# 2d gradient pcr thermal cycler with usb storage function

The 2D Gradient PCR Thermal Cycler combines a highly durable semiconductor chip and an intelligent temperature control system to achieve a two-dimensional temperature gradient regulation, which improves the optimization efficiency and accuracy of PCR experiments.

2D Gradient PCR Thermal Cycler is equipped with high-definition large-screen full-touch operation interface, supporting massive program storage and management.

## Main Features of 2D Gradient PCR Thermal Cycler

1. high life semiconductor chip: imported high-level semiconductor materials, the cycle life of up to 1 million times, to ensure long-term stable operation.
2. high-speed heating performance: customized chip technology, heating speed as fast as 9 °C / sec, significantly shorten the experimental time.
3. two-dimensional temperature gradient control: to achieve the gradient temperature settings in both directions, to facilitate the parallel optimization of multiple parameters, to enhance the efficiency of the experiment.

4. diversified sample stage support: support for a variety of specifications sample stage, without tools can be quickly replaced to adapt to different experimental needs.
5. 10-inch high-definition touch screen: large-size true-color LCD screen, the screen angle can be freely adjusted, real-time display of the temperature curve and program progress, intuitive and convenient operation.
6. massive program storage and management: built-in storage capacity of 30,000 programs, support for unlimited expansion of the U disk, convenient program access and backup.
7. preset templates to simplify programming: a variety of preset program templates, users only need to adjust the necessary parameters to quickly complete the program settings.
8. comprehensive program data recording: detailed records of temperature changes and program execution during the whole process of the experiment, to ensure the scientific nature of the results traceability and analysis.
9. intelligent hot lid control: the end of the program or when the sample temperature is lower than the set value, the hot lid is automatically closed to reduce sample evaporation and energy consumption.
10. accurate opening and closing lid positioning: the hot lid adopts precise positioning mechanism to ensure that the hot lid is correctly closed to ensure the temperature transfer effect and sample safety.

## Advantages

1. the efficiency of experimental optimization is significantly improved: the two-dimensional gradient design supports the simultaneous screening of multiple temperature parameters, reducing the number of experimental rounds and time-consuming.
2. long instrument life and low maintenance costs: high-quality semiconductor chips and modular design to reduce the failure rate, saving maintenance costs.
3. excellent user experience: large touch screen interface to simplify the operation process, to meet the diverse needs of complex experiments.
4. convenient program management: powerful storage and backup capabilities to ensure the safety of experimental data, easy to reuse and standardized management.
5. diverse sample compatibility: flexible replacement of the sample stage to meet the needs of different sample specifications, improve the applicability of the experiment.
6. energy saving and environmental protection: intelligent heat cover control and efficient temperature control system to reduce energy consumption and reduce the impact on the environment.

## Working Principle

2D Gradient PCR Thermal Cycler is based on semiconductor Peltier element technology to realize precise heating and cooling. Unlike the traditional single temperature gradient, the instrument can set different temperature gradients in two directions at the same time, so that the temperature of the 96-well or other samples plate of other specifications shows two-dimensional change distribution, thus realizing multi-parameter parallel screening. Temperature sensors provide real-time feedback on the temperature of the sample area, and the control system dynamically adjusts the heating and cooling rates to ensure accurate and uniform temperatures. The sample stage adopts modularized structure, which is convenient for quick replacement of different specifications to meet a variety of experimental needs. The LCD touch screen realizes visual programming and monitoring of the program, and the real-time curve reflects the dynamics of the PCR process, which is convenient for tracking experimental data. The automatic control system of hot cover ensures the temperature conduction and sample protection, which further improves the quality of experiments.

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| **Model** | **TC50** |
|---|---|
| Block | 96 wells x 0.2 mL/0.1 mL, compatible with 0.2 mL or 0.1 mL PCR tubes and 8-strip tubes, 96-well fully skirted plate |
| Display | 10" TFT color full touchscreen LCD, adjustable screen angle, real-time curve graph display of program |
| USB Function | unlimited program download via USB drive. system software upgradable |
| Communication Interfaces | USB2.0 ports and LAN |
| Temperature Control Range | 0°C to 105°C |
| Heating rate | 9°C per second |
| Temperature uniformity | ≤±0.2°C, at 90°C |
| Temperature accuracy | ≤±0.2°C |
| Temperature resolution | 0.1°C |

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| **Model** | **TC50** |
|---|---|
| Variable temperature rate | 0.1°C to 9°C per second |
| Gradient range | 30°C to 105°C |
| 2D Gradient temperature differential | Horizontal direction: 0.1°C to 42°C, Vertical direction: 0.1°C to 24°C |
| Program Storage Capacity | Up to 30,000 programs can be stored, unlimited programs can be downloaded via USB drive |
| Maximum Steps | 30, suitable for multiplex nested PCR experiments |
| Maximum Number of Cycles | Standard cycles: 100 up to 10,000 cycles in nested loop mode |
| Time Increment, Decrement | 1 to 600 seconds. supports Long PCR experiments |
| Temperature Increment, Decrement | 0.1°C to 10°C, supports Touchdown PCR experiments |
| Auto Pause | yes |
| Power-off protection | yes |

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| **Model** | **TC50** |
|---|---|
| Low Temperature Preservation | Holding time can be set indefinitely |
| Program wizard | Preset program templates, programming can be completed by modifying only a few necessary parameters |
| Program Run Report | Detailed recording of the entire program operation process provides accurate data support for experimental result analysis |
| PC Connectivity, optional | Allows one computer to remotely control and manage up to 50 units with ease |
| Heated Lid Temperature | 30°C to 112°C, adjustable |
| Heated Lid Height | Steplessly adjustable heated lid, suitable for various types of tubes and plates |
| Auto shut-off for heated lid | When the program ends or the sample block temperature falls below the set value, the heated lid will automatically shut off |
| Lid opening mechanism | Innovative lid opening and closing technology ensures precise |

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| **Model** | **TC50** |
|---|---|
| | positioning and secure locking of the heated lid during operation |
| Power supply | 100Vac to 240Vac, 50-60Hz, 1200W |
| Dimensions | 375x270x278mm |
| Weight | 13kg |