For Immediate Release

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Laird Redefines Temperature Control in CO_2 Incubators with Precise, Reliable Thermoelectric Assembly Cooling

Highly efficient thermoelectric cooler assemblies and bi-polar temperature controllers replace bulky and costly compressor-based systems in compact CO_2 incubators…

October 16, 2016 – Laird Thermal Systems has developed a smaller, more efficient option for precise thermal management in compact CO_2 incubators using thermoelectric cooler assemblies. When employed with the advanced SR-54 temperature controller, thermoelectric cooler assemblies use less energy to maintain the desired temperature range, lowering the cost of ownership when compared to standard compressor-based systems.

A cell culture incubator is designed to maintain a constant temperature and high humidity for the growth of tissue culture cells under a CO_2 atmosphere. Typical temperature settings range from 4C to 80C, with relative humidity between 95% and 98% and CO_2 concentrations ranging from 0.3 to 19.9%. Historically, temperature in CO_2 incubators were controlled either by a water bath that circulated through the walls of the cabinet (water jacketed), compressor-based systems or by electric coils that gave off radiant heat. Modern units now use solid-state thermoelectric-based cooling for temperature control.

Laird's thermoelectric cooler assemblies , including the AA-230 Series and AA-250 Series, offer a high coefficient of performance (COP) to minimize power consumption when cooling or heating CO_2 incubators. Based on a standard platform, thermoelectric cooler assemblies can be customized to meet application requirements. These thermoelectric cooler assemblies offer 230 Watts and 250 Watts of cooling power at Delta T=0°C respectively. Using impingement flow to transfer heat, the AA-230 and AA-250 Series offer dependable, compact performance by cooling objects via convection. The solid state construction requires less maintenance than standard compressor-based cooling systems.

Temperature stability is vital in CO_2 incubators, and Laird's thermoelectric cooler assemblies, driven by the SR-54 programmable microcontroller, deliver temperature stability to within ± 0.15°C of the temperature set point in cooling and heating mode. With built-in monitoring and closed loop feedback control intelligence, 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 CO_2 incubator uptime. The ready-to-use controller requires minimal programming out of the box and is easily attached 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 incubator column.

Active humidity control ensures short recovery times after the door has been opened and minimizes vaporization in the interior.

“Laird’s compact thermoelectric cooler assemblies have a size-to-cooling capacity ratio that offers customers a significant design advantage compared to other technologies. When combined with the SR-54 temperature controller, our cooling systems reach the temperature set-point quickly, without temperature overshoots or significant ramp down, shortening the incubation cycle time,” said Anders Kottenauer, Senior Vice President of Laird's Engineered Thermal Systems Business. “Standard off-the-shelf controllers are too complex, or do not have basic alarm and control features required to operate a thermoelectric cooler assembly effectively. Installing this ready-to-use SR-54 bi-polar temperature controller can save engineers hundreds of product development hours, as it has been optimized to run thermoelectric cooler assemblies.”

More information on the Outdoor Cooler Series can be found by visiting https://www.lairdthermal.com/products/product-series/outdoor-cooler-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