

Designed for performance, the Thermo Scientific Air-cooled Peltier UV-Visible accessory delivers precise temperature control in a convenient and compact air-cooled design. An alternative to liquid thermostating, this accessory delivers dependable and accurate temperature control for any analysis or method.

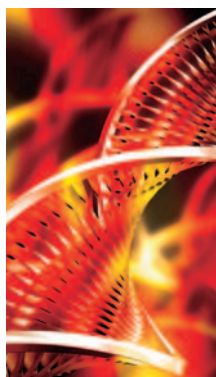
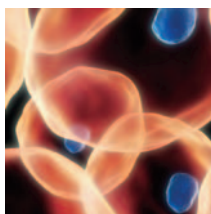
Air-cooled Peltier Accessory

for Helios series, UV10, Evolution 160, and BioMate 6 spectrophotometers



Temperature control and sample stirring are important for many UV-Visible analysis methods. The new Air-cooled Peltier accessory for the Helios™ series, UV10, Evolution™ 160, and BioMate™ 6 spectrophotometers delivers superior performance in an easy-to-use configuration. The Air-cooled Peltier accessory delivers reliable temperature control from 20° to 60 °C.

Quickly specify the temperature for the analysis and control the rate of stirring with the external control module. The control module features a large temperature display and graphical indication of the stirring speed. The module software allows you to change the temperature or stirring speed quickly.



Superior Performance

Unlike recirculating water systems that rely on the transfer of heat to a large volume of liquid, Peltier-based temperature control devices offer exceptional temperature stability and fast temperature transitions. The data in Figure 1 below illustrates the small temperature differential between the set temperature of the accessory and the temperature as measured inside a standard, 1 cm cuvette.

Set Temperature (°C)	Average Measured Temperature (°C)
25	25.02
37	36.3
60	58.6

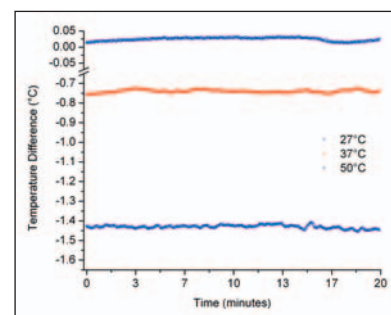


Figure 1: Deviation between the set point temperature (Peltier block temperature) and the temperature measured inside a standard, 1 cm cuvette filled with water.

Fast Ramping with No Overshoot

The Air-Cooled Peltier accessory offers precise temperature control without overshooting the set point temperature. Precision electronics allow thermal equilibrium to be reached rapidly inside the cell without exceeding the set point temperature, which can damage the sample. Figure 2 shows the ramping profile of the accessory as the set point temperature approaches 25 °C. The efficiency of the ramping is also demonstrated in Table 1 where equilibrium data for two common temperature transitions is given.

Temperature Change (°C)	Time to Equilibrium (m:ss)	Ramp Rate (°C/min)
25 – 37	5:52	53.8
37 – 50	7:26	53.5

Table 1: Time to equilibrium with the Air-Cooled Peltier Accessory. Equilibrium is defined as 10 consecutive measurements made at 1-second intervals that deviate by less than 0.005 °C.

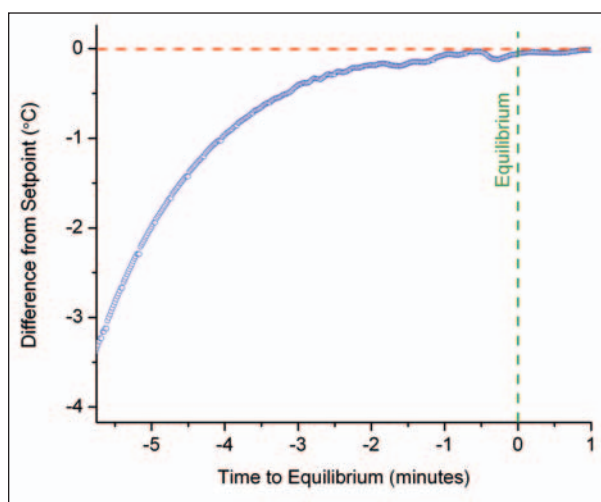


Figure 2: Temperature of the solution in a standard cuvette during ramping to Peltier set point temperature. The dotted green line indicates thermal equilibrium, which defines time zero. The Air-Cooled Peltier accessory does not overshoot the set point temperature.

Lower Cost, More Bench Space, and No Maintenance

The Air-cooled Peltier accessory is less expensive than most recirculating liquid temperature controllers and delivers much better performance with absolutely no maintenance. The Peltier control system provides high accuracy temperature control without the need to watch water levels, mix in anti-freeze or anti-bacterial, or plumb the accessory with hoses and clamps.

Efficient Sample Stirring

Sample stirring is an important parameter to consider in the laboratory. Stirring a liquid sample not only eliminates thermal gradients in the sample, but also aids in mixing reactants. The efficiency of the stirring process is crucial to accurate data. Figure 3 depicts the stirring performance of the Air-Cooled Peltier accessory. Successive additions of a concentrated sample result in an increase of the total absorption. The graph below shows that equilibrium is established in a 3 ml cell in 1.08 seconds. The rate of stirring can be varied from 0 to 1800 rpm.

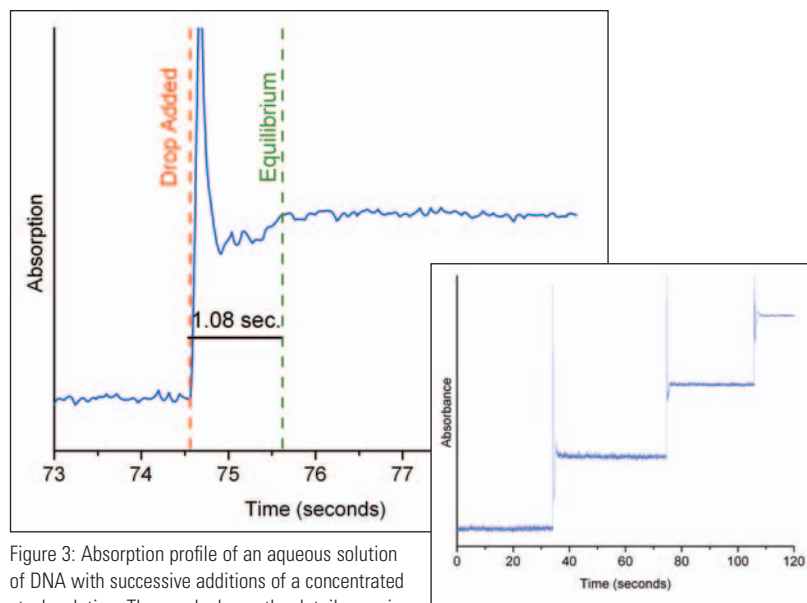


Figure 3: Absorption profile of an aqueous solution of DNA with successive additions of a concentrated stock solution. The graph shows the detail associated with one addition of stock solution. The time between the addition of the concentrated solution and equilibrium is 1.08 seconds.

Ideal for Life Science Assays

Designed for biologically relevant assays that require temperature control at 25°, 37°, 40° and 50 °C, the Air-cooled Peltier accessory is ideal for the life science laboratory. A perfect companion for the BioMate 6, this accessory gives you temperature control for kinetics or routine life science analysis. With a wide 20° to 60 °C temperature range, a variety of assays can be accomplished with this accessory.

The Air-cooled Peltier Accessory is compatible with the following instruments:

- Evolution 160
- UV10
- Helios Zeta and Helios Omega
- BioMate 6

Ordering Information

Description	Part Number
Air-cooled Peltier Accessory for Helios/UV10/Evolution 160/BioMate 6	222-238200