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Intelligent surge protector for computer room PDU



Overview

The Aten''s PE0209S, a 9-outlet, 1U rack mount power distribution unit (PDU), provides IEC and NEMA output.

Key Takeaways

Intelligent PDUs with integrated surge protection provide both robust defense against voltage spikes and real-time monitoring of power and environmental conditions in server rooms and data centers.Key Features



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Surge Protection: Intelligent PDUs incorporate surge protection devices (SPDs), metal oxide varistors (MOVs), and sometimes transient voltage suppressors (TVS) to safeguard sensitive IT equipment from voltage spikes caused by lightning, grid faults, or server load fluctuations. High-quality Type 3 surge protection modules, such as Dehn SPDs, are often installed close to critical devices to minimize risk and ensure rapid response to surges . Some modules are hot-swappable, allowing easy maintenance without downtime . Intelligent Monitoring: These PDUs provide real-time monitoring of input/output voltage, current, power factor, energy usage, and surge effectiveness. Advanced models can also track environmental factors like temperature, humidity, flooding, and access control through integrated sensors . This allows administrators to detect anomalies, optimize energy efficiency, and prevent equipment damage. Remote Management: Intelligent PDUs support remote control via protocols such as SNMP, TCP/IP, or web interfaces. Features include sequential power on/off, threshold alarms, and authority management, enabling centralized management of multiple racks or data center zones . Outlet and Form Factor Options: They support multiple outlet types (IEC C13/C19, NEMA) and can be mounted horizontally or vertically to fit server racks efficiently . Compact designs allow installation in high-density environments while maintaining accurate current measurement through current shunt monitors (CSMs) and positive temperature coefficient (PTC) fuses . Layered Protection Strategy: For optimal safety, surge protection is implemented in three layers: primary (service entrance), secondary (distribution panels), and tertiary (point-of-use at the PDU). This ensures that surges are absorbed progressively, protecting both the PDU and connected equipment .

Benefits

• Enhanced Equipment Safety: Protects servers, networking devices, and storage systems from overvoltage and transient surges.

• Operational Continuity: Reduces downtime and prevents costly hardware damage.

• Energy Efficiency: Monitors power usage and environmental conditions to optimize cooling and energy consumption.

• Ease of Maintenance: Hot-swappable surge modules and remote monitoring simplify upkeep and reduce operational costs.

• Compliance: Meets international standards for surge protection and data center safety, such as EN 50600-2-2 and NEN 1010:2020 .

Conclusion

For a computer room or data center, an intelligent PDU with integrated Type 3 surge protection is the ideal solution. It combines robust surge defense, real-time power and environmental monitoring, and remote management capabilities, ensuring both the safety of critical IT equipment and efficient operation of the facility. Selecting a PDU with hot-swappable SPDs and comprehensive monitoring features maximizes uptime and simplifies maintenance while adhering to international safety standards.

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