Use case
Eaton Bussmann® series 5 mm diameter fuses

Eaton Bussmann® series 5 mm fuses provide overcurrent coordination in data centers

Thanks to global connectivity, there has been exponential growth in the volume of data created, stored, and mined daily across the planet. The internet allows people to work virtually, exchange information in real-time, and communicate using electronic devices. Moreover, businesses and large corporations store and mine large volumes of data (big data) to generate actionable business intelligence based on customers' online behavior. According to Cisco's Annual Internet Report, nearly 70% of the global population will be connected by 2023. Similarly, the number of IP connected devices will increase three-fold within the same period.

The need for power efficiency in data centers

Data centers are critical parts of global communication infrastructures. They provide dedicated, centralized hubs or stations with computing and networking hardware used to collect, store, process, and distribute data. The number of data centers in the world is increasing rapidly, with sustained growth in the modular data centers industry projected up to 2026.

Design engineers and operators face several technical challenges during the development and management of data centers, including designing reliable electrical distribution systems. Data centers require complex distribution systems to support 24/7 operations while eliminating the risk of outages. Moreover, due to advancements in computing technology, data centers units are now reducing in size but mandate the same or higher power requirements. To ensure maximum uptime of computing and networking hardware, power distribution units (PDUs)/power supplies require circuit protection consolidated with selective coordination.

Why overcurrent coordination is critical

The concept of overcurrent coordination, is the localization of an overcurrent condition to restrict power outages to affected circuits or equipment only. Using this technique, overload or shorts in a data center unit's electrical system is localized to the nearest upstream protective device, isolating the affected section and keeping the rest of the system functioning without interruption.

Overcurrent coordination depends on several factors including the choice of protective devices and their settings or ratings. Without coordination, a fault current could trip an entire server rack due to the "cascading" nature of failures. It is critical in today's data centers for preventing power blackouts resulting in highly undesirable and costly downtime.

Reliable protection with Eaton products

Eaton Bussmann® series S520 fast-acting ceramic tube fuses provide overcurrent protection up to 20 A and 420 Vac, meeting the high-power, high voltage requirements of data centers. By choosing the appropriate fuse opening characteristics (maintaining different interruption settings between line-side and load-side), Eaton S520 fuses are ideal for designing coordinated systems. Here, the closest fuse opens under overload or short circuit conditions to isolate a faulty section of a unit, leaving the rest of the system fully functional. Eaton's S520 fuses are available in small-footprint 5 x 20 mm cartridge or axial leaded packages, providing excellent space savings.
As an additional option, the HTC-15M & HTC-78M PCB fuse holders are now available with higher voltage levels in order

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