Eaton Power Distribution Rack

Flexible, high-density power distribution for rack environments

Features

- Flexible power distribution with up to 168 factory-installed branch breakers in a highly compact footprint
- Designed for high-density racks, with 400A panels and high power inputs
- Aesthetically pleasing design, with an elegant rack enclosure in textured black finish
- Free-standing unit with top and bottom cable entry for fast, flexible installation
- Front and/or rear access, column power panels, large LCD for ease of servicing
- Extensive monitoring options, including the Eaton® Energy Management System
- Optional branch circuit monitoring to manage and monitor power down to individual circuits
- Detailed event and trend information to support capacity planning and avoid unexpected breaker tripping
- Factory-configured and tested to ensure highest reliability

Product snapshot

Up to 168 circuits in a single enclosure

Four 400A (225A) circuit panels (two front and two rear)

EIA standard enclosure

Eaton Energy Management System (EMS)

Main lug or main breaker configuration

Are you looking for a space-saving way to distribute power throughout your data center? Are dual- and triple-corded loads stressing your available supply of pole positions? Do you want to minimize reliance on licensed electricians as you make moves, adds and changes? Would you like to resolve these issues without installing clunky power distribution equipment in your sleek, modern rack line-up?

If the answer to these questions is yes, Eaton has the solution for you with the new **Eaton Power Distribution Rack (PDR)**. The PDR was designed for the realities of modern data centers—floor space is costly, change is inevitable, and uptime is critical.

The PDR was also designed for a more intangible reality: aesthetics. The uniform, elegant look of your data center conveys an impression of order and professionalism. New equipment acquisitions should enhance that appearance, not clutter or detract from it.

Big power in a small footprint with a sleek look

The PDR offers up to 168 circuits in an elegant, textured black enclosure that harmonizes with the rest of your data center line-up.

For flexible power distribution, place the PDR in the middle of a row or at the end of the row. Either way, you will minimize cable runs and use floor space wisely. Traditional power panels were a compromise in this regard. Not matching the depth of the rest of the enclosures, they left valuable floor space idle.

Now you can accommodate all those new servers with their multiple power cords… all those rack power distribution units that feed growing loads… simply by using a high-density PDR that stands on minimal floor space and enhances the elegance, practicality and reliability of your data center.

Powering Business Worldwide

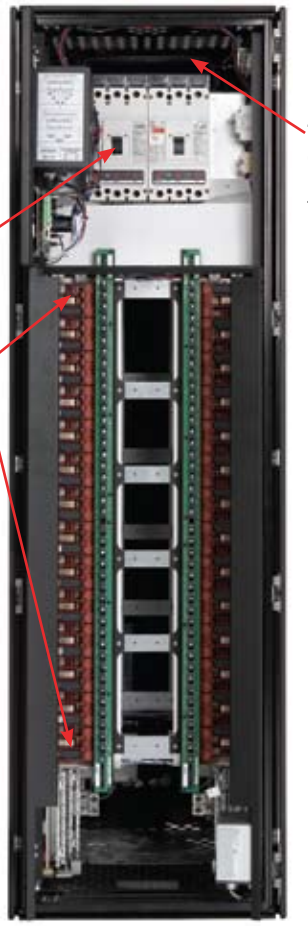
Designed for the adaptable data center

Meet ever-increasing power demands. Some other rack power panels on the market are designed with more circuits than the main breaker can accommodate: 42 pole positions on a panel rated for 225A. In this configuration, some of the circuits are useless—or if used to capacity, could easily trip the main breaker and jeopardize your critical load.

The PDR uses optional higher-capacity 400A panels, so you can make full use of all circuits. The unit can be configured with one to four of these power panels. Branch circuits are arranged in a column for superior wiring design. Spacious wireways offer more room to work for fast and easy installation or changes. A large air space beneath the power panels permits improved air circulation and makes it easy for technicians to manage cabling.

Straightforward installation. The standalone PDR is fully configured and tested at the factory, so installation is simple. With your choice of top or bottom cable entry—as well as front and/or rear power panels—it is easy to retrofit into any existing distribution system.

Flexible design. Most other rack power panels have to be configured for either top or bottom cable entry at the factory—and some don't offer top cable entry at all. The PDR can be configured for either option, making it appropriate for raised-floor or non-raised-floor applications.



Monitoring for premium availability

Continuous insight into power conditions. PDRs are equipped with the EMS. With this state-of-the-art monitoring and alarm system, you can:

- Monitor power consumption and ensure power quality.
- Manage and plan power needs in dynamic environments.
- React quickly to potential problems down to the branch circuit level.

Optional branch circuit monitoring within the EMS continuously measures the current on branch circuits and warns of impending trouble, so you can take proactive steps. The system assesses circuit activity 7x24 and provides time-stamped metering, alarm and statistical information for each branch circuit.

Armed with these insights, data center and facilities managers can more effectively manage energy consumption to prevent overload conditions, optimize power distribution and, where applicable, accurately bill internal customers for power usage.

Monitoring and management from anywhere. With the optional Power Xpert® Gateway 1000 interface card, the PDR can securely transmit real-time status to remote monitoring stations, administrator PCs or wireless devices anywhere within the reach of a network connection. Remote personnel can configure, monitor and manage the system from anywhere over the company network or the Internet.

Monitor and manage the PDR over the network with the optional Power Xpert Gateway 1000 card.

Design for quality, security and convenience

- Freestanding structure with top and bottom cable entry opens up many choices for installation.
- Industry-standard footprint makes effective use of valuable data center space.
- Attractive, textured black finish matches your equipment and provides a modern look.
- Spacious wireways, hinged doors and removable side panels enable easy service access.
- Locking door latches protect the power distribution system from unauthorized access.
- Optional Plexiglas cover panels provide easy visibility to breakers.
- X-Slot bays support many communication options for remote monitoring and management.
- Large, bright LCD with easy-to-use menu supports local monitoring and configuration.
- Load profile log shows power consumption trends for up to 24 months; history log shows up to 128 time- and date-stamped events.

Current and historical insights close at hand. Locally, technicians have an at-a-glance view of system status on a large, 8-line x 40-character LCD. Units with front and rear panels have two displays.

A menu with soft keys makes it easy to navigate through the features. Audio/visual indicators provide alarms and status updates. Through this local display, you can view power consumption trends in a history log for up to 24 months—a powerful aid in capacity planning. Custom alarm settings can be programmed at the factory, by the user or by Eaton's service organization.

Optional surge suppression

Even within the relative safety of your data center, power systems (and the equipment connected to them) could be affected by lightning strikes and other transient aberrations in voltage and current. For example, a transient event could trigger a UPS to activate its static bypass path, leaving critical loads exposed to raw utility power.

If the facility does not have TVSS devices at the utility point of entry, or if Tier IV redundancy is required, consider adding it to your PDR for an important layer of extra protection.

Part of a complete data center solution

The PDR is part of a family of solutions that are redefining the economics of running the modern data center. In addition to freestanding, wall-mounted and rack-mounted power distribution systems…

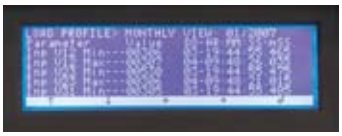
- Energy-efficient UPSs and PDUs deliver more power in less rack space.
- Patented paralleling provides Tier IV redundancy.
- Advanced battery technologies keep IT systems up when utility power is down.
- Rugged, attractive enclosures house, protect and organize IT and power quality systems.
- Power monitoring options give full visibility into the health of the system, from individual circuits to the entire facility.

Eaton data center solutions enable you to create a more resilient and adaptable data center—one that uses less energy, runs more efficiently, and protects your investments in applications, data and hardware. Find out more at www.eaton.com/powerquality

X-Slot® bays support many communication options for remote monitoring and management.

A large, bright LCD with easy-to-use menu supports local monitoring and configuration.

The load profile log shows power consumption trends for up to 24 months.



The history log shows up to 128 time- and date-stamped events.

A new level of confidence

Eaton is a global leader in power quality and management solutions—named by Frost & Sullivan as "Power Quality Company of the Year" in 2004, 2005 and 2007 (August 2007). Our rugged power distribution units reflect more than 40 years of expertise in industrial-strength power quality solutions. In fact, we have been manufacturing PDUs for several other major brands for years.

The PDR delivers confidence—confidence that the power circuits serving your blade servers and other essential equipment are appropriately loaded and capable of supporting the high availability you demand. For more information, visit our Web site at **www.eaton.com/powerquality**, or contact us at 1-800-356-5794.

Technical specifications

Electrical input

Nominal voltage	208Y/120 Vac
Nominal frequency (range)	50/60Hz (45–65Hz)
Input conductor configuration	Three-wire + neutral + ground

Input connection options

Direct connection to panel board main breakers (225A, 400A)
Connection into single or dual main lugs (800A)
Connection into single or dual main breakers (400A, 600A)—side access required

Connectivity

Optional Power Xpert Gateway 1000 communications card
Built-in Web and SMTP server
Support for ModbusTCP, SNMP and NTP protocols
Two (2) isolated RJ-45 Ethernet ports for redundancy

Monitoring

Standard system-level monitoring
Non-volatile real-time clock

Meters and load profiling points:

Input 1 V12 min/max
Input 1 V23 min/max
Input 1 V31 min/max
Input 1 ACUV total time
Input 1 I1 min/max (with optional Main CTs installed)
Input 1 I2 min/max (with optional Main CTs installed)
Input 1 I3 min/max (with optional Main CTs installed)
Input 1 V12 THD max
Input 1 V23 THD max
Input 1 V31 THD max
Input 1 frequency min/max
Input 1 kVA min/max (with optional Main CTs installed)
Input 1 power factor min/max (with optional Main CTs installed)
Input 2 V12 min/max
Input 2 V23 min/max
Input 2 V31 min/max
Input 2 ACUV total time
Input 2 I1 min/max (with optional Main CTs installed)
Input 2 I2 min/max (with optional Main CTs installed)
Input 2 I3 min/max (with optional Main CTs installed)
Input 2 V12 THD max
Input 2 V23 THD max
Input 2 V31 THD max
Input 2 frequency min/max
Input 2 kVA min/max (with optional Main CTs installed)
Input 2 power factor min/max (with optional Main CTs installed)
GND I min/max
NEU I min/max

Event logging:

Input 1 AC over voltage
Input 1 AC under voltage
Input 1 under or over frequency
Input 2 AC over voltage
Input 2 AC under voltage
Input 2 under or over frequency
Building alarm 1
Building alarm 2
Building alarm 3
Building alarm 4
Input 1 overload (4 levels per phase, with optional Main CTs installed)
Input 2 overload (4 levels per phase, with optional Main CTs installed)
Input 1 phase rotation error
Input 2 phase rotation error
Configuration error
Alarm, high input 1 THD (per-phase alarm), current or voltage
Alarm, high input 2 THD (per-phase alarm), current or voltage
Alarm, neutral overload warning (per panel)
Neutral overload (per panel)
Ground current warning (per panel)
Ground current overload (per panel)

Power Xpert Gateway 1000 Card firmware is user-upgradeable

Premium Eaton Branch Circuit Monitoring System (BCMS)

Individual panel monitoring

Configurable parameters:

Panel number
Panel name
Nominal input voltage
Nominal input frequency
System kVA
CTs present
L-L or L-N input setting
Main CT ratios
Calibration of input, output, ground and neutral CTs
Calibration of voltage
Breaker rating
Breaker warning level
Breaker type

Monitored parameters:

RMS: V1, V2, V3, I1, I2, I3
Average: Vavg, kW, kVA, PF
Load: Monthly kWh, yearly kWh, total kWh
Percentage: Input 1, Input 2, Input3, Input total (percent load)
Max: Vmax, Imax

Main panel board metering alarms

Panel or subfeed breaker overload warning
Panel or subfeed breaker overload alarm
Panel breaker overload warning
Panel breaker overload alarm
Breaker current warning
Breaker current overload

Branch circuit or subfeed breaker monitoring—up to 42 per panel (User can easily add panel breakers)

Configurable parameters —individual branch circuits

Breaker rating
Breaker warning level
Breaker overload level
Breaker type

Monitored parameters

Current: RMS and percentage
Average: kW, kVA, PF
Load: Monthly kWh, yearly kWh, total kWh
Max: Amperage, kW
Min: Power factor

Individual branch circuit alarms (for each breaker):

Breaker current warning
Breaker current overload

Distribution panelboards

42-circuit column – rated for 225A – maximum two (2) per side
42-circuit column – rated for 400A – maximum two (2) per side

Options

Transient voltage surge suppression (TVSS) 50 kA/ph or 100 kA/ph
Isolated ground
Branch circuit monitoring
Plexiglas or mesh doors

Environmental and safety

Operating temperature	0°C to 40°C (32°F to 104°F)
Relative humidity	5–95 percent non-condensing
Audible noise	<45 dBA measured 1.5m (5 ft.) from unit under normal operating conditions
EMI	FCC 47, part 15 for Class A devices
Agency marking	Domestic/Canadian models: UL/CSA 60950-1

Physical characteristics

Dimensions H x W x D, in (mm)	80.3 x 23.6 x 41.3 (2041 x 600 x 1050)
Approximate Product Weight, lb (kg)	One side 450 (200) Two sides 700 (315)

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Italy: 39.02.66.04.05.40
Norway: 47.23.03.65.50
Portugal: 55.11.3616.8500
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