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Thermobility Wireless Power Generator WPG-1

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WPG-1 wireless power generator converts heat into electricity for wireless systems...

NEXTREME INTRODUCES THERMOBILITY WIRELESS POWER

DURHAM, N.C. (February 17, 2011) — Nextreme Thermal Solutions, the leader in microscale thermal and power generation solutions, today introduces Thermobility, the next generation of power generation technology that uses heat as a source of electricity for low-power wireless applications. Thermobility uses innovative solid-state thin-film thermoelectric technology to convert heat into electricity for a variety of self-contained, autonomous systems.

Thermobility™ uses differences in temperature to enable “wireless power” anywhere there is an adequate heat source and eliminates the need to use traditional wired power sources or replaceable batteries. When paired with wireless transmitters, the Thermobility solution can provide electric power for decades of maintenance-free operation, thus expanding the possibilities for new wireless sensor applications in industrial control, transportation, automotive and building management.

“Advances in distributed sensors and sensor networks have led to an increased interest in the use of renewable power sources to replace or augment existing power systems,” said Dave Koester, vice president of engineering at Nextreme. “The use of heat is an attractive source of energy for many low-power sensor applications.”

As the first in a series of wireless power generators, the Thermobility WPG-1 provides a constant voltage output of 3.3, 4.1 or 5.0 Vdc to electrical loads of 15kΩ or higher. The WPG-1 is about the size of a golf ball and consists of a pin-fin heat sink, a custom circuit board, Nextreme's eTEG™ HV56 thermoelectric power generator module and a metal attachment plate that is applied to the desired heat source. The device incorporates a Linear Technologies LTC® 3108 Ultralow Voltage Step-Up Converter and Power Manager chip to provide up to 1mW of electrical power, and operates at temperature differentials as low as 15-20K relative to ambient. Larger temperature differences can generate significantly more power.

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The WPG-1 is designed for ease of use with any flat-surface heat source. For simple bench-top testing, the WPG-1 can be placed directly on a laboratory grade hotplate with temperature control. For evaluation with other surfaces, the attachment plate can be mated with either thermal grease for normal horizontal application or double-stick thermal pad for vertical mounting.

The integrated circuit board includes DIP switches for setting the output voltage. Electrical connections can be made using the on-board 2-pin or 6-pin connectors. The 6-pin connector is a Texas Instruments proprietary connector that mates to the eZ430 wireless target board, making the WPG-1 an ideal wireless power source for the eZ430 development platform.

In the future, Nextreme plans to extend the Thermobility platform with additional features, including integrated energy storage for applications with variable heat sources. The design is flexible and can be customized for a variety of wireless power applications.

The Thermobility WPG-1 generator is available for evaluation with a 6- to 8-week delivery lead time for \$495.

More information on the Thermobility platform and wireless power generation can be found at www.nextreme.com/thermobility. Contact Nextreme at 3908 Patriot Drive, Suite 140, Durham, NC 27703-8031; call (919)-597-7300; e-mail info@nextreme.com; or go to www.nextreme.com.

About Nextreme Thermal Solutions™, Inc.

Nextreme Thermal Solutions offers electronics cooling and energy harvesting solutions for telecommunications, semiconductor, consumer, medical, aerospace and government markets. The company uses microscale thermoelectric technology and high-volume semiconductor manufacturing processes to address the growing needs for advanced thermal management and clean-energy solutions world-wide. Nextreme also offers sophisticated modeling, design, engineering, and contract manufacturing services to deliver fully-optimized solutions from standard and customized products that solve the most challenging thermal and power generation issues. Nextreme's headquarters and manufacturing facility are based near Research Triangle Park, North Carolina. Visit www.nextreme.com.

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