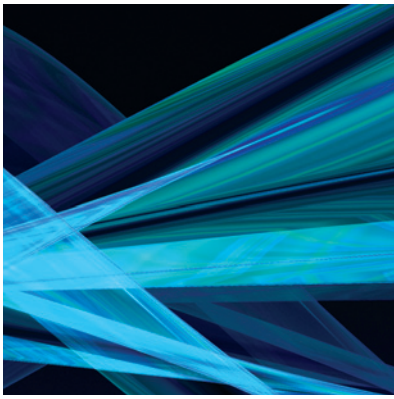

Gradient Feature

Maximize Your Optimization Power

Optimize Reactions in a Single Run

- Optimizing incubation temperatures improves speed and specificity of PCR and real-time PCR
- Gradient feature allows you to optimize denaturation, annealing, or extension temperature in one experiment
- Multizone temperature control ensures accuracy and reproducibility for dependable results
- Dynamic ramping keeps incubation times constant
- Gradient is available on MJ Mini™, MyCycler™, iCycler®, and DNA Engine® family cyclers and all Bio-Rad real-time PCR systems

For more information, visit us on the Web at
www.bio-rad.com/amplification/

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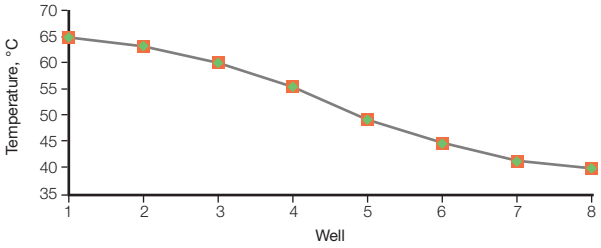
Gradient Feature Facilitates Temperature Optimization

Optimizing incubation temperatures for denaturing, annealing, and extension steps is critical for obtaining the highest speed, specificity, and efficiency in PCR. This is especially important for multiplexing and fast PCR. The thermal gradient feature allows you to empirically determine the optimal temperature in a single experiment by using a range of temperatures simultaneously.

Multizone Control for Uniformity and Reproducibility

Reproducible temperature gradients allow accurate prediction of actual sample temperatures. Extensive validation indicates that the nonlinear gradient is both predictable and reproducible.



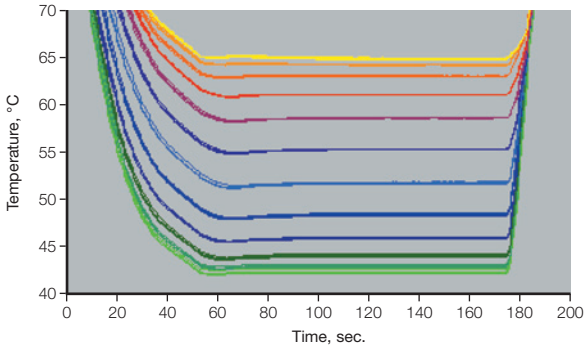
Displayed (◆) and actual (■) temperatures for the iCycler thermal cycler. Actual temperatures are averages ± SD for four thermal cyclers. (Error bars showing SD are smaller than size of symbols.)

Dynamic Ramping for Accurate Incubation Times

Bio-Rad thermal cyclers precisely control the temperature ramp rate so that each sample reaches its set temperature (including gradient and uniform set temperatures) at the same time. This ensures that the incubation period is consistent across all samples in the experiment, which is critical for objective evaluation of the temperature and assay conditions.

Optimize Multiple Parameters in the Same Experiment

The temperature uniformity imparted by multizone control enables you to optimize several conditions in the same run, without temperature variations confounding results.



Dynamic ramping and uniformity. Each color trace represents temperature measurements from a different column, from left (green) to right (yellow), on a DNA Engine cycler. Temperature measurements from four cyclers programmed to develop a 45–65°C gradient are superimposed. Note that the amount of time spent at the incubation temperature was the same for all columns.

Specifications

	DNA Engine Family of Cyclers and Related Real-Time PCR Systems	iCycler Cycler and Related Real-Time PCR Systems	MJ Mini Cycler and MiniOpticon™ System	MyCycler Thermal Cycler
Catalog #	PTC-0200G, PTC-0220G, PTC-0221G, PTC-0240G, ALS-1296G, ALP-2296G, CFB-322001G, CFB-3260G	170-8703, 170-8720, 170-9770, 170-9780	PTC-1148, CFB-3120	170-9703, 170-9707
Number of temperatures in gradient	12	8	8	8
Gradient accuracy	±0.3°C	±0.4°C	±0.4°C	±0.5°C
Row/column uniformity	±0.4°C	±0.4°C	±0.4°C	±0.5°C
Gradient range	30–105°C	40–99°C	35–99°C	30–99°C
Temperature differential range	1–24°C	1–25°C	1–16°C	1–25°C

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