

Network Closet Solutions



EATON
Powering Business Worldwide

Switch  N to Eaton.

Solutions for your network closet



Protecting your IT equipment is vital to the success of your business. Installing the right back up power, power distribution and other power accessories determines how long your equipment will run during a power outage and how efficiently your equipment will run during a normal business day.

We provide efficient power solutions to distribute power to and within the rack, as well as cable management solutions to ensure your closet is organized and your footprint is being used effectively. Better yet, we also offer remote monitoring and management capabilities. Therefore, you don't have to run to the closet every time there is an issue with power, you can view and manage it remotely on your PC.

To ensure a reliable, efficient and safe networking environment, keep three key things in mind: organization, protection and management.

Organization

- Keep servers, switches and storage equipment safe and secure
- Clear the rack area of cluttered network cables
- Improve airflow and reduce cooling costs
- Secure equipment from unauthorized access

Protection

- Distribute and provide safe and clean power to IT equipment during power outages, surges and voltage problems
- Provide reliable and redundant power solutions for critical systems
- Maintain service level agreements

Management

- View your power network and all equipment attached to it from your remote/virtual machine console
- Aggregate multiple UPS/power instances
- Monitor your temperature/humidity environment
- Receive instant access to alerts and monitor your environment remotely
- Initiate a virtual machine move or graceful shutdown in the event of an extended outage

Organization

Choosing the rack to place your equipment in is vital to the overall health and function of your infrastructure. Eaton racks enable you to store, power, manage, secure and cool your critical IT equipment. Additionally, they add an extra layer of security for environments that may store critical information such as credit card, banking or human resource data. Depending upon square footage of your environment and the amount of equipment you need to support, there are a few different options to choose from.



Four Post Rack™

Eaton's Four Post Rack offers an open, accessible and unrestricted architecture for cable-dense networking equipment. The labeled U-spaces assist with the deployment of hardware while the open design provides unobstructed airflow into and out of equipment. You should also consider cable management accessories and provisions for mounting vertical power strips for your environment.

S-Series rack

Eaton S-Series racks supports a broad range of rack accessories, as well as power distribution, management and protection products, to provide a proven platform that you can depend on to support your critical IT operations. The fully-welded steel frame can store up to 2,200 pounds of equipment and the frame ensures zero leakage around the front perimeter. Additionally, split rear doors provide easy access to your equipment and maneuverability within your environment.



Cable management

Depending on the type of rack you have, there are multiple options for you to manage your cables efficiently and increase your airflow. By implementing these simple management tools, you can be ready for any moves, adds or changes you are making to your rack and you can prevent accidental failure from cable strain or human error.

Four Post Rack options



Vertical cable management channel



Side cable management channel

Enclosed rack options



Waterfall system



Overhead cable management system



Active equipment cable manager

Protection

Protection of your equipment and the design of your environment are critical to uptime and efficiency. Eaton offers products that protect your power infrastructure, ensuring the design addresses the specific needs of your network and during a power event, doesn't leave you in the dark.

There are a number of reliable and redundant solutions you can install easily to ensure the uptime and efficiency of your rack.



The life of your UPS is dependent on how good its batteries are. Eaton's ABM technology extends the life of our batteries by up to 50%. To back it up, we offer three-year warranties on all of our single phase UPS batteries. The predictive analysis built into ABM tests the batteries of the UPS every 30 days and the UPS will alert you if there are any issues. No one else in the industry offers this level of advanced predictive diagnosis.

Meet service level agreements

In a rack environment where you require more run time during a power outage, an extended battery module (EBM) is your best solution to meet service level agreements. You can add anywhere from one to four EBMs to your UPS (depending on rating) and extend your runtime from minutes to hours for VOIP and telephony services. Eaton's EBMs are designed to pair specifically with our UPSs, ensuring a smooth installation and reliable backup solution.

Maximize reliability

A 2N or redundant UPS solution is one of the most reliable designs. Here, all equipment is supported by two UPSs. Eaton provides smart software, so in the event one UPS fails, the equipment knows it is supported by another UPS and will not shut down, giving you continual uptime and time to fix the problem. Once the primary UPS is back online, the equipment switches back to relying on it.



A UPS paired with an extended battery module will help extend runtime to meet service level agreements.

Outlet level control

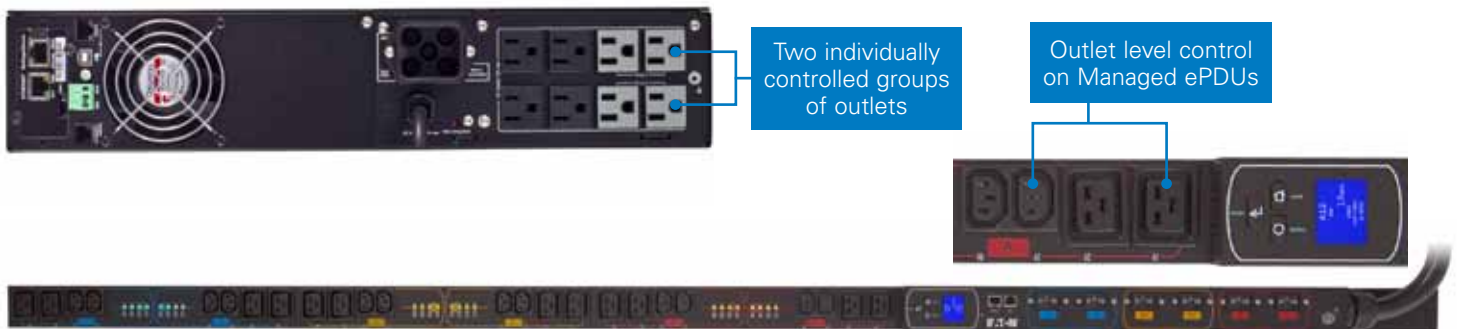
UPS load segments are managed groups of receptacles that can be independently controlled to provide protection. They can also be used to cycle hung servers, extending runtime for critical loads. For optimal performance in the event of a power outage, non-essential loads are plugged into different load segments than those that are essential.

Eaton Managed ePDUs allow you to monitor and control critical factors such as voltage, current and power factor, at the individual outlet level. This information allows you to make the right decision when it comes to energy consumption in your data center.

By integrating our UPSs and ePDUs with management software, you can view and control your environment from any computer on the network server.

Rack power protection and control

You can leverage rack power distribution units or ePDUs to protect equipment within your rack. By leveraging different technologies, you can monitor and control the power at the individual outlet, switch power on and off, remotely shut down the power during an emergency power outage or simply distribute power efficiently and safely. Switched ePDUs can ping servers and switches, as well as auto cycle non-responding devices. You can schedule routine outlet cycling to proactively fight hung servers. Eaton's broad line of ePDUs allow you the customization and protection you need within your rack.



Design for reliability

In most traditional power designs, you have one UPS supporting your servers, switches and storage devices. In this type of environment you are prone to having to shut down your equipment during a power failure or if the UPS needs maintenance or replacement.

Maintenance bypass

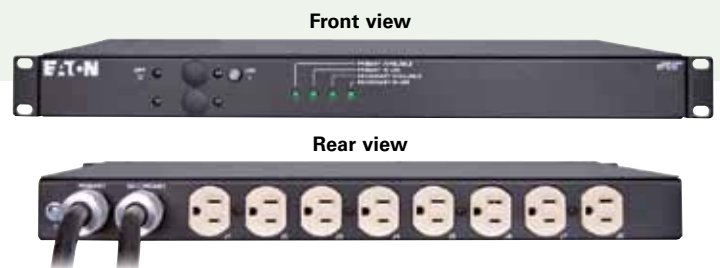
Eaton maintenance bypass units enhance power availability to your rack and provide an additional level of reliability to your power distribution design. Utility power runs through the maintenance bypass to the UPS, and then supports the rest of the equipment in the rack. Should the UPS need to be replaced, you can switch power directly from the maintenance bypass to the equipment, and replace or fix the UPS without having to shut down your equipment.

Automatic transfer switch

Eaton automatic transfer switches (ATS) provide power redundancy to equipment with one or two power supplies. The ATS automatically transfers the power from a primary source to a secondary source if there is a problem with the primary. Once the primary source is restored, power transfers back through it.



During maintenance, an easy flip of the switch routes power directly from the maintenance bypass to your equipment.



Leverage automatic transfer switches to maintain power distribution to the rack.

Management

Management of your networking closet is a key factor when considering efficiency, reliability and uptime. Whether you need to manage at the rack level, or if you want to remotely manage, there are a number of options for you.

UPS level monitoring/management

For in-rack monitoring, leveraging a UPS with an LCD screen is the way to go. You can limit the use of software and have local access to multiple settings through GUI. Eaton's 5PX UPS delivers real time stats of your UPS, including battery level, runtime and the health of the machine. You can also access the UPS's managed load segments and see which equipment is pulling the most or least power and will help you better equalize your power distribution. If you are unable to connect to your environment through a laptop or call tech support for alarms, this solution allows you to manage everything at the touch of a button.

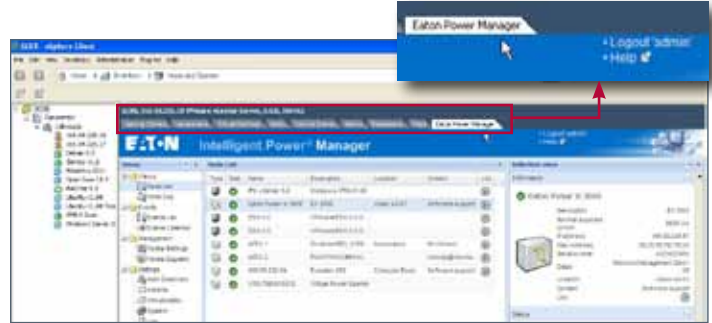
Additionally, think about leveraging rack power distribution units that also have LCD screens on them. Eaton's Advanced Monitored and Managed ePDUs offer a sleek LCD screen that allows you to view power consumption at the outlet level and help you calculate power usage effectiveness.

Eaton's 5PX LCD menu gives you vital UPS information at the touch of a button



Remote monitoring/management

By leveraging software, you have the ability to monitor and manage your network closet remotely. This gives you more time to focus on higher priorities and gives you peace of mind when you are not near your equipment. Installing these solutions is fast, easy and affordable.



Eaton's IPM integrates seamlessly into VMware's vcenter dashboard

Intelligent Power Manager

Eaton's Intelligent Power Manager software gives you all the tools you need to manage power devices in your physical or virtual environment. The solution ensures system uptime and data integrity by allowing you to monitor, manage and control the devices on your network remotely.

- Remotely monitor and manage multiple devices across your network from a single interface; this can be integrated into an already existing platform, such as VMware, Microsoft or Citrix
- Measure power consumption and kWh to calculate power usage effectiveness
- Trigger live migration for virtual machines during power outages

Hardware

Outlet level current and power metering

Eaton offers managed and advanced monitored technologies for our rack mount power distribution units. You can manage and monitor power at the individual outlet level and measure power consumption, helping you calculate power usage effectiveness ratings. You can also switch the power on and off at the outlet level should you have servers or storage devices that need to be shut down for maintenance or replacement, enabling you to just shut down one piece of equipment without taking your whole rack offline.

Remote monitoring of temperature and humidity

Eaton's Environmental Rack Monitor and Environmental Monitoring probe enable you to remotely monitor the temperature, humidity, and status of devices. This can be done via a standard Web browser, providing greater management control and flexible monitoring. Installation is simple and you get email notification should temperatures change outside of normal range. You can also initiate alarm thresholds and initiate system shutdown at critical levels.

Eaton's recommended products for your networking power needs

Organize

Enclosure Model	Part Number	Height U	Width, in	Depth, in	Approx. Unit Weight, lb	Weight Capacity, lb	Color	Casters
Eaton S-Series Rack - with Sides (42U)	ETN-ENC422442SB	42	24	42	350	2,200	Black	Yes
Eaton S-Series Rack - with Sides (42U)	ETN-ENC422442S	42	24	42	350	2,200	Black	Yes
Eaton S-Series Rack - Open (42U)	ETN-ENC422442SE	42	24	42	300	2,200	Black	No

Enclosure Accessories	Part Number	Qty	From Factor
Horizontal Ring Managers - 2U	CMPD19032U	1	2U, 17 in wide
Panduit PatchLink Horizontal - 2U	CMFD19042U	1	2U, 17 in wide
Cable Strain Relief Bars - 6" depth	CMRB19062U	2	1U, 17 in wide
Standard Velcro Straps	BX45V11	6	
Side Cable Chase Take-up Spool	JCCCBSPL1	1	
Vertical Manager-Side Cable Chase - 40U	JCCVM771	1	0U, 40U tall

Protect

UPS Model*	Part Number	Rating (VA/Watts)	Input Connection	Output Receptacles	Dimensions (H x W x D in)	Weight (lb)
Evolution 650VA RM 1U	81701	650/420	5-15P (8 ft)	(4) 5-15R	1.7 (1U) x 17.2 x 14.4	22.3
Evolution 1550VA RM 1U	51710	1550/1100	5-15P (8 ft)	(4) 5-15R	1.7 (1U) x 17.2 x 21.9	44.1
5PX 1500VA w/ Network Card-MS	5PX1500RTN	1440/1440	5-15P (8 ft)	(8) 5-15R	3.4 (2U) x 17.2 x 20.6	65
5PX 2000VA w/ Network Card-MS	5PX2000RTN	1950/1920	5-20P (8 ft)	(4) 5-20R, (4) 5-15R	3.4 (2U) x 17.2 x 20.6	65
5PX 3000VA w/ Network Card-MS	5PX3000RT2UN	3000/2700	L5-30P (10 ft)	(6) 5-20R, (1) L5-30R	3.4 (2U) x 17.2 x 20.6	65

*UPS comes with 4-post rail kit. See product pages for additional UPS and accessories including EBMs, 2-post rail kits, and network cards.

ePDU Rack Mount

Distribution Models	Part Number	For use with	Input Connection	Receptacles	Dimensions (H x W x D in)
Basic, 1500VA Horizontal ePDU	ePBZ78	3000VA UPS or UPS with L5-30R	L5-30P (15 ft)	(20) 5-20R	1.7 x 17.0 x 3.5
Basic, 1500VA Vertical ePDU	ePBZ73	1500VA and below UPS or UPS with 5-15R	5-15P (15 ft)	(18) 5-15R	48.0 x 1.5 x 1.5
Basic, 2kVA Vertical ePDU	ePBZ72	2000VA UPS or UPS with 5-20R	5-20P/L5-20P* (15 ft)	(18) 5-20R	48.0 x 1.5 x 1.5
Monitored, 1500VA Vertical ePDU	PW101MI1U221	1500VA UPS or UPS with 5-15P/5-15R	5-15P (9 ft)	(12) 5-15R	1.75 x 19.0 x 7.0
Switched, 1500VA Vertical ePDU	PW101SW0U224	1500VA and below UPS or UPS with 5-15R	5-15P (9 ft)	(16) 5-15R	68.0 x 1.9 x 2.0
Basic, 6000VA Vertical ePDU	PW105BA2U420	6000VA or UPS with L6-30R	L6-30P	(4) L6-20R	3.4 x 19.0 x 6.0
Managed, 6000VA Vertical ePDU	eMA010	6000VA or UPS with L6-30R	L6-30P (10 ft)	(20) C13, (4) C19	68.0 x 2.2 x 2.6

*These units ship with an adapter allowing for 5-20P input plug.

MBP or eATS Distribution	Part Number	For use with	Input Connection	Receptacles	Dimensions (H x W x D in)
HotSwap MBP 1500VA 120V	EHBPL1500R-PDU1U	1500VA and below UPS or UPS with 5-15P / 5-15R	5-15P (3 ft)	(6) 5-15R	2.1 (2U) x 3.8 x 17.3
HotSwap MBP 2000VA 120V	EHBPL2000R-PDU1U	2000VA UPS or UPS with 5-20P / 5-20R	5-20P (3 ft)	(6) 5-15R	2.1 (2U) x 3.8 x 17.3
HotSwap MBP 3000VA 120V	EHBPL3000R-PDU1U	3000VA UPS or UPS with L5-30P / L5-30R	L5-30P (3 ft)	(5) 5-20R	2.1 (2U) x 3.8 x 17.3
Eaton eATS 1500VA 120V	PULSTS1400R-1U	1500VA and below UPS or UPS with 5-15P / 5-15R	5-15P (6 ft)	(8) 5-15R	1.7 (1U) x 19.0 x 9.8
Eaton eATS 2000VA 120V	PWATSS520003	2000VA UPS or UPS with 5-20P / 5-20R	5-20P (6 ft)	(8) 5-20R	1.7 (1U) x 19.0 x 7.0
Eaton eATS 3000VA 120V	PWATSL530005	3000VA UPS or UPS with L5-30P / L5-30R	L5-30P (6 ft)	(8) 5-20R	1.7 (1U) x 19.0 x 7.0
Eaton eATS 3000VA 208/230V	PULSTS16AMP-1U	3000VA UPS and below with C20/C19	C20 (6 ft)	(1) C19, (6) C13	1.7 (1U) x 19.0 x 9.8

**Other MBP and eATS Options available.

Manage

Intelligent Power Manager

	Part Number
Intelligent Power Manager for 1-10 nodes	Free download @ Eaton.com/virtualization
Intelligent Power Manager, Silver Edition for 11-100 nodes	66925
Intelligent Power Manager, Gold Edition for unlimited nodes	66926
Network Card-MS Web/SNMP	Network-MS
Environmental Monitoring Probe	For use with Network-MS Card
Environmental Rack Monitor	116750224-001
Water Leak Detector	120V 5-15P Input, 1 TH Module
Open Source Development Kit	103005775
	3ft, Works with EMP or ERM
	103005780
	Free download @ Eaton.com/opensource

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