

InventionHome® Inventor Creates Active Temperature Control Unit for Sensitive Materials During Storage and Transport

PITTSBURGH, PA, UNITED STATES, August 20, 2026 /EINPresswire.com/ -- Ian K. of Windsor, NY is the creator of the Kelvin Cube, a portable, temperature-controlled storage and transport container designed to maintain temperature-sensitive materials, equipment, and products within specified operating or storage ranges. Rather than relying solely on passive insulation, the system combines insulated construction with active heating and thermoelectric cooling to regulate the internal environment of an enclosed storage compartment.

The system is designed for applications where exposure to excessive heat or cold can compromise the performance, service life, safety, or effectiveness of stored items. Potential applications include power tool batteries, construction materials such as caulks, sealants, and adhesives, precision surveying instruments, HVAC diagnostic equipment, pharmaceuticals, biologics, vaccines, and other clinical supplies. Kelvin Cube can help reduce temperature-related degradation during transportation, field work, storage, and charging operations. Different variations of



product design could apply for the best functionality.

The system incorporates a sensor and control unit that allows users to establish separate heating and cooling temperature settings. It operates on a 12 V DC electrical architecture and can receive power from multiple sources, including a standard wall outlet through an appropriate power supply, an internal rechargeable battery, an



external battery, a vehicle power port, or a solar-power system. When external power is unavailable or disconnected, the internal battery can continue supplying the thermal-management components as needed.

Temperature management is relevant to lithium-ion batteries and other temperature-sensitive equipment. Cold conditions can temporarily reduce battery capacity, while charging an excessively cold lithium-ion battery can contribute to lithium plating and potentially cause irreversible internal damage. Kelvin Cube can be used to gradually bring cold batteries toward an appropriate temperature before charging or use. Conversely, maintaining batteries below excessive temperatures can help limit temperature-related degradation and preserve battery service life.

The system also addresses temperature-related problems associated with construction materials and specialized field equipment. Cold temperatures can cause caulks, sealants, silicones, and adhesives to freeze, separate, crack, or experience curing and adhesion problems after exposure. Excessive heat can likewise alter material properties and contribute to curing or performance failures. Maintaining a controlled environment can help preserve these materials until they are ready for application. Similarly, temperature management can help protect precision instruments such as thermal imagers, laser scanners, combustion analyzers, and other diagnostic equipment when deployed in demanding environments.

Key features and benefits include:

- Active heating and cooling: Regulates internal temperature rather than relying exclusively on passive insulation.
- Integrated sensor and controls: Provides separate high- and low-temperature thermostat controls for managing internal conditions.
- Battery protection and charging support: Provides a controlled environment for storing and charging temperature-sensitive batteries and can gradually warm cold batteries before charging.
- Thermal insulation: Combines active temperature control with an insulated enclosure to help

stabilize internal conditions.

- Condensation management: Includes a drip tray to collect and manage condensation generated during cooling.

Overall, the Kelvin Cube is intended to provide a portable thermal-management solution for situations in which temperature-sensitive products and equipment must be transported, stored, or prepared for use outside of conventional climate-controlled facilities.

Ian filed his Utility Patent with the United States Patent and Trademark Office (USPTO) and is working closely with [InventionHome](#), a leading invention licensing firm, to sell or license the patent rights to his Kelvin Cube product. Ideal licensing candidates would be U.S. based product manufacturers or distributors looking to further develop and distribute this product innovation.

Companies interested in the Kelvin Cube can contact InventionHome at member@inventionhome.com. Inventors currently looking for assistance in patenting, marketing, or licensing their invention can request information from InventionHome at info@inventionhome.com or by calling 1-866-844-6512.

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