

Power distribution box installed in data center



Summary of Content

A power distribution box, often implemented as a Power Distribution Unit (PDU), safely delivers stable electricity from the facility to servers, storage, and networking equipment within a data center rack.

Role and Function

The power distribution box in a data center serves as a central hub for distributing electrical power to multiple devices within a rack. It receives electricity from the facility's main power feeds, which have typically passed through transformers, UPS systems, and room-level distribution panels, and then distributes it to individual servers, switches, and storage units via multiple outlets . This ensures that each piece of IT equipment receives reliable, stable power while supporting redundancy and load balancing.

Components and Connectivity

Modern data centers often use rack-level PDUs equipped with industrial connectors such as CEE plugs or HEAVYCON connectors. These connectors provide high-current capacity, secure locking mechanisms, and color-coded identification for voltage and phase, which simplifies installation and maintenance . The PDU itself may be basic, providing straightforward power distribution, or intelligent, offering real-time monitoring, remote switching, and load management capabilities .

Integration with Data Center Infrastructure



Article Content

PDU in Data Centers: Types, Features & How to Choose

Data center PDUs distribute power from UPS or utility-backed systems to rack equipment. This guide explains PDU

Power distribution FAQ | Eaton

Whether you need integrated power distribution within a few racks or power throughout your data center, these frequently asked

Exploring Data Center PDUs: Floor PDUs vs. Rack & Cabinet PDUs

Modern data centers need both floor PDUs and PDUs for racks and cabinets to run efficiently. Learn all about data

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A Power Distribution Unit is a device used to manage the power distribution to multiple

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Because they allow for power distribution to be adapted to different circumstances, modular and network-capable power distribution

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Learn about the key components and best practices in electrical data center design with gbc

DC power in the racks

Telephone exchanges or central offices - the data centers of their day - worked on DC, and our lead image is of a

Medium voltage power distribution in data centers

The increasing power demand of data centers, particularly in the colocation sector, has brought new challenges and

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As data centers strive to become highly available as well as efficient, an important aspect of the entire data center infrastructure that

White Paper Power Distribution Units (PDUs) in Data Centers

In a typical Data Center power chain, PDUs follow UPS systems and generators, providing the final point of distribution before

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Designing data center electrical distribution systems

Designing efficient and reliable data center electrical systems requires looking through the eyes of the electrical

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A Free Guide to Data Center Power

Learn about power usage in data centers and how to manage, monitor, and optimize it for cost savings, efficiency, and reliability.

Data Center PDU Manual: Installation and Configuration Steps

Conclusion Power Distribution Units (PDUs) are crucial for managing electrical power within data centers, ensuring

Power Distribution in Data Centers

Overview Data center managers are faced with increasingly challenging demands: supplying additional computing power using less

Optimizing Data Center Power Distribution Through Innovative ...

Introduction This white paper explores power distribution in the changing data center landscape, highlighting the emerging trends

Data Center Power Design Overview | phoenixNAP Blog

Effective data center power design is the foundation for optimizing performance, minimizing disruptions, and mitigating

Comparing Data Center Power Distribution Architectures

This paper compares five power distribution approaches including panelboard distribution, field-wired PDU distribution, factory

Green Data Center Design and Management: Electrical Distribution

Tracing the flow of power along its path (starting from the utility to the IT load). There are around 8 essential facilities

Sub-Distribution for Data Center

Get help from the new Server Room Sub-Distribution Configurator Busway or Remote Power Panel, IEC or UL, with a constant focus

Complete Guide for Power Distribution in Servers, Racks, and Data

A Power Distribution Unit (PDU) is a specialized electrical device designed to distribute power from a single input source to multiple

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See the key elements of an effective data center electrical distribution system. Plus, see how to speed up your time to

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Executive Summary Power Distribution Units (PDUs) are essential components in modern Data Centers, serving as the critical link

Power Distribution Power distribution systems

Executive summary For data centers, hospitals and other mission-critical applications, the reliability and resilience of power

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A high-performance and reliable power distribution is essential for data centers. However, with the increasing cabling density, easy

Data Center Rack Power Distribution Explained: CEE

Learn how power flows inside modern data center racks—from facility power to rack PDUs.

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