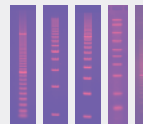
Visit bio-rad.com/PCRplastics and bio-rad.com/PCRPlasticSelector to learn more.



Electrophoresis Buffers and Molecular Rulers

Separate fragments by size and evaluate nucleic acid integrity with Bio-Rad molecular rulers. Save preparation time and standardize runs with premixed electrophoresis running buffers that are compatible with both handcast and precast gels.

Visit bio-rad.com/DNAElectro to learn more.



Horizontal Electrophoresis Cells and Power Supplies

Sub-Cell™ GT Cells are versatile and allow for multisample throughput in nucleic acid applications. Power your Sub-Cell System with the PowerPac Basic Power Supply. The unit is lightweight and stackable, and the vertical display is clearly visible on shelves and lab benches alike.

Visit bio-rad.com/SubCells and bio-rad.com/PowerSupplies to learn more.



Imaging Systems

Market-leading and easy-to-use, Bio-Rad gel documentation systems such as the GelDoc Go Gel Imaging System are reliable for all your DNA and protein gel documentation needs.

Visit bio-rad.com/Imaging to learn more.

SYSTEM SPECIFICATIONS

General Specifications

Sample block type	Fixed
Dimensions (W x D x H)	28 x 50 x 26 cm (11 x 20 x 10 in.)
Power	100–240 V, 50/60 Hz, 850 W max
Electrical approvals	IEC, CE
Memory	4.6 GB; 100,000 files, which include protocols and run reports
Noise level	50–70 dB at steady state
Touch-screen display	8 in. LCD
Programming options	Step-based graphical and automatic
Security features for regulated environments	Password protection and secure user mode
Reporting	Exportable run logs and system logs
Temperature control modes	Calculated and block
Onboard operating system	Linux
Communications	WiFi, BR.io cloud platform, USB-A 2.0, Ethernet, USB barcode scanner
Heating and cooling method	Peltier
Lid heating	30–110°C
Temperature range	4–100°C
Thermal accuracy	±0.2°C of programmed target at 90°C
Thermal uniformity	±0.4°C well-to-well within 10 sec of arrival at 90°C



System-Specific Specifications	96-Well	Deepwell	48/48-Well	384-Well
Lid type	Automated	Automated	Nonautomated	Automated
Weight	15 kg (33 lb)	15 kg (33 lb)	14 kg (31 lb)	15 kg (33 lb)
Sample capacity	96 x 0.2 ml tubes or 1 x 96-well plate	96 x 0.2 ml tubes, 48 x 0.5 ml tubes, or 1 x 96-well plate	2 x 48 x 0.2 ml tubes or 2 x 48-well plates	1 x 384-well plate
Sample volume	1–50 µl (10–50 µl recommended)	1–125 µl (10–125 µl recommended)	1–50 µl (10–50 µl recommended)	1–30 µl (3–20 µl recommended)
Maximum ramp rate	5°C/sec	2.5°C/sec	4°C/sec	2.5°C/sec
Average ramp rate	3.3°C/sec	2°C/sec	3°C/sec	2°C/sec
Gradient				
Operational range	30–100°C	30–100°C	30–100°C	30–100°C
Programmable span	8 rows, 1–24°C	8 rows, 1–24°C	8 rows, 1–24°C	16 rows, 1–24°C

Ordering Information

Catalog #	Description	Catalog #	Description
Instruments			
12015382	PTC Tempo 96 Thermal Cycler	MSB1001	Microseal 'B' PCR Plate Sealing Film, adhesive, optical, 100
12015392	PTC Tempo Deepwell Thermal Cycler	MSC1001	Microseal 'C' PCR Plate Sealing Film, adhesive, optical, 100
12015309	PTC Tempo 48/48 Thermal Cycler	MSF1001	Microseal 'F' PCR Plate Seal, foil, pierceable, 100
12015394	PTC Tempo 384 Thermal Cycler	1814030	PCR Plate Heat Seal, clear, optical, 100
1814000	PX1 PCR Plate Sealer	1814040	PCR Plate Heat Seal, foil, pierceable, 100
1814045		1814045	PCR Plate Heat Seal, foil, peelable, 100
Accessories			
12018650	PTC Tempo Thermal Cycler WiFi Adapter, U.S. only	Agaroses	
12018509	PTC Tempo Thermal Cycler WiFi Adapter, global	1613102	Certified Molecular Biology Agarose, 500 g
1849000	Tube Frame for 0.2 ml Tubes, for use with 48/48- and 96-well reaction modules	1613107	Certified Low Range Ultra Agarose, 125 g
1849001	Tube Frame for 0.2 ml Tubes, for use with 96-deep well and deepwell reaction modules	1613112	Certified Low Melt Agarose, 125 g, for DNA fragments ≥1,000 bp
12020274	Tube Frame for 0.5 ml Tubes, for use with 96-deep well and deepwell reaction modules	1613115	Certified PCR Low Melt Agarose, 500 g, for DNA fragments ≤1,000 bp
12014294	Plate Lifter for 384-Well Reaction Module	1613105	Certified PCR Agarose, 500 g, for DNA fragments ≤1,000 bp
12019776	PTC Tempo Thermal Cycler API, 1 license	Buffers	
12013205	Ethernet Cable	1610770	10x TBE (Tris/Boric Acid/EDTA) Buffer, 5 L
Reagents			
1725310	iProof HF Master Mix, 100 x 50 µl reactions, 2.5 ml	1610733	10x TBE (Tris/Boric Acid/EDTA) Buffer, 1 L
1725320	iProof GC Master Mix, 100 x 50 µl reactions, 2.5 ml	1610773	50x TAE (Tris/Acetic Acid/EDTA) Buffer, 5 L
1708870	iTaq DNA Polymerase, 250 U (5 U/µl), 50 µl	1610743	50x TAE (Tris/Acetic Acid/EDTA) Buffer, 1 L
1708872	MgCl ₂ Solution for PCR, 50 mM, 1.25 ml	1610433	Ethidium Bromide Solution, 10 mg/ml
1708874	dNTP Solution Mix, 10 mM, 200 µl	1610729	EDTA, 500 g, ≥99% pure
12012802	Reliance Select cDNA Synthesis Kit, 25 x 20 µl reactions	1610716	Tris, 500 g, ≥99.8% pure
1708840	iScript Reverse Transcription Supermix, 25 x 20 µl reactions	Horizontal Electrophoresis	
1725034	iScript gDNA Clear cDNA Synthesis Kit, 25 x 20 µl reactions	1704486	Mini-Sub™ Cell GT Horizontal Electrophoresis System
1725037	iScript Advanced cDNA Synthesis Kit, 25 x 20 µl reactions	1640300	Mini-Sub Cell GT Horizontal Electrophoresis System and PowerPac Basic Power Supply
1708896	iScript Select cDNA Synthesis Kit, 25 x 20 µl reactions	1704485	Wide Mini-Sub Cell GT Horizontal Electrophoresis System
1708890	iScript cDNA Synthesis Kit, 25 x 20 µl reactions	1640301	Wide Mini-Sub Cell GT Horizontal Electrophoresis System and PowerPac Basic Power Supply
Plastics			
TLS0801	0.2 ml 8-Tube PCR Strips without Caps, low profile, clear, 120	1704482	Sub-Cell GT Horizontal Electrophoresis System
TFI0201	0.2 ml PCR Tubes with Flat Caps, high profile, clear, 1,000	1640302	Sub-Cell GT Horizontal Electrophoresis System and PowerPac Basic Power Supply
TWI0201	0.2 ml PCR Tubes with Domed Caps, high profile, clear, 1,000	Rulers	
TBS0201	0.2 ml 8-Tube PCR Strips without Caps, high profile, clear, 125	1708351	EZ Load 20 bp Molecular Ruler, 20–1,000 bp, 50 bands
TBC0802	0.2 ml 8-Tube PCR Strips and Domed Cap Strips, high profile, clear	1708352	EZ Load 100 bp Molecular Ruler, 100–1,000 bp, 10 bands
TCS0803	0.2 ml Flat PCR Tube 8-Cap Strips, optical, ultraclear	1708353	EZ Load 100 bp PCR Molecular Ruler, 100–3,000 bp, 30 bands
HSP9601	Hard-Shell 96-Well PCR Plates, low profile, thin wall, skirted, white/clear, 50	1708354	EZ Load 500 bp Molecular Ruler, 500–8,000 bp, 16 bands
MLL9601	Multiplate 96-Well PCR Plates, low profile, unskirted, clear, 25	1708355	EZ Load 1 kb Molecular Ruler, 1–15 kb, 15 bands
HSL9601	Hard-Shell 96-Well PCR Plates, low profile, semi-skirted, clear/clear, 25	1708200	AmpliSize™ Molecular Ruler, 50–2,000 bp, 10 bands
HSL9605	Hard-Shell 96-Well PCR Plates, low profile, semi-skirted, clear/white, 25	Imaging	
HSL9905	Hard-Shell 96-Well PCR Plates, low profile, semi-skirted, clear/white, barcoded, 25	12009077	GelDoc Go Gel Imaging System with Image Lab Touch Software, includes UV/Stain-Free Imaging Tray
HSS9601	Hard-Shell 96-Well PCR Plates, high profile, semi-skirted, clear/clear, 25	1660531	UView Mini Transilluminator
HSS9901	Hard-Shell 96-Well PCR Plates, high profile, semi-skirted, clear/clear, barcoded, 25	Visit bio-rad.com/PTCTempo for more information about the PTC Tempo Thermal Cycler.	
MLP9601	Multiplate 96-Well PCR Plates, high profile, unskirted, clear, 25	Visit BR.io for more information about the BR.io cloud platform.	
MLL4801	Multiplate 48-Well PCR Plates, low profile, unskirted, clear, 50	Bio-Rad PCR reagents and analytical instruments are manufactured under an ISO 13485:2016 certified Quality Management System and are quality control tested to ensure consistent product performance you can trust.	
MLP4801	Multiplate 48-Well PCR Plates, high profile, unskirted, clear, 50	BIO-RAD, AMPLISIZE, DDPCR, HARD-SHELL, MICROSEAL, MINI-SUB, and SUB-CELL are trademarks of Bio-Rad Laboratories, Inc. in certain jurisdictions. All trademarks used herein are the property of their respective owner. © 2023 Bio-Rad Laboratories, Inc.	
HSP3801	Hard-Shell 384-Well PCR Plates, thin wall, skirted, clear/clear, 50	The Mini-Sub Cell GT, Wide Mini-Sub Cell GT, and Sub-Cell GT Cell Systems and/or their use are covered by the following U.S. patent and/or pending U.S. patent application or their foreign counterparts owned by or under license to Bio-Rad Laboratories, Inc., including, but not limited to, U.S. Patent No.8,262,889.	
HSP3901	Hard-Shell 384-Well PCR Plates, thin wall, skirted, clear/clear, barcoded, 50		
12001925	ddPCR™ 96-Well Plates, semi-skirted, clear/clear, 25		
MSA5001	Microseal™ 'A' PCR Plate and PCR Tube Sealing Film, nonadhesive sealing film, 50		



**Bio-Rad
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