

Use case

Eaton Bussmann EAC10 and EDC10 cartridge fuses



Eaton provides circuit protection in onboard chargers and PDUs

With growing power requirements in a host of applications, circuit protection is now more critical than ever before to protect sensitive components from damage, prevent malfunction, and ensure safety and reliability to meet current and emerging industry standards. Overcurrent or overload issues are a recurring issue in onboard chargers (OBCs), as well as power distribution units for energy, industrial, and automotive applications. Engineers and OEMs seek cost-effective and compact circuit protection to meet the design trends of higher power density applications.

Fast charging capabilities have become the standard in the automotive industry (e.g., OBCs in a 3-phase electric vehicle's (EV) charging infrastructure).

OBCs deliver high-density power to charge energy storage devices, such as batteries and supercapacitor modules. Consequently, there is a higher likelihood of damaging fault currents that could result in overheating or short circuits. To mitigate these risks, engineers and designers integrate overload protection devices, such as fuses to protect sensitive electronics and avoid safety hazards. Similarly, power distribution units (PDUs) require surge protection elements for input voltage protection during rectification. Due to higher temperatures typical in automotive applications, fuses must perform reliably under a wide range of operating temperatures. They must also be sufficiently lightweight and compact for seamless integration into the most

space-constrained and component-dense PCBs.

Engineers responsible for circuit protection and/or safety will benefit from using fusible solutions offering high voltage ratings, compact footprints, and termination styles that ease the integration into various applications. Cartridge fuses, also known as ferrule fuses, help protect power lines, cables, and equipment from overcurrent and short circuits. They contain a thin wire designed to melt and open the circuit at a temperature threshold or above the maximum rated current of the fuse. Cartridge fuses offer cost-effective overload protection in a host of electronic applications, including uninterruptible power supplies (UPS), 3-phase EVSE / charging infrastructure, motor protection,

Vac input protection in rectifiers, Vac output in inverters, and on-board chargers.

Eaton Bussmann series EAC10 and EDC10 are high power density cartridge-type fuses with nominal current ratings from 40 A to 63 A and high voltage ratings of up to 500 V. Both families provide cost-effective, but highly reliable, overcurrent protection in high-voltage and high-current applications. Eaton's EAC10 and EDC10 offer multiple termination options to suit a broad range of application needs, including PCB through-hole and bolt-down screw assemblies. Compared to previous Bussmann solutions, the EAC10 and EDC10 have the same diameter, but a shorter length and also raise the nominal current rating by 200% while maintaining a 500 V rating.

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