



Combined Capacitor/Inductor Reduces Circuit Bulk

[View U.S. Patent No. 9,424,984 in PDF format.](#)

WARF: P140216US01

Inventors: Daniel Ludois

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method for integrating capacitors and inductors into a single energy storage component.

Overview

Inductors and capacitors are fundamental building blocks in many electrical devices and provide energy storage. Inductors store energy in the form of a magnetic field in the vicinity of a coiled conductor. Capacitors provide for energy storage in the form of an electric field generated between two plates of different voltage separated by an insulator.

The physical sizes of these components make it difficult to fabricate smaller circuits.

The Invention

A UW–Madison researcher has designed a combination capacitor/inductor configured to share energy storage volumes, thereby significantly reducing the bulk of devices. In essence, the capacitor incorporates into its layers a material of high magnetic permeability (e.g., iron or an iron alloy laminated with a nonferrous metal) so that it may fit into the inductor coil in place of the normal core.

Applications

- Manufacturing integrated capacitors and inductors
- Power electronics for aerospace, automotive applications and utility/microgrids

Key Benefits

- Compact package
- Component size can be reduced up to 50 percent
- Simple to manufacture
- Ideal for applications where space is at a premium

Stage of Development

A preliminary prototype and testing have been carried out.

The development of this technology was supported by WARF Accelerator. WARF Accelerator selects WARF's most commercially promising technologies and provides expert assistance and funding to enable achievement of commercially significant milestones.

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK

For More Information About the Inventors

- [Daniel Ludois](#)

Related Technologies

- [WARF reference number P120094US01 describes a new capacitive method for more efficient power generation.](#)
- [WARF reference number P110321US01 describes a flexible mechanical structure for improved wireless power transmission.](#)

Tech Fields

- [Engineering : Power electronics & control systems](#)

For current licensing status, please contact Emily Bauer at emily@warf.org or 608-960-9842

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK



WARF
Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850