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### *MJ Research PTC-225 Tetrad Thermal Cycler*

For high-throughput applications or busy labs, the PTC-225 or '**Tetrad**' DNA Engine Tetrad may be the best option. This allows up to eight separate blocks to run synchronous or independent reactions. A compact footprint is maintained by housing the power supply separately outside the chassis, good for tight spaces or robotic applications.

#### **Features & Specifications:**

- **Hot Bonnet heated lid** incorporates a thumbwheel to adjust height and pressure. This feature assures tight sealing of reaction vessels even microplates during oil-free thermal cycling
- **Peltier-effect heat pumps** robustly designed for repeated cycling deliver the full temperature range of 0°-100°C *electronically*
- **Ramping speed** up to 3°C/sec for all single and dual block Alpha units; 1.2 °C/sec for the Twin Tower
- **Thermal homogeneity:** ±0.4°C well-to-well within 30 seconds of arrival @ 90°C for most Alpha units
- **Memory** stores approximately 200 programs up to 12 individual folders. Any sequence of temperatures can be cycled up to 10,000 times; ramping rates less than maximum may be specified.
- **Extremely accurate incubations**, with NIST-traceable calibration. Any temperature including below-ambient temperatures may be held indefinitely. This feature allows refrigeration after an unattended run.
- **Parallel printer port** (optional) allows the instrument to print thermal profiles in real time and document programs in hard copy. Additionally, an analog jack can output to a 0- 5 volt chart recorder.
- **Power-failure protection** will resume program after power interruptions of up to twelve hours.
- **4-bay high-throughput** thermal cycling

- **Up to 8 individual sample blocks**, which can be controlled independently or as a group
- **Up to 1536 samples** can be processed simultaneously
- **Internal power supply**-no separate "boxes" to accommodate
- **High-density color display** and on-board mousepad, with point-and-click navigation of software
- **Real-time monitoring** of cycling temperature
- **Superb thermal accuracy** of blocks within  $\pm 0.3^{\circ}\text{C}$  of NIST standard at  $90^{\circ}\text{C}$ , average across block ( $\pm 0.4^{\circ}\text{C}$  for dual block Alphas).
- **Thermal range** of  $-5^{\circ}$  to  $105^{\circ}\text{C}$  but no more than  $30^{\circ}\text{C}$  below ambient temperature

The PTC225 DNA Engine Tetrad harnesses four PTC 200 DNA Engines in a single compact machine. Four alpha units of any type can be loaded into the DNA Engine Tetrad base, one unit into each "quadrant" of the base. The same factory installed and custom protocols can be run on the DNA Engine Tetrad as on the DNA Engine. Programs can be run independently on any one Alpha unit or simultaneously on all of them.

The DNA Engine Tetrad's control panel is nearly identical to that of the DNA engine. Additional features include a power key and an array of lights indicating the selection status of the blocks in the base's quadrants. There is an A and B light for each quadrant since Alpha unit can contain up to two blocks. The arrangement of the status indicator lights matches the arrangement of the quadrants in the base when the DNA Engine Tetrad is viewed from above.

The DNA Engine Tetrad's power supply has been placed in a separate housing that is attached by cables to the base, which keeps the base compact and makes it easier to use in robotics installations. The power supply uses MOSFET transistors to efficiently convert AC input power into the high current, low voltage DC power that the Tetrad requires.

Up to 15 DNA Engine Tetrads and DNA Engines can be networked together, in any combination, but a DNA Engine or a computer must serve as the controller unit for the network. Networked DNA Engine Tetrads operate like networked DNA Engines, with a few minor exceptions. The power bonnet remote controlled heated lid may also be used with networked DNA Engine tetrads if the controller is a computer.

The DNA Engine Tetrad's specifications are identical to those of the DNA engine except for weight and size.



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