

Powering the Digital Frontier

How Standex Edge enables the Next Generation of
Computing with High-Performance Power Magnetics





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The Demands of Modern Electronics

The computing industry, encompassing everything from advanced AI systems and industrial robotics to consumer gadgets and wearables, faces an unprecedented engineering challenge: devices are shrinking, yet their power demands are soaring. Innovators are constantly seeking to miniaturize products for mobility and integrate increasingly complex features, such as artificial intelligence (AI), into smaller envelopes.

At the core of these advancements is the unyielding need for high-quality power magnetics that ensure efficient power conversion, signal processing, and long-term reliability within a compact, high-performance package. Semiconductor devices are becoming exponentially smaller, slimmer, and lighter, while simultaneously becoming more complex and powerful. This "big shrinking" puts immense pressure on power magnetics to support smart sensing, camera modules, AI decisioning, and always-on data transmission.

Standex Power Magnetics: Engineered for High-Density Systems

Standex Edge provides power magnetics engineered specifically for high-density, high-power, and high-performance electronics. The company's core focus is on the crucial components required for reliable power delivery in modern computing systems:

- **Power Transformers:** These adjust voltage levels to suit the operational needs of computing electronics, ranging from consumer gadgets to advanced control systems and AI-powered robotics, ensuring safe and efficient performance.
- **Power Inductors:** These store energy to manage power supply fluctuations, ensuring stable voltage. Superior inductors protect semiconductor components from power irregularities, which prolongs device longevity and enhances system-wide performance.
- **DC/DC Conversion:** Standex Edge's power magnetics enhance efficiency in DC/DC conversion by minimizing power losses and supporting high-density, compact designs. These solutions provide stable operation across a wide variety of input/output voltages and loads.
- **Resonant and Filter Inductors:** These manage energy flow and signal integrity by optimizing energy transfer, minimizing losses, and excelling at eliminating unwanted frequencies and noise to ensure clean and stable signals.

Finally, the company needed to move quickly and that was going to be difficult when many vendors were not even sure they could accomplish the job. The entire project was launched during the pandemic with an unstable supply chain.

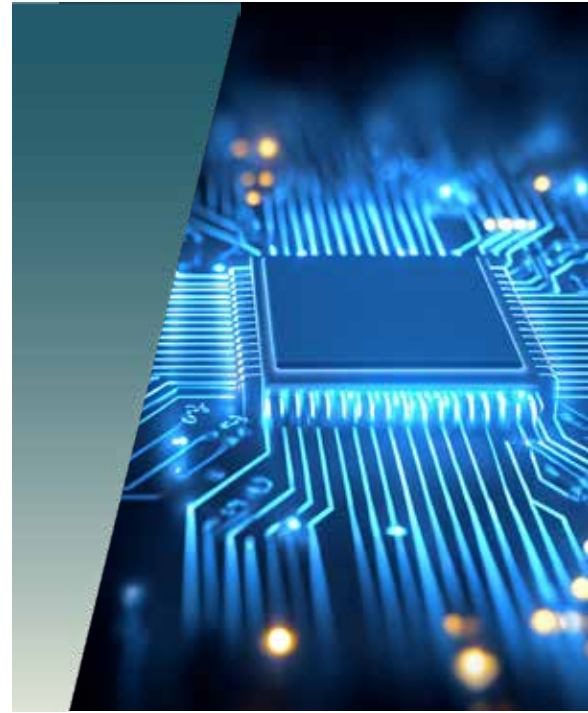
Technical Advantages for Computing Miniaturization

Standex Edge employs innovative design principles to meet the stringent requirements of modern computing architecture:

1. Miniaturization and Planar Magnetics: Planar magnetics are utilized when traditional wire-wound components compromise space or performance. Planar transformers feature slim, low height profiles essential for tight board space restrictions. By placing windings flat against a printed circuit board (PCB), planar designs enable product innovators to pack more components and technologies into smaller housings. This unique construction achieves 99%+ power density compared to traditional wire-wound transformers and facilitates lighter weight for portable semiconductor electronics.

2. Advanced Thermal Management: As devices become smaller and more powerful, they generate significantly more heat. Standex Edge magnetics incorporate materials with superior thermal properties and utilize design innovations to enhance heat dissipation. The streamlined design of planar transformers facilitates better airflow and heat dissipation, ensuring devices run smoothly at optimal temperatures.

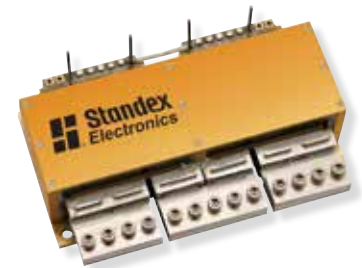
3. Superior Signal Integrity and EMI Suppression: Densely packed technologies elevate the problem of electromagnetic interference (EMI). Standex Edge's high-quality power magnetics are mindful of their surroundings, filtering out unwanted noise and shielding sensitive circuit parts from interference. By using optimized materials and winding techniques, electronics can operate reliably in increasingly crowded electromagnetic environments. Furthermore, Standex Edge's solutions support high-speed, high-frequency signals, minimizing losses and boosting efficiency. Expertise in advanced insulation and shielding techniques is crucial for achieving electromagnetic compatibility (EMC).



Customization and Collaborative Partnership

Standex's competitive edge lies in its commitment to customization. The company tackles challenging and unconventional projects, avoiding mere off-the-shelf solutions. Capabilities supporting rapid development and specialized integration include:

- Planar Transformer and Inductor Design.
- The use of simulation tools like Ansys Maxwell 2D/3D High-Frequency Magnetic Simulation.
- Advanced potting techniques such as Potting Under Pressure and Vacuum Encapsulation.
- The willingness to experiment with different winding configurations, even for heavy wire designs in extremely tight space constraints.
- Exhaustive trials of different potting materials, scrutinizing their viscosities and thermal properties to reduce the product's footprint.



Standex Edge believes that the best solutions are powered by forward-thinking strategies, guaranteeing that the power magnetics backing a client's vision are as innovative as the final product.



A Standex **Electronics** Business

The pathway to usable electrical power begins with generation, continues through high-voltage transmission to urban and industrial centers, and extends to the distribution of lower-voltage electricity to businesses and homes, where it's ultimately consumed in countless applications.

At the **Edge** of this energy cycle, Standex Electronics engineers open up a virtually infinite range of possibilities to power the world's most demanding electrical devices. From concept to production, we deliver custom magnetic solutions that convert, condition, and control energy with precision and reliability.

Our expertise spans transformers, inductors, current sensors, and other advanced magnetic components used across industries, from automotive and industrial to medical and aerospace. Combining decades of engineering innovation with global manufacturing capabilities, Standex Electronics stands at the **Edge** of innovation, where energy meets possibility.

Welcome to **Standex Edge**.

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EDGE-COM-WP260101