

Siemens and Reinhausen develop direct current power solutions for AI data centers

- **The two companies are developing a solid-state transformer (SST) for 800 VDC (Volt Direct Current) AI-ready data centers**
- **The modular SST connects to grid voltage of up to 36kV and delivers 800 VDC output**
- **A robust system architecture increases availability while reducing footprint and costs**

Siemens and Reinhausen (MR) are advancing the future of power solutions for the AI era through a strategic partnership. Together, the companies are developing and will industrialize a solid-state transformer for up to 36kV grid voltage. The technology is being developed for deployment in AI data centers.

AI is driving a fundamental transformation of data center infrastructure. The industry is moving from traditional power architectures towards more efficient and scalable solutions capable of supporting the next generation of AI workloads. Solid-state transformers are one of the key building blocks of that transition. AI-ready data centers and high-density power infrastructures are increasing the requirements for medium-voltage connection, power density, efficiency, and availability.

For an 800 VDC distribution system, a medium-voltage solid-state transformer provides a compact, efficient, and galvanically isolated alternative to conventional multistage AC/DC power-conversion architectures. In this architecture, medium-voltage AC is converted to 800 VDC and distributed to the data centers, reducing intermediate conversion stages and enabling more efficient power delivery to high-density AI infrastructure.

MR is the world's leading manufacturer of voltage regulation technology for power transformers and has decades of experience in power quality and grid stability. The company has also developed extensive know-how in the field of medium voltage power electronics and related components, which are at the heart of modern SST architectures.

Siemens combines deep expertise in power electronics, electrical power solutions, grid protection and automation systems as well as digitalization. In the deployment of SSTs, Siemens applies its capabilities in grid integration, power conversion, protection and control to deliver the next-generation energy transmission systems for AI data centers.

"Combining the technological strength of Siemens and MR will shape the future of power solutions for AI data centers. Solid-state transformers are critical for these large and power intensive structures. They enable higher efficiency, direct grid-to-rack DC conversion, and a reduced footprint. By responding to load changes in milliseconds, they seamlessly handle the extreme power swings of AI training workloads and avoid downtime while cutting costs. This collaboration will further strengthen our leading position in the electrification of data centers," said Stephan May, CEO of Electrification and Automation at Siemens.

"The AI era demands a new paradigm in power delivery. Together with Siemens, we are proud to actively shape this transformation. Our technology enables AI data centers to operate with the efficiency and reliability they require," said Wilfried Breuer, Managing Director and Spokesperson for the Executive Management of Reinhausen GmbH.

Key features of the offering include modularity, scalability, and high availability. The design supports operation up to 36kV and can be modularly applied to lower voltages, making the architecture scalable for different grid-connection conditions. It delivers a stable 800 VDC output for applications that require a stable DC-link voltage and direct coupling to downstream DC distribution or load systems. The SST design is built around clearly defined interfaces, and protection technology to support reliable operation in demanding infrastructure environments.

This press release is available here <https://sie.ag/359GwA>.

For more information on Siemens Smart Infrastructure, please see [Siemens Smart Infrastructure](#).

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