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Laird Thermal Systems™ Premium Thermoelectric Coolers Provide Temperature Stability for Outdoor Security Cameras

The new HiTemp ETX Series of thermoelectric coolers keep imaging sensors cool in high temperature environments…

October 27, 2020 – Imaging sensors and other sensitive camera components such as FPGA's require active cooling to keep operating temperatures below their maximum limit, ensuring high-quality image resolution. Due to solar radiation and increased heat flux density from surrounding electronics, outdoor security cameras can reach temperatures up to 90°C. This may cause performance degradation, loss of image resolution or even system failure. Laird Thermal Systems™ new HiTemp ETX Series can survive in temperatures up to 150°C, making them ideal for spot cooling in outdoor security camera applications.

Designers of outdoor security cameras not only face challenges such as harsh environments and system temperature fluctuations, they are asked to pack a growing number of features into smaller form factors, resulting in higher internal heat loads in the camera. A lack of airflow due to completely sealed compartments makes it even more difficult to dissipate heat away from temperature sensitive electronics such as imaging sensors.

Thermoelectric coolers are solid-state devices that use the Peltier effect to actively pump heat away from electronic devices requiring cooling. Because standard thermoelectric coolers were not designed for high temperature environments, Laird Thermal Systems developed a new generation of thermoelectric coolers to improve reliability and cooling performance. The new HiTemp ETX Series has a robust construction and is assembled with advanced thermoelectric materials that boosts cooling capacity by up to 10%. It also features a higher insulating barrier compared to standard thermoelectric coolers, achieving a temperature differential (ΔT) of up to 83°C.

"The HiTemp ETX Series is our latest thermoelectric product offering that is specifically designed for emerging spot cooling applications in high temperature environments," said Andrew Dereka, Product Director at Laird Thermal Systems. "This product series uses the latest thermoelectric materials and robust construction to assure long life operation in many critical applications such as imaging in outdoor environments."

The HiTemp ETX Series is available in more than 50 models to cover the wide range of emerging applications and support unique footprint requirements, cooling capacity needs, voltage inputs and finishing options.

Find the HiTemp ETX Series here or read more in our application note Thermoelectric Cooling for Security Cameras

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.

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