For Immediate Release

For more information, please contact:
Karl von Gunten
Director of Marketing
+1 919-931-1434
Karl.vonGunten@lairdthermal.com

Laird's Enhanced PowerCycling Thermoelectric Coolers Now Provide 1-Million Temperature Cycles

Laird's PowerCycling PC Series thermoelectric coolers have been tested to more than 1-million temperature cycles, offering a significantly longer operating life and lower overall cost of ownership compared to standard thermoelectric coolers…

March 30, 2017 – Laird Thermal Systems has improved its advanced PowerCycling PC Series thermoelectric cooler for applications that require high reliability and high volume thermal cycling between multiple temperature set points. The enhanced PowerCycling PC Series is now proven to perform more than 1-million temperature cycles, extending the mean time between failure (MTBF) in molecular diagnostics, clinical diagnostics, analytical instrumentation, and more.

Thermal cycling exposes thermoelectric coolers to mechanical stresses as the module contracts and expands from repeated cooling and heating cycles. Standard thermoelectric coolers are traditionally designed for refrigeration applications only. The high-temperature diffusion of impurities and mechanical stresses over time can significantly reduce the operational life of a standard thermoelectric cooler.

The PowerCycling thermoelectric coolers are specially constructed to reduce the amount of stress induced on the thermoelectric elements during operation. This enables the high number of temperature cycles. Combined with an operating temperature up to 120°C, the PowerCycling PC Series exceeds the requirements for high volume power cycling applications. In addition, the PowerCycling PC Series provides a lower total cost of ownership, while increasing throughput of diagnostic equipment.

"In modern diagnostic and analytical instruments, thermoelectric coolers are typically used to achieve the rapid temperature changes. Laird's thermoelectric coolers offer significant advantages when compared to other types of thermal cycling devices including more precise temperature control, compactness, faster temperature ramp rates and efficiency," said Anders Kottenauer, Senior Vice President of Laird's Engineered Thermal Systems. "We are ecstatic to announce another milestone in the PowerCycling Series technology, achieving 1-million thermal cycles with minimal degradation."

The new PowerCycling PC Series thermoelectric cooler is constructed with multiple layers between the ceramic substrates, copper buss bars and semiconductor couples. To reduce

thermally induced stress, a flexible and thermally conductive “soft layer” is inserted between the cold side ceramic substrate and copper buss bars. The integration of the polymer into the thermoelectric coolers absorbs the mechanically induced stresses caused by rapid temperature cycling. As a result, the stress induced on the semiconductor couples and solder joints are significantly reduced, extending the overall operational life of the thermoelectric cooler.

Learn more about the PowerCycling PC Series thermoelectric coolers here.

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

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