

Dedicated surge protection module for distribution boxes

Article Overview

Dedicated surge protection modules (SPDs) are designed to protect distribution boards and downstream electrical equipment from transient voltage surges, with Type 1 and Type 2 SPDs commonly used for primary and secondary protection.

Overview of Surge Protection Modules

Dedicated surge protection modules are installed in distribution boards to safeguard electrical systems from transient overvoltages caused by lightning strikes, utility switching, or internal switching events. These devices act like a pressure relief valve, diverting excess voltage to ground and preventing damage to sensitive equipment. Modern SPD kits are designed to fit directly within distribution boards, minimizing connection lengths and improving performance.

Types of SPDs

- o Type 1 SPDs: Installed at the main power entry point of a building, providing primary protection against high-energy surges from external sources such as lightning. They are capable of handling very high surge currents (e.g., 40 kA or more for an 8/20 us waveform) and are connected to the building's grounding system.
- o Type 2 SPDs: Installed within distribution boards to provide secondary protection for downstream circuits and equipment. They handle medium-intensity surges (typically 10-40 kA) and are often placed next to circuit breakers or integrated into the board for easy maintenance. Some SPD kits are designed to coordinate Type 1 and Type 2 devices to ensure optimal protection across the electrical system.

Key Features and Benefits

- o Integrated Design: Modern SPD kits are built to fit inside distribution boards, eliminating the need for separate enclosures and reducing installation complexity.
- o Optimized Performance: Short conductor paths and solid copper earth links enhance surge diversion efficiency, reducing the risk of equipment damage.
- o Thermally Protected MOVs: Some SPDs, like Mersen's Surge-Trap(R), use thermally protected metal oxide varistors (TPMOV) to prevent catastrophic failure and ensure long-term reliability.
- o Space Efficiency: Dedicated SPD modules save space in the distribution board by removing the need for additional upstream protection devices.
- o Wide Application: Suitable for commercial, industrial, and high-end equipment such as medical devices, communication systems, and critical infrastructure.

Installation Considerations

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- o SPDs should be selected from the same manufacturer to ensure compatibility and coordinated protection .
- o Proper grounding is essential for effective surge diversion.
- o Placement within the distribution board should minimize conductor length between the SPD and the incoming supply for maximum performance .
- o Regular inspection and maintenance are recommended to ensure continued protection, especially in areas prone to frequent surges.

Conclusion

Dedicated surge protection modules are essential for protecting distribution boards and connected equipment from transient voltage surges. By using Type 1 and Type 2 SPDs in a coordinated manner, and installing them directly within distribution boards, facilities can achieve highly effective, space-efficient, and reliable surge protection for both commercial and industrial applications .

As a manufacturer of control panels, we frequently get asked - do we need surge protection in our control panel? The

Residential, Commercial and Industrial Surge Protection PSP manufactures a diverse selection of surge protection devices (SPDs)

We have developed a brand new range of dedicated SPD kits, specifically for our Commercial Distribution boards. Our kits have

Do surge protectors expire? Yes -- most last 3-5 years for home use, longer for industrial. Learn 5 warning signs,

Using a dedicated circuit breaker with surge protection can improve overall system reliability. In most surge protector applications,

For example, in new construction, when coaxial cables are routed close to the electrical panel, the CHSP modules can be joined

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For seamless integration into existing electrical systems, DIN-rail Surge Protective Devices

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These surges can cause permanent damage to your valuable electronics. Hence choosing the right surge

Discover the different types of surge protectors (SPD) used in distribution board panels. Learn how to select the right surge protector

Electrical surge protection safeguards sensitive equipment by diverting voltage spikes caused by power

Protect critical assets with Siemens surge protection. Designed for industrial systems, these devices reduce the impact of electrical

Learn how to install Type 2 surge protector with wiring diagrams, safety tips, and IEC

SURGE PROTECTIVE DEVICES The main role of the surge protective device is to limit an overvoltage to an "acceptable"

The safety and continuous operation of Electrical Power Distribution Board and Systems

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