

Installation of lightning protection modules in distribution boxes



Overview

MODULE DESCRIPTOR: This module covers the knowledge, skills and Proper attitude in installing electrical protection system.

Key Takeaways

Lightning protection modules (SPDs) should be installed as close as possible to the power supply entry point in the distribution box, with proper grounding and according to SPD type and standards.Placement and SPD Types

- Type 1 SPDs: Installed at the main distribution board (MDB) or upstream of the electricity meter if the building has external lightning protection or overhead line feed. They handle direct lightning strikes and high surge currents, diverting energy safely to earth ().

- Type 2 SPDs: Installed in the main distribution board or sub-distribution boards to protect against switching surges and indirect lightning strikes. They limit residual surges to safe levels for downstream equipment ().

- Type 3 SPDs: Installed directly upstream of sensitive devices (e.g., sockets, electronic equipment) for fine protection against residual surges after Type 1 and 2 SPDs ().

Installation Guidelines

- Location: SPDs should be installed where cables enter the distribution box, as close as possible to the feed point of the electrical system to minimize voltage drop and residual surge ().

- **Wiring:** Use the shortest possible earth connection with the largest cross-section to reduce inductive voltage drop. For Type 1 arresters, connect both earth terminals: one to the building's equipotential bonding and the other to the PE conductor ().
- **Mounting:** DIN rail mounting is common for Type 2 and 3 SPDs. Ensure secure mechanical attachment and proper electrical connections ().
- **Safety:** Always disconnect power at the main breaker and verify de-energization before installation. Use lockout/tagout (LOTO) procedures and wear PPE such as insulated gloves, protective glasses, and safety shoes ().

Standards and Protection Levels

- Follow IEC 61643 and national standards for SPD selection and installation ().
- Ensure voltage protection levels (Up) and nominal discharge currents (In) are appropriate for the system.
- Type 1 SPDs limit voltage to below 6 kV, Type 2 to below 4 kV, and Type 3 to below 2.5 kV, depending on insulation coordination ().

Summary

Proper installation of lightning protection modules in distribution boxes involves selecting the correct SPD type, placing it close to the power entry point, ensuring short and robust grounding, and following safety and standards guidelines. This staged protection approach—Type 1 at the main board, Type 2 at sub-distribution boards, and Type 3 near sensitive devices—effectively protects electrical systems from lightning and transient surges, reducing the risk of equipment damage and fire ().

Article Content

Installation location of lightning protection module in distribution box

Our lightning and surge voltage protection systems are perfectly matched to one another and to the requirements in the different

TRSX-20N Lightning Protection Box | Surge protection device SPD

The overcurrent and overheat release devices in this module will automatically disconnect the lightning protection module circuit,

The difference between lightning protection module and lightning ...

Therefore, whether it is necessary to install lightning protection modular products or choose lightning protection boxes

Core-Install electrical protective devices for distribution, power ...

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EIM12-MODULE-1b 2 W2.pdf

1 Content Standard Install electrical protective devices for distribution, power, lighting, auxiliary, lightning protection

The difference between lightning protection module and lightning ...

The functions of lightning protection modules and lightning protection boxes are the same, the difference lies in the installation. At

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