

Automatic power-off of low-voltage distribution box



Overview

Automatic transfer switches (ATS) fundamentals | EatonWhat is an Automatic Transfer Switch?

Low-voltage automatic transfer switch assemblies provide a Powe.

Key Takeaways

Low-voltage distribution boxes can automatically cut off power using undervoltage/overvoltage protectors, intelligent modules, or transfer switches to ensure safety and prevent equipment damage.Undervoltage and Overvoltage Protection

Low-voltage distribution boxes often include overvoltage and undervoltage protectors (OUPA), which monitor the voltage of the distribution line. When the voltage exceeds or drops below preset thresholds, the protector automatically disconnects the power supply to prevent damage to connected equipment or the distribution system. Once the voltage returns to normal, the system can reconnect automatically after a specified delay. These protectors typically consist of a detection unit and an automatic switching device, such as a contactor, and can be configured in single-phase or multi-phase arrangements depending on the application .

Intelligent Power Distribution Modules



In modern applications, especially in vehicles or automated systems, intelligent power distribution modules (iPDM/iPDS) are used. These modules can interrupt specific loads or entire sub-networks based on signals from control units, such as an airbag system or battery management system. They ensure that critical functions like hazard lights remain active while non-essential circuits are disconnected during low-voltage conditions or accidents. Some modules integrate relays and fuses to provide rapid or controlled power cut-off, enhancing safety and preventing short circuits or fire hazards .

Automatic Transfer Switches (ATS)

For facilities requiring continuous power, automatic transfer switches can manage power from multiple sources. While primarily designed to switch between primary and backup power, ATS devices also monitor voltage and frequency. If the primary source fails or falls outside safe limits, the ATS automatically transfers the load to a stable alternate source, effectively preventing downtime and protecting equipment. Once normal conditions are restored, the ATS can retransfer the load back to the primary source automatically .

Summary

Automatic power-off in low-voltage distribution boxes is achieved through a combination of voltage monitoring, intelligent switching, and protective devices. Depending on the application, this can involve simple undervoltage/overvoltage protectors, advanced intelligent modules for selective load management, or automatic transfer switches for continuous power systems. These mechanisms enhance safety, prevent equipment damage, and maintain operational reliability in industrial, infrastructure, and vehicle environments .

Article Content

12V Battery Low Voltage Disconnect Module, Automatic Cut Off

[Low Voltage Switch & Service]: This is a under-voltage switch module used to turn off the power of load in the event of the voltage

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