For Immediate Release

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Laird Thermoelectric Cooler Assemblies Offer Compact Cooling For Medical Storage Chambers

Laird's space-saving thermoelectric cooler assemblies optimize chamber cooling performance thru low noise, higher efficiency, reliability and monitoring and alarm capabilities…

December 14, 2017 – Laird Thermal Systems has expanded its thermoelectric cooler assembly product offering to meet the cooling needs of today's medical storage chambers often found in analytical and diagnostic instrumentation equipment. Medical samples are typically stored in a refrigerator, and then moved to a temperature-controlled storage chamber closer to the test equipment while awaiting analysis. Temperature control within the sample storage chamber is important, as temperature fluctuations can influence the interaction between the components within the sample and the adsorbents. The thermoelectric cooling units are designed with size, efficiency, cost, and continuous reliable operation in mind. Additional design factors include speed of cooling response, temperature stability, resilience against temperature cycling, and resistance to damage by moisture intrusion.

Storage chambers used in mass spectrometers, liquid chromotographers, and protein analyzers are generally small units that are stacked on top of one another to save bench space. Stacking the storage chambers presents some challenges because the air cannot flow up through the chambers, only from front to back. This leaves limited flow paths for air circulation.

Thermoelectric cooler assemblies are an advantageous technology because they offer both cooling and heating capabilities to maintain the control temperature of the storage chamber between 4 and 40°C in ambient temperatures of 23 to 30°C. They also offer excellent condensation protection for applications that go below dew point — all in a compact form factor to accommodate the tight geometric space constraints. Thermoelectric cooler assemblies can operate on DC power (12V, 24V, and 48V), with a heat load requirement ranging from 25~100 Watts.

The Tunnel Series thermoelectric cooler assemblies offers the most compact form factor with minimal airflow paths required to operate efficiently compared to traditional impingement flow thermoelectric cooler assemblies. With a maximum cooling capacity up to 106 watts, the Tunnel Series is offered in air-to-air and direct-to-air configurations.

The PowerCool Series thermoelectric cooler assemblies is designed for larger sample storage compartments with a higher heat load requirement. The PowerCool Series has a maximum cooling capacity of 200W. The Tunnel and PowerCool Series thermoelectric cooler assemblies cool via convection or conduction and utilize custom designed thermoelectric coolers to achieve a high coefficient of performance (COP) and minimize power consumption. In addition, the solid-state construction offers low noise operation, long operating life of 40,000 hours MTBF and low maintenance.

Laird thermoelectric cooler assemblies can be driven by the SR-54 programmable controller to deliver a complete thermal management solution to within +/- 1°C. The SR-54 temperature controller provides monitoring and alarm functionality, including identification of a problematic fan, thermoelectric cooler, over-temperature thermostat and temperature sensor failure — all of which are critical to maximizing chamber cooling uptime. The ready-to-use controller requires minimal programming out of the box and can be easily adhered to a thermoelectric cooler assembly or system enclosure. The controller also lowers operational noise, as fans are turned off once the specified temperature has been reached inside the respective sample tray.

“The space constraints for the storage chambers require that the thermal solution be efficient. Cooling the compartment and rejecting air out of the system necessitate effective heat exchanger mechanisms and fans operating in the limited space. Insulating the compartment properly is also important. Finally, cooling the storage chambers must be done with a low cost factor,” said Anders Kottenauer, Senior Vice President of Laird's Thermal Systems Business.

More information on the Tunnel Series can be found by visiting
https://www.lairdthermal.com/products/product-series/tunnel-series

More information on the PowerCool can be found by visiting
https://www.lairdthermal.com/products/product-series/power-cool-series

More information on the SR-54 programmable controller can be found by visiting
https://www.lairdthermal.com/products/product-series/bi-directional-thermostatic-controllers

About Laird Thermal Systems
Laird Thermal Systems develops thermal management solutions for demanding applications across global medical, industrial, transportation 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. 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 their time-to-market. Our global manufacturing and support resources help customers maximize productivity, uptime, performance and product quality. Laird Thermal Systems is the optimum choice for standard or custom thermal solutions. Learn more by visiting www.lairdthermal.com