



## Collaboration in Action: Custom Transformer Development for Fire Signaling and Security Systems

**Client:** A leading manufacturer of power and data transmission systems used in Fire Signaling, Surveillance, Security and Access Control applications..

**Industry:** Industrial Networking and Power Systems

### Project Overview:

The client approached Allstar Magnetics with the challenge of designing a custom transformer to support a clean sheet design for their power systems. These systems are critical in applications like Fire Signaling, Surveillance, Security and Access Control. The project involved co-developing a unique transformer with a semiconductor company to integrate into a high-efficiency power supply design.

### Allstar's Approach:

Allstar Magnetics' approach to this project was defined by a commitment to collaboration, customization, and scalability. By partnering with the semiconductor company and working directly with the client, Allstar ensured that the transformer design met both the specific technical requirements and unique application needs. This comprehensive approach enabled delivering a high-efficiency power management solution tailored to the client's industrial networking and power system applications.

### Key aspects of the project included:

#### 1. Collaboration with Semiconductor Partner:

The power supply topology for the project required a specific microchip, designed by Fairchild Semiconductor (now part of ON Semiconductor). Allstar worked closely with the semiconductor company to design a custom transformer configuration tailored to this chip's requirements. The collaboration resulted in a reference design, showcasing the power management solution that would later be adopted by other companies.

**2. Customizing for Client's Needs:** Once the transformer design was published as part of the semiconductor company's reference design, the client reached out to Allstar to customize the transformer for their specific application. Allstar adapted the reference design to meet the client's unique power system requirements, ensuring optimal performance in their network and power systems.

**3. Iterative Development Process:** The project involved multiple iterations of the transformer design, with Allstar providing prototypes that were tested and refined based on the client's feedback. Within 9 to 12 months, the team moved from initial



prototypes to a finalized design, ensuring the transformer met all functional and performance criteria.

**4. Scalable Production:** Once the design was finalized, Allstar scaled production to meet the client's growing demand. The company leveraged its offshore manufacturing capabilities to produce hundreds of thousands of units annually, supporting the client's large-scale deployment of their network systems.

### Results:

- **Seamless Integration with Power Systems:** The custom transformer provided the high efficiency required for the client's power systems, ensuring reliable operation for critical applications like fire signaling, surveillance, or security.
- **Enhanced Collaboration:** By working closely with both the semiconductor partner and the client, Allstar demonstrated its ability to collaborate across industries and design innovative solutions that integrate seamlessly into complex systems.
- **Market Growth and Scalability:** The project not only fulfilled the immediate needs of the client but also positioned Allstar Magnetics as a trusted partner for future growth. The client's products gained traction, leading to large-scale production runs and ongoing demand for the custom transformers.

### Conclusion:

Allstar Magnetics' ability to collaborate with both semiconductor companies and end customers enabled the successful development of a high-efficiency power system solution. Through customization and scalable production, Allstar delivered a transformer that powered critical network systems, supporting the client's power and data transmission systems. This case exemplifies Allstar's role as a reliable partner in the design, prototyping, and scaling of custom magnetic components for industrial applications.



**Comprehensive magnetic solutions,  
all in one place.**

