

FOR IMMEDIATE RELEASE

SuperCool X Thermoelectric Cooling Offers Precise Temperature Control for Incubators

Refrigerant-free thermoelectric cooler assemblies and programmable temperature controllers from Laird Thermal Systems provide a precise, environmentally friendly alternative to compressor-based systems for temperature stabilization...

May 8, 2024 - Incubators are used for cell and tissue cultivation in hospital and laboratory settings. Accurate and precise control of temperature is important for cell growth, as excursions above or below the optimum mammalian body temperature of 37°C, by as little as 6°C, negatively impacts cell health and growth. Environmentally friendly SuperCool X Peltier temperature control systems and programmable temperature controllers from Laird Thermal Systems offer an alternative to compressor-based systems in a smaller package for heating and cooling inside the incubator chamber.

Recent government regulations on the use of traditional and natural refrigerants critical to compressor-based systems make Peltier thermoelectrics an appealing alternative for incubator temperature stabilization. The compact SuperCool X Series thermoelectric cooler assemblies do not use refrigerants. Instead, they feature a unique hot side air heat sink design that dissipates heat more efficiently than traditional heat exchanger technologies. Utilizing optimized thermoelectric coolers in combination with a high-performance heat sink and fan shroud assembly, the SuperCool X thermoelectric cooler assembly transfers heat-to-air more rapidly using up to 60% less power. In addition, the Peltier thermoelectric cooler assembly has a solid-state construction that provides years of maintenance-free operation.

The SuperCool X Series is available in three models to provide heat transfer mechanism options on the control side. Heat can be absorbed via liquid, conduction or convection. The Liquid-to-Air unit has a cooling capacity of 215 Watts, while the Direct-to-Air offers 200 Watts and the Air-to-Air provides 176 Watts.

Combining a SuperCool X thermoelectric cooler assembly with a temperature controller offers significant design advantages over traditional technologies. The SR-54 programmable microcontroller provides thermal stability to within $\pm 0.13^\circ\text{C}$ of the set point in both heating and cooling modes. Its monitoring capabilities track potential issues, including problematic fans, thermoelectric coolers, and thermostats for quick fault troubleshooting, maximizing incubator uptime. Variable fan speed reduces operational noise and lowers power consumption.

The PR-59 temperature controller is customizable and user-configurable with easy-to-use software from Laird Thermal Systems. In addition to temperature control, users can set additional parameters for fans, NTC thermistors, PT1000 sensors, alarm and LEDs

“The SuperCool X Series is designed for precise temperature control in compact storage compartments and medical diagnostic chambers where space is a premium,” said Andrew Dereka, Product Director at Laird Thermal Systems. “Using compact Peltier thermoelectric cooler assemblies instead of compressor-based thermal management solutions provides a cleaner, safer and cost-effective temperature management solution.”



Laird Thermal Systems has the design, prototyping, testing and global manufacturing services to help integrate thermoelectric cooling into incubation applications. Our engineers partner closely with customers throughout the entire product development lifecycle to reduce risks and accelerate time-to-market for emerging applications.

For more information on the SuperCool X Series, visit

<https://lairdthermal.com/products/thermoelectric-cooler-assemblies/peltier-supercool-series>

For more information on temperature controllers, visit

<https://www.lairdthermal.com/products/temperature-controllers>

About Laird Thermal Systems

Laird Thermal Systems designs, develops and manufactures thermal management solutions for demanding applications across medical, industrial and telecommunications markets. We manufacture one of the most diverse product portfolios in the industry, ranging from active thermoelectric coolers and assemblies to temperature controllers and liquid cooling systems. With unmatched thermal management expertise, our engineers use advanced thermal modeling and management techniques to solve complex heat and temperature control problems. By offering a broad range of design, prototyping and in-house testing capabilities, we partner closely with our customers across the entire product development lifecycle to reduce risk and accelerate time-to-market. Our global design, manufacturing and support resources help customers shorten their product design cycle, maximize productivity, uptime, performance, and product quality. **Laird Thermal Systems is the optimum choice for standard or custom thermal solutions.**

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