

**Use case**  
Eaton 1210HC high current brick fuses



# Eaton provides reliable overcurrent protection for AI servers and data centers

Artificial intelligence (AI) is transforming how data is processed and analyzed and accelerating applications across multiple industries. As a result, the demand for high-performance computing (HPC) infrastructure, such as AI servers and data centers, is growing exponentially. AI servers and data centers depend on complex, high-power systems to handle the enormous computational needs of AI / ML (machine learning) workloads. These systems contain high-performance GPUs, CPUs, and accelerators, which require reliable power distribution to ensure maximum uptime and efficiency.

When designing power distribution and conversion systems for AI servers and data centers, a critical challenge is adequate overcurrent protection in space-constrained systems.

Overcurrent events such as short circuits and overloads can damage sensitive components within servers, leading to costly downtime for facility operators, data loss, and even safety hazards to personnel. In an overcurrent event, it is critical that a circuit protection device, such as a fuse, quickly interrupts the flow of current to avoid damage to downstream systems and components. Effective overcurrent protection also extends the lifespan of the system and its components, reducing maintenance costs and improving overall reliability.

Typical overcurrent protection solutions, such as ferrule-type fuses, are not suited for the needs of servers and data centers. Because these solutions are typically bulky, they are more difficult to integrate into space-constrained designs. Moreover, servers

and data centers are designed to maximize processing power and efficiency, which results in having a large number of components in a limited space. Larger fuses can hinder effective thermal management by obstructing airflow and contributing to heat buildup within the system. To meet these challenges, Eaton has developed the Bussmann series 1210HC high-power brick fuses for overcurrent protection in high-power density applications, such as AI servers and data centers. These fuses offer an ultrahigh current carrying capability ranging from 50 A to 200 A in a 12.4 mm x 10 mm x 6.8 mm package, allowing the product to serve as a single-fuse solution and avoiding the need for physically larger fuses or the paralleling of multiple smaller rated fuses. The compact size of the 1210HC fuses enables

easy integration into space-constrained designs and high density PCBs, making them ideal for use in applications where space is at a premium. Despite their small size, these fuses offer high breaking capacity (up to 10 kA) for excellent protection in even the most demanding high power applications.

Eaton's 1210HC fuses are UL- and TUV-certified, meeting global safety standards. They are also RoHS-compliant and lead-free, supporting the development of greener, more sustainable computing and power systems. For technical assistance and help with product selection, Eaton's applications engineering team is available to work with customers to meet the circuit protection needs of their next-generation AI servers and data centers.

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Printed in USA  
Publication No. ELX1472 BU-ELX22361  
December 2024

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