

What is an intelligent PDU



AI Overview

Intelligent PDUs (Power Distribution Units) are critical for monitoring, controlling, and optimizing power distribution in modern data centers, enhancing reliability, energy efficiency, and operational management.

Core Functions Intelligent PDUs go beyond basic power distribution by providing real-time monitoring and control of electrical power to servers and IT equipment. They measure key parameters such as voltage, current, power factor, and energy consumption, allowing administrators to track usage at the rack, circuit, or individual outlet level. This granular monitoring helps prevent overloads, identify inefficiencies, and optimize power allocation.

Remote Management and Control Unlike traditional PDUs, intelligent PDUs support remote management through web interfaces, SNMP, or DCIM (Data Center Infrastructure Management) integration. Administrators can reboot specific devices, switch outlets on or off, and manage power distribution without being physically present, which is especially valuable for unmanned or distributed data centers.

Environmental Monitoring Many intelligent PDUs include sensors for temperature, humidity, and airflow, providing environmental data that ensures optimal operating conditions for IT equipment. This helps prevent overheating, reduces downtime, and supports efficient cooling strategies.

Energy Efficiency and Cost Management Intelligent PDUs enable energy optimization by identifying underused or idle equipment, balancing loads, and improving Power Usage Effectiveness (PUE). They provide billing-grade metering, allowing accurate energy tracking for cost allocation and regulatory compliance. By reducing wasted power and optimizing cooling, they can lower operational expenditures and defer costly infrastructure expansions.

Scalability and Future-Proofing Designed to handle high-density loads, intelligent PDUs support evolving data center requirements, including AI workloads and hyperscale deployments. Their integration with DCIM tools allows centralized control, reporting...

Article Content

What Is an Intelligent PDU? | Data Center Glossary | Sunbird DCIM

An intelligent power distribution unit (PDU) is a networked power supply for IT equipment in a server cabinet that provides real-time remote power and environmental monitoring.

4 Types of PDU in Data Centers: Overview and Features

FAQ What is the difference between a metered PDU and a monitored PDU? Metered PDUs provide rack-level power measurements, while monitored PDUs typically offer outlet-level

High-Voltage Power Distribution Unit (HV PDU) Würth

Discover our HV PDU solutions – the powerful high-voltage power distribution units from 60 VDC to 1000 VDC for mobile machines and commercial vehicles. Our

Intelligent PDU | nVent DATA-SOLUTIONS

Changing your location may affect product availability. Certain products may not be available in all international regions. Current Selected Country: United States |English . Africa . Asia . Europe . Latin

Data Center Power Management, DCIM Software, and

PDU Setup and Management Power Capacity Planning Power Monitoring Security at the Rack Smart Rack The True Power of an Intelligent PDU Three Phase

What is the difference between PDU and PSU?

Metered PDU: Digital display shows real-time total load. Used for load balancing and capacity planning. Switched PDU: Remote per-outlet on/off control plus metering. Ideal for remote data center

Intelligent PDUs: Types, Benefits, and Metering Levels

Compare intelligent PDU types—basic, metered, monitored, and switched—and learn how outlet-level metering and remote access improve

ATEN PE8324G3-AT | NRGence eco 24-Outlet Switched PDU, 32A

Description The ATEN PE8324G3 is an intelligent Zero-U rack PDU from the NRGence eco series, delivering outlet-level remote switching and real-time power metering across 24 AC outlets (21 x

Military Power Distribution Units / Mil-Spec PDU

Reliable military power distribution units (PDUs) offer rugged, tactical solutions for efficient power management in demanding environments.

Everything You Need to Know About Intelligent PDUs

An intelligent PDU is a specialised device designed to monitor and measure electrical power, as well as regulate its distribution among connected components. An intelligent PDU is

High Power Intelligent PDU for AI Data Centers | Case Study

Full product development case study — intelligent 45 kVA rack PDU with per-outlet metering, embedded Linux management, UL certification, and volume production for US data centers.

Data Center PDU Market Size, Share & Trends

Restraint: High initial cost associated with intelligent and advanced PDU systems The high initial cost associated with intelligent and advanced PDU systems

What is a Smart PDU, the Difference Between a Basic and Smart PDU

Smart PDU (Power Distribution Unit) is a power management device used in data centers and computer rooms. It not only supplies power to IT equipment in data centers, distributes

Intelligent PDUs: Types, Benefits, and Metering Levels

What is an Intelligent PDU? While basic PDUs provide simple power distribution and protection against overloads, intelligent PDUs have an

Why Choose an Intelligent PDU

Why Choose an Intelligent PDU Power distribution is just the tip of the iceberg when it comes to a rack PDU; they can offer much more with capabilities like multi-level power metering, environmental

What is an Intelligent PDU?

What is an Intelligent PDU? There are two types of Power Distribution Units (PDUs), the basic type and the intelligent type. While both can provide reliable power distribution to critical IT equipment within a

Intelligent PDUs□Types and Benefits

An intelligent PDU does not change the electrical path itself. Instead, it adds a layer of measurement, communication, and in some cases control, allowing operators to understand how

What is an Intelligent PDU?

An intelligent PDU, also known as smart PDU, goes beyond distributing power to IT equipment within the data center. It is capable of monitoring, managing, and controlling power consumption to multiple

ATEN PE8324G2-AT | NRGence eco PDU 24-Outlet Switched

The ATEN PE8324G2 is an intelligent 0U rack PDU delivering outlet-level metering and switching across 24 AC outlets, purpose-built for data centre power optimisation. Accepting an IEC 60309 32A input at

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Intelligent PDU Monitoring with DCIM Software Data Center Infrastructure Management (DCIM) software is often used to enhance many of the features and capabilities available with intelligent PDUs in an

What is an intelligent PDU?

Basic PDUs retail for less and may initially appear to be a better buy in today's budget-restrained data center, however, Intelligent PDUs deliver much greater value and cost savings in the

What is an Intelligent PDU?

When choosing an Intelligent PDU, it is important to consider the number of outlets, power capacity, monitoring and control capabilities, and environmental monitoring capabilities. By carefully

What is an intelligent PDU?

What is an intelligent PDU? Rick Gonedes April 11, 2018 An Intelligent Power Distribution Unit (iPDU) is a networked power distribution unit

Smart PDU Architecture Guide (Intelligent Rack Power Distribution)

What Is a Smart PDU A smart PDU is an intelligent electrical distribution device that delivers power to rack-mounted equipment while providing monitoring and control capabilities.

Raritan PX3 Rack PDU

Intelligent Rack PDU (PX3) Raritan's power intelligence capabilities at the device level provide important insights on how to improve energy efficiency in data

PDU Types in Data Centers: Basic, Metered, Switched & Intelligent

Explore different PDU types used in data centers, including basic, metered, monitored, switched, and intelligent PDUs. Learn features, benefits, and top suppliers.

Smart Rack Power Management for Enterprise Servers

Every intelligent PDU is a networked device that must be secured via SSH, SNMPv3, or TLS to prevent unauthorized power-cycling. Additionally, the physical depth of some high-amperage switched PDUs

Contact Us

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