

EATON

Powerware

Powerware® Power Distribution Unit (PDU)

Product Focus



Features

- Provides integrated isolation, monitoring, distribution and a wide array of options in a scalable architecture
- Equipped with comprehensive monitoring and connectivity options
- Unparalleled ease of use through front-access only design, top and bottom cable access and spacious wireways in a space saving package

The Powerware PDU provides reliable data center power distribution for both raised and non-raised floor applications. To ensure the high performance required for today's data centers, this Eaton®-designed and manufactured PDU provides the following in an integrated, factory-tested package:

- State-of-the-art metering
- Isolation
- Voltage transformation
- Electrical distribution
- Equipment protection
- Computer-grade grounding

Additionally, when compared to hard-wiring methods, the Powerware PDU greatly shortens installation time and allows for easy relocation of equipment during consolidation, upgrade, or relocation of the data center. The Powerware PDU offers a broad range of options that present customized power distribution solutions for each customer's data center.

Its state-of-the-art metering system provides monitoring, alarming, and remote communications provisions to enable proactive power distribution management in the data center. Eaton's world-class service organization supports the Powerware PDU throughout the entire life cycle of your data center, increasing reliability and providing you with peace of mind.

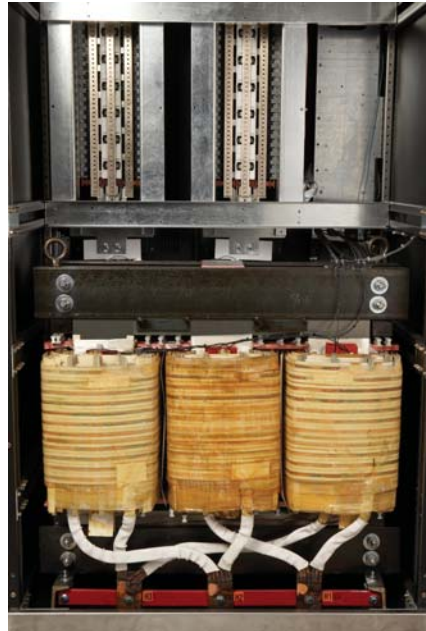
Customized Solution and Adaptability

At Eaton we don't just preach customization, we live it every day. We have a great combination of experienced and responsive engineers, a skilled work force, and strategic focus to serve our customers' every need. This combination coupled with a broad product offering, which includes an extensive list of standard options, results in a highly sophisticated power distribution system that is custom-made to customer specifications and requirements.

The Powerware PDU is an exceptionally versatile solution. Its scalable design and architecture—which is accomplished through a modular construction—make expansion very simple. These multiple expansion options include:

- Front-mounted sidecar: can be daisy-chained on either side of the PDU
- Side-facing sidecar: allows for distribution or sub-feed panels
- Sub-feed panel: presents easy installation of additional breakers in the field

The user is able to quickly configure a suitable solution for any application with a wide array of standard options such as dual input main breakers, floor stands, and TVSS.



K13-rated transformer, coupled with a 200%-rated neutral standard with upgrades available.

Pictured is an optional K20, energy efficient 300 kVA transformer.



Optional CTs enable branch circuit metering.

Power Quality and Performance

The Powerware PDU is ideally suited to support today's data center computer equipment. A standard K-rated transformer, coupled with a 200%-rated neutral, supports the PDU in efficiently handling harmonic currents. Utilizing dual-transformer shielding and computer-grade grounding ensures that electrical noise such as EMI and RFI do not impact computer equipment operation. This allows the PDU to deliver high-quality power performance.

Transformer Details

- K13 standard
- K4 & K20 optional
- Harmonic mitigation available
- Standard copper construction
- Standard dual shielding
- Optional aluminum construction available
- High efficiency transformer available

Monitoring & Connectivity

Powerware PDUs are equipped with the Powerware Energy Management System. The Energy Management System provides state-of-the-art monitoring and alarming provisions that allow the user to monitor power consumption and quality, manage and plan power needs, and react quickly to any potential problems down to the branch circuit level. Comprehensive connectivity options enable secure, remote power management, real-time system status information and network connectivity with the optional Power Xpert® Gateway interface card. The latest technology is employed by the monitoring system, which includes an 8" x 40" LCD for clarity, a soft-key driven menu for ease of use, and audio/visual indicators that provide alarming and status updates.



A 24 month history log provides a powerful aid in capacity planning and diagnosis.

Power consumption trends for up to 24 months can be viewed through a history log – a powerful aid in capacity planning and diagnosis as events are time- and date stamped as they occur. Custom alarm settings may be programmed at the factory, by the user, or by our service organization.

In addition, Eaton's optional branch circuit monitor within the Powerware Energy Management System continuously measures the current on branch circuits and warns of impending trouble, so you can take proactive action. The branch circuit monitoring system assesses circuit activity 7x24 and provides time-stamped metering, alarm and statistical information for each branch circuit. You receive significant information that is needed to effectively manage your entire power distribution system. Armed with these insights, data center and facilities managers can more effectively manage energy consumption to prevent overload conditions, optimize power distribution, and when applicable, accurately bill internal customers for power usage.

Quality Design & Convenience

While designing the PDU, Eaton engineers gave careful consideration to style, user-friendliness, ease of installation, and serviceability. Some key features include:

- Front access only for operation and general service requirements
- Standard top and bottom cable entry/exit on most configurations
- Spacious wireways to run load cables
- Swivel casters and leveling feet
- Same industrial design as other Powerware branded UPS products

Reliability

Increased reliability for the Powerware PDU is provided through system design consideration for power isolation, grounding, and distribution requirements. It is built according to the latest UL60950 standard for information technology equipment and approved



Quality design allows for front, top and bottom entry/exit and spacious wireways.

by UL/CSA. The PDU utilizes Cutler-Hammer® Series C circuit breakers, which employ the latest circuit breaker technology and feature exceptional industry interrupting ratings.

Every PDU goes through extensive factory testing to ensure that each PDU meets Eaton's strict quality standards. All key PDU components are Eaton manufactured, thereby increasing consistency. Maintaining a high level of support throughout the product life cycle ensures that system reliability is never compromised.

Superior Warranty & Service

For your peace of mind, the Powerware PDU is backed by our best-in-class service and support. Our service organization can provide start-up, warranty, and post-warranty support for all the Eaton power products in a data center. Some of the key features include:

- Start-up and commissioning support
- Preventive maintenance packages
- Standard 7x24 coverage with eight-hour response
- Optional two and four-hour response time
- Remote monitoring services

TECHNICAL SPECIFICATIONS'

Electrical Characteristics

kVA ratings: 30 to 300 kVA

Input ratings:

Voltage: 208V, 480V or 600V: Three-phase, three-wire plus ground
(Transformerless: three-phase, four-wire plus ground)
Frequency: 60 Hz

Output ratings:

Voltage: 208V/120V, 480V or 600V: Three-phase, four-wire plus ground
Frequency: 60 Hz

Distribution

Cutler-Hammer 42 pole panelboards with 225A main breaker

Cutler-Hammer Series C molded case subfeed breakers up to 225A

Up to eight subfeed breakers

Custom subfeed ratings available

Factory installed branch circuit breakers

Options

Dual main input breakers

High kAIC input breakers

TVSS (80 kA-200 kA)

Lightning arrester

Transient suppression plate

Floor stands (12", 18", 24" & 36")

Junction box

Manual restart

Isolated ground

Energy Management System

Branch circuit monitoring

Remote power panels

Distribution cables (WHIPS)

Communication X-Slots® (two)

Physical Characteristics

30 to 200 kVA (K1-K20)

36"W x 32"D x 76"H

225 kVA (K1-K13)

36"W x 32"D x 76"H

225 kVA (K20)

41"W x 35"D x 76"H

300 kVA (K1-K20)

41"W x 35"D x 76"H

Powerware Energy Management System

Metered values:

- Input voltage: L-L
- Output voltage: L-L & L-N
- Phase output current
- Neutral current
- Ground current
- kVA, KW, Hz
- Total Harmonic Distortion (THD)
- Power factor/phase
- Percent load/phase
- Load Profiling
- Min & max V, I, Hz, KW recorded over a one hour period
- Captures highest reading on monthly basis, with trend information over last 24 months

Alarms

Transformer over-temp. & shutdown

Over- and under-voltage (input & output)

High current (Three-phases, N, G)

Phase rotation (input & output)

Phase loss

Building alarms (Two-programmable)

Voltage THD

Current THD

Over/under frequency

Output overload (3-levels)

Modem call

Control

EPO (optional)

Optional custom shutdowns on alarms:

- Phase rotation
- Phase loss
- Ground fault
- Site wiring fault
- Building alarms

Connectivity

Modbus

Modem

Optional Power Xpert® Gateway card for network interface

1. Due to continuing product improvement programs, specifications are subject to change without notice.

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