T100™ Thermal Cycler

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BIO-RAD

The Smart PCR Choice

The T100 thermal cycler's intuitive touch screen makes running PCR easier than ever before. The T100 thermal cycler's performance, features, and ease of use are efficiently streamlined into a compact footprint that fits in any laboratory. The 96-well thermal cycler has been engineered by the most trusted name in PCR for long-lasting performance and reliable results. The T100 thermal cycler is the smart PCR choice of both experts and novices.

With the T100 thermal cycler you can:

- Save time programming with the intuitive touch screen
- Get superior results faster by optimizing your PCR assays in a single run using a thermal gradient
- Save valuable benchspace with the compact design
- Keep your protocols organized using personalized folders or a USB flash drive
- Be confident in your results with the reliability you expect from Bio-Rad

Better Performance

Thermal cyclers need to perform consistently from run to run and year to year. The T100 thermal cycler delivers this consistency, backed by Bio-Rad's 20 years of experience building thermal cyclers. The T100 cycler will meet your laboratory's PCR needs for years to come with its long-lasting thermal block design and protected thermoelectric components.

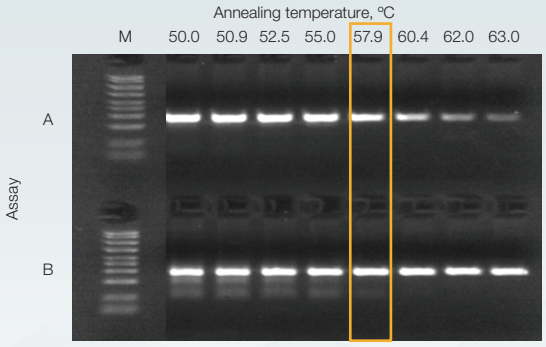
- Be confident in your results with excellent thermal accuracy and uniformity of ±0.5°C
- Decrease your run times with maximum ramp rates up to 4°C/sec
- Choose a reaction volume from 1 to 100 µl

Obtain consistent results with low sample volumes. A 300 bp product was amplified from genomic DNA in 5 µl reactions. M, markers.

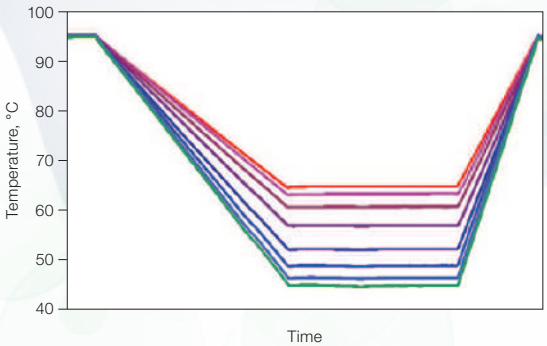
Faster Optimization

Thermal gradient technology allows you to quickly optimize your PCR assays in a single run by simultaneously testing eight different temperatures across a range of up to 25°C.

- The optimal annealing temperature for a PCR assay maximizes yield while preventing the formation of nonspecific products
- The dynamic ramping technology adjusts the cycler ramp rate, ensuring that the incubation times across the eight rows during a gradient step are identical



Optimization of an assay results in better yields and specificity. Results show that assays A and B can be run at an annealing temperature of 57.9°C on the same plate. Higher temperatures result in a reduced yield in assay A while lower temperatures result in nonspecific products in assay B. M, markers.

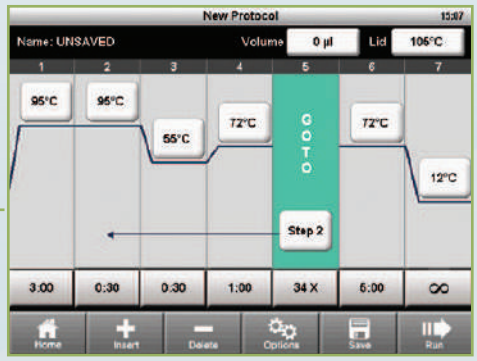


Dynamic ramping ensures that the incubation times across the rows of a gradient are identical. Each color trace represents the temperature measured in a different row.

Easier Programming

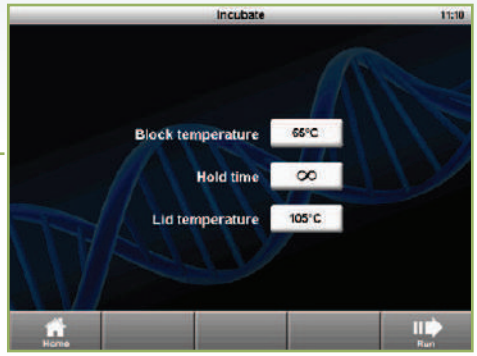
Both novices and experts can quickly get started with the T100 thermal cycler. The 5.7" high-resolution touch screen makes it easy to create a new protocol, start a run, or manage files, so you spend less time programming.

- Save time with streamlined graphical programming
- Stay organized with personalized folders
- Effortlessly transfer protocols among instruments using a USB flash drive
- Get started quicker with the built-in library of standard protocols for long PCR, fast PCR, reverse transcription PCR, and more



Create a new protocol in just seconds. The protocol editor displays the thermal profile in an intuitive, graphical format.

Keep your files organized. The T100 thermal cycler keeps your protocols in a personal folder.



Incubate instantly. The convenient incubate feature keeps your samples at a constant temperature for ligations or restriction digests.

Get started quicker. Intuitive button-driven navigation puts your most frequently used tasks at your fingertips.

More Efficient

The T100 thermal cycler helps accomplish your research objectives while minimizing your impact on the environment.

- Save energy and reduce your carbon footprint — the power save mode automatically shuts off the display when the cycler is idle
- Increase your efficiency — the T100 cycler has fast, efficient heating and cooling so you use less energy per run
- Reduce waste — the T100 cycler is compatible with reusable sealing mats to help minimize your consumption of disposable plastics

The small size and quiet operation of the T100 thermal cycler allow it to easily fit in any laboratory.

A Complete System

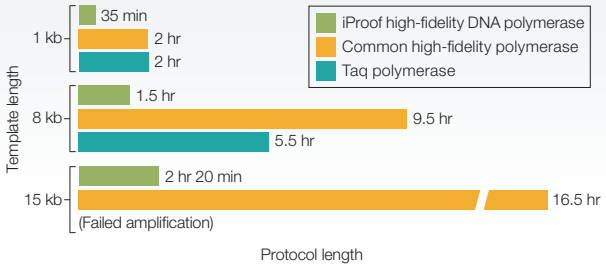
Reagents for Optimal Performance

Bio-Rad reagents demonstrate performance over a wide dynamic range of input RNA, cDNA, and genomic DNA, delivering maximum sensitivity and consistent results every time.

- iProof™ high-fidelity DNA polymerase is a highly efficient enzyme that helps reduce protocol run times and amplify long targets
- iTaq™ DNA polymerase is an antibody-mediated hot-start DNA polymerase suitable for both standard and real-time PCR applications
- iScript™ cDNA synthesis kits minimize the potential for primer-dimer formation and other nonspecific PCR artifacts

Don't Worry About Your Consumables

The T100 cycler is compatible with standard full-height tubes, tube strips, and 96-well plates so you can choose the appropriate PCR plastics for your throughput.



For long (1–15 kb) targets, use of iProof high-fidelity DNA polymerase reduces run times three- to fourfold. Targets of 1, 8, or 15 kb were amplified using three different polymerases. A two-step PCR protocol was used with iProof polymerase; three-step protocols using the shortest recommended extension times were used with other polymerases. Because iProof polymerase requires an annealing temperature 5–8°C above typical annealing temperatures, two-step protocols often can be run without redesigning primers.

Specifications

Thermal Cycler	
Input power	100–150 VAC, 50–60 Hz; 220–240 VAC, 50–60 Hz; 670 W maximum
Display	5.7" VGA color touch screen
Port	1 USB A
Fuses	Two 6.3 A, 250 V, 5 x 20 mm
Memory	500 typical programs onboard; unlimited with USB flash drive expansion
Dimensions (W x D x H)	26 x 47 x 23 cm (10 x 18 x 9")
Weight	9 kg (20 lb)
Temperature control modes	Calculated and block
PCR license	Yes
Programming options	Step-based graphical
Reporting	Exportable run logs, system logs
Instant incubation	Yes
Performance	
Sample capacity	96 x 0.2 ml tubes, 0.2 ml tube strips, or 1 x 96-well plate
Maximum ramp rate	4°C/sec
Average ramp rate	2.5°C/sec
Temperature range	4–100°C
Temperature accuracy	±0.5°C of programmed target
Temperature uniformity	±0.5°C well-to-well within 30 sec of arrival at target temperature
Thermal Gradient	
Gradient capability	Yes
Gradient accuracy	±0.5°C of programmed temperature
Row uniformity	±0.5°C well-to-well (within row) within 30 sec
Gradient range	30–100°C
Temperature differential range	1–25°C

Ordering Information

Catalog #	Description
186-1096	**T100 Thermal Cycler**, includes 96-well thermal cycler, power cord, T100 tube support ring
170-8890	**iScript cDNA Synthesis Kit**, 25 x 20 µl reactions, includes 5x iScript reaction mix, iScript reverse transcriptase, nuclease-free water
170-8870	**iTaq DNA Polymerase**, 5 U/µl, includes 250 U polymerase, 1.25 ml 10x PCR buffer (200 mM Tris-HCl, pH 8.4, 500 mM KCl), 1.25 ml 50 mM $MgCl_2$ solution
172-5301	**iProof High-Fidelity DNA Polymerase**, 2 U/µl, 100 U, includes 5x reaction buffers, $MgCl_2$ solution, DMSO
HSS-9601	**Hard-Shell® Full-Height 96-Well Semi-Skirted PCR Plates**, clear shell, clear well, 25
MLP-9601	**Multiplate™ 96-Well Unskirted PCR Plates**, natural, 25 plates
MSB-1001	**Microseal® 'B' Adhesive Seals**, optically clear, 100
TBS-1201	**12-Tube Strips without Caps (0.2 ml)**, natural, 100 strips (1,200 PCR tubes)
TCS-1201	**Domed 12-Cap Strips**, for 0.2 ml PCR tubes and plates, natural, 200
TWI-0201	**PCR Tubes with Domed Caps (0.2 ml)**, natural, 1,000

Purchase of this instrument conveys a limited non-transferable immunity from suit for the purchaser's own internal research and development and for use in human in vitro diagnostics and all other applied fields under U.S. Patent Number 5,475,610 (Claims 1, 44, 158, 160–163, and 167 only), or corresponding claims in its non-U.S. counterpart, owned by Applera Corporation. No right is conveyed expressly, by implication, or by estoppel under any other patent claim, such as claims to apparatus, reagents, kits, or methods such as 5' nuclease methods. Further information on purchasing licenses may be obtained by contacting the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

This product is covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 6,767,512 and 7,074,367.

Practice of the patented 5' Nuclease Process requires a license from Applied Biosystems. The purchase of these products includes an immunity from suit under patents specified in the product insert to use only the amount purchased for the purchaser's own internal research when used with the separate purchase of Licensed Probe. No other patent rights are conveyed expressly, by implication, or by estoppel. Further information on purchasing licenses may be obtained from the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

Hard-Shell plates are covered by one or more of the following U.S. patents or their foreign counterparts owned by Eppendorf AG: U.S. Patent Numbers 7,347,977; 6,340,589; and 6,528,302.

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