Paramount
Enclosure System

E·T·N

Powering Business Worldwide

Switch**⏻**N to Eaton.

Keeping Pace with Technology

Today's data center

Today's enclosures go well beyond simple cabinets that solely house servers; essentially they are mini data centers that reside within the company's physical data center. In an effort to regain control of increased energy costs to run the company's data center, IT managers and their colleagues need to consider the IT rack as an integral and necessary component of the airflow plenum design.

While legacy data center design factors are still relevant, the ability to use the rack as a plenum provides IT managers with a new weapon in their arsenal. Each rack can be designed and implemented as an isolated environment. Managers now have the freedom to set the airflow requirements of individual racks as they relate to the larger plenum system.

Virtualization

Today, virtualization is being adopted at an increasing rate. A key driver for the deployment of this technology is the reduction of operating costs associated with the consolidation of server, storage and network devices. By-products of this new virtualized environment include a net reduction in IT equipment and associated space. However the resultant power and cooling loads are condensed into a smaller footprint and have a dynamic association with the IT processing load.

Unfortunately, the industry has relied on workplace intuition and creative problem solving for far too long. It has utilized everything from cardboard and duct tape to other "weather-proofing" types of devices. However, the market is moving toward standardized solutions that are designed and integrated within the rack during the manufacturing process.

Rack hygiene

The concept of Rack Hygiene is a term that encompasses the identification, analysis and repair of hot air leakage areas/infusion paths and cold air bypass routes within and around individual data center racks.

Rack Hygiene is a newly coined term used to describe the care in which the rack envelope is designed, controlled and maintained. The rack envelope consists of the entire volume of space from the floor to top of the rack itself, and perhaps a measurement of rise above the floor to include empty space above the rack that would rise to the "heat deck."

Regardless of the rack's dimensions, it is incumbent upon the data center professional to employ solutions that provide an impenetrable barrier around the front plane of the rack in a front-to-back dominated airflow environment. The tighter the seal provided around the front of the rack—exclusive of a thorough blanking panel strategy—the closer one can come to achieving rack hygiene.

Scalable design

Eaton's enclosure systems are the most flexible platforms available. Featuring a unique building-block design, that can easily be reconfigured—keeping pace with your changing needs. And, given that the technology refresh rate for IT (server and networking) equipment is typically 12-18 months, this underscores the importance of choosing an open and scalable enclosure platform. Available in a variety of heights, depths and widths, Eaton's fully welded Paramount Enclosure also offers a wide array of accessories to meet the specific storage requirements of virtually all IT equipment. At Eaton, we work to future-proof your data center with enclosures configured your way!

Paramount Configurations with Integrated Airflow Management

Eaton's Rack Hygiene configuration offers enhanced features for high-density cooling and containment. The new frame ensures zero air leakage around the front perimeter of the unit and includes Eaton's high flow door which features 75 percent open perforation pattern. Best of all, this turnkey solution is ordered as a single product number; making the ordering process quick and easy.

Rack Hygiene configuration features:

- Enhanced frame ensures zero leakage around the front perimeter and also features oval grommets in front frame verticals for cable pass-thru between racks

- High flow single front door with 75 percent open perforation pattern

- High flow split rear door with 75 percent open perforation pattern

- Top panel with two six inch wide brushed openings for cable egress

- Divider panel with cable pass-thru installed on left side only

- 19 inch EIA-310 vertical mounting rails (quantity four) with U-markings

- Vertical blanking panels (quantity two) with cable pass-thru for 30 inch wide models only

- 2U cable management rings (quantity four) pre-installed in rear right frame vertical

- Grounding pre-installed

- Color: Black

PARAMOUNT CONFIGURATIONS WITH RACK HYGIENE

Part Number	RU	Height	Width	Depth	Typical Application
PMT442442H	44U	84"	24"	42"	Server
PMT442448H	44U	84"	24"	48"	Server
PMT443042H	44U	84"	30"	42"	Server/Network
PMT443048H	44U	84"	30"	48"	Server/Network
PMT512442H	51U	96"	24"	42"	Server
PMT512448H	51U	96"	24"	48"	Server
PMT513042H	51U	96"	30"	42"	Server/Network
PMT513048H	51U	96"	30"	48"	Server/Network

Paramount Conversion Kits for Cisco Switches

For Cisco switches

Standard Paramount configurations with Rack Hygiene can be converted to accommodate Cisco switch applications.

Features

- Integrated air seal panels to convert side-to-side into front-to-back airflow
- Vertical lacing bars for managing large bundles of data cables
- Pre-installed adjustable chassis support brackets for supporting heavy switches

CISCO SWITCH CONVERSION KITS

Part Number	Cisco Model	Converts Paramount Model
6509CVK44U42DPM	Catalyst 6509-E	PMT443042H
6509CVK44U48DPM	Catalyst 6509-E	PMT443048H
6509CVK51U42DPM	Catalyst 6509-E	PMT513042H
6509CVK51U48DPM	Catalyst 6509-E	PMT513048H
6513CVK44U42DPM	Catalyst 6513	PMT443042H
6513CVK44U48DPM	Catalyst 6513	PMT443048H
6513CVK51U42DPM	Catalyst 6513	PMT513042H
6513CVK51U48DPM	Catalyst 6513	PMT513048H
9513CVK44U42DPM	MDS 9513	PMT443042H
9513CVK44U48DPM	MDS 9513	PMT443048H
9513CVK51U42DPM	MDS 9513	PMT513042H
9513CVK51U48DPM	MDS 9513	PMT513048H
7010CVK44U48DPM	Nexus 7010	PMT443048H
7010CVK51U48DPM	Nexus 7010	PMT513048H

Cisco 7018 switch enclosure

Based on Eaton's Paramount enclosure frame, our turnkey enclosure has an extra wide frame designed specifically to store, cool and power the Cisco Nexus 7018 switch.

Features

- Specialized airflow containment design that is compliant with the Cisco Nexus 7000 Series switch site preparation guide
- Pre-installed switch support brackets
- Integrated cable management
- Available in two heights: 44U and 51U

PARAMOUNT FOR CISCO NEXUS 7018 SWITCH

Part Number	RU	Height	Width	Depth
PMT7018SW444048	44U	84"	40"	48"
PMT7018SW444248	44U	84"	42"	48"
PMT7018SW514048	51U	96"	40"	48"

A Modular, Scalable Design

Network Top ▼

Solid Top ▼

Heat Containment System (HCS) ▶

Side Panel ▼

◀ Split Solid Rear Door

◀ Perforated Rear Door

◀ Split Perforated Door

◀ Perforated Front Door

The Paramount platform not only supports an industry leading 2,200 pounds (998kg) of equipment in a fully welded frame, but it is also designed to adapt to the ever-changing requirements of the data center through a scalable and modular approach, protecting your initial investment.

Speed of deployment is essential to any company when considering time to market. Paramount's modularity and building block design ensures quick reconfigurations and minimizes downtime, protecting your initial investment.

Paramount High Flow Doors

Eaton's high flow doors offer exceptional airflow with 75 percent perforation, a 17 percent increase over the industry standard. In addition to increased performance, the unique perforation pattern results in a reduction of raw material consumption by over 60 percent which means less waste in the manufacturing process—a great "green" benefit.

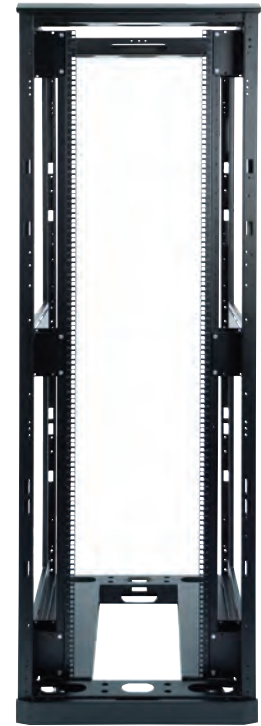# Scalable thermal solutions for high density equipment

The 30" (762mm) wide Paramount Enclosure System offers unsurpassed cable management features for today's demanding network infrastructure. Featuring unobstructed front, rear and top cable access, Paramount also offers ample cable management along the sides for your increasing copper and fiber cable loads. Featuring TIA/EIA-568 compliant bend radius provisions, as well as strain-free cable organizers, Paramount minimizes down-time and offers quick reconfiguration and redeployment of equipment.

**Paramount 30"
wide enclosure**

High density server equipment
A fully welded 24" (610mm) wide enclosure accommodates high density server equipment from tower to blade servers. Optional casters available on all Paramount enclosures.

Tool-less rails
Allow fast, simple positioning of equipment rails.

PARAMOUNT ENCLOSURE STANDARD SIZES

Heights (external height)	40U 77" (1956mm)	44U 84" (2134mm)	51U 96" (2438mm)
Widths (without sides)	24" (610mm)	30" (762mm)	
Depths (with doors)	37.25" (946mm)	42" (1067mm)	48" (1219mm)

PARAMOUNT SIDE CABLE CHASE STANDARD SIZES

Heights (external height)	40U 77" (1956mm)	44U 84" (2134mm)	51U 96" (2438mm)
Widths (without sides)	8" (203mm)	12" (305mm)	
Depths (with doors)	37.25" (946mm)	42" (1067mm)	48" (1219mm)

Add $3/4$" (19mm) for Paramount with casters. Casters are not available on Side Cable Chase.

Innovative Airflow Management Solutions

At Eaton, we understand how air works in the data center. Unlike other approaches that simply insert more fans in the enclosure or utilize spot cooling devices in the row, our Paramount Enclosure System features a modular design that addresses air volume, air direction and heat exhaust within the enclosure. As your applications grow or you consolidate servers, cooling capacity can be increased.
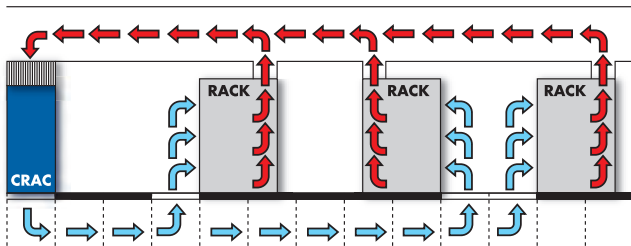
Heat Containment System (HCS)

It is said that 40 percent of the cool air that is supplied from air conditioning units in a typical data center is wasted. With Eaton's enclosures and chimney system, you can achieve closed coupled heat containment up to 30 kW. Our heat containment solutions ensure that hot air created by your IT equipment is channeled from the enclosures through the chimney and returned to the data center's air conditioning units. This virtually eliminates air remixing and stratification and drives higher efficiencies with your air conditioning units.

PARAMOUNT COOLING SCALABILITY *solid side and top panels*

Load (kW)	Rear Door
Up to 3.5 kW	Perforated Door
Up to 26 kW	Solid Door with Active HCS – 2600 CFM
Up to 30 kW	Solid Door with Passive HCS

HCS
Eaton's Paramount Enclosure with integrated HCS.

HCS Cooling Methodology
Paramount has been designed to fit seamlessly into a flooded supply with fully ducted return layout— shown above.*

*As outlined in "Thermal Guidelines for Data Processing Environments" by ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc.)

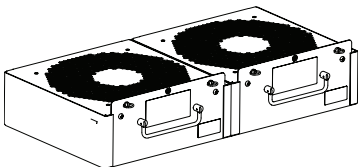# Innovative Airflow Management Solutions

HCS cable management
The HCS allows for your existing cable management without the interruption of re-routing or disconnecting cables and power.
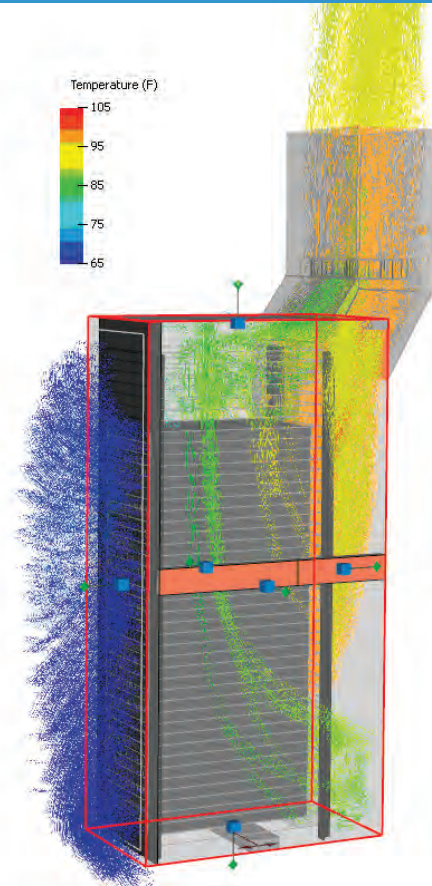
Eaton's HCS is:

- Scalable—it can be adapted to existing infrastructures to increase rack utilization as your capacity demands grow.

- Predictable—it separates hot exhaust air and cold supply air; dramatically increasing the reliability of the data center.

- Efficient—allowing hotter air to return directly to the CRACs, increasing their efficiency by operating at a higher Delta T (ΔT).

- Reliable—it extends existing cooling capacity throughout the data center; freeing up stranded assets and lowering operational costs.

- Flexible—it does not require you to alter existing enclosure locations and is also field-installable on third-party enclosures.

CFD analysis
Computational Fluid Dynamics (CFD) model showing airflow through active HCS System.

HCS fans
By using two optional fans, you can increase your airflow up to 2,600 CFM.

Flexible return duct system
For data centers unable to accommodate steel chimneys, an alternative solution is the flexible return duct. A simple interface easily connects to the top of the HCS chimney. Flexible 10" ducts are clamped to the interface and a 24" x 24" ceiling tile, which is mounted to the plenum ceiling.
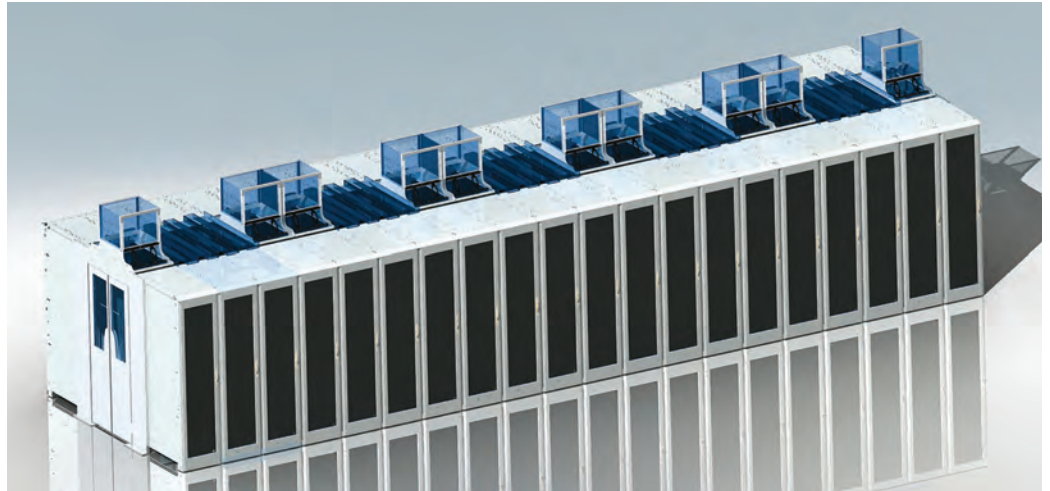
Innovative Airflow Management Solutions

Aisle Containment Solutions

Industry studies indicate that an estimated 40 percent of the cool air supplied to traditional data centers is wasted because it bypasses the intended IT equipment and returns directly to the hot air intake of the CRAC.
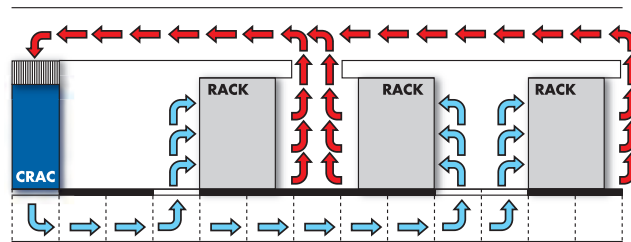
Adopting a cold or hot aisle containment strategy increases air efficiencies, allowing a significant reduction of cold air supply, translating to longer hardware life and valuable energy savings.

Eaton's solutions can be equally effective for both hot and cold aisles in the data center.

Total Aisle Containment
Gain total control of your airflow dynamics by utilizing Eaton's aisle containment ceiling, aisle containment duct and end of row doors which complete the total aisle containment solution.

Aisle Containment Methodology
Control the airflow in your aisle regardless of your containment strategy. Flooded supply with locally ducted return—shown above.

Raised floor grommet
By installing Eaton's raised floor grommets, you can route cables under the floor and optimize the effectiveness of the existing cooling equipment. This raised floor sealing system specifically addresses bypass airflow created by unsealed floor cable openings and its detrimental effect on data center cooling.

Tool-less blanking panels
Significantly reduce re-circulation of hot exhaust air to the equipment inlet. Available in 1U, 2U and 8U sizes and quantities of 10, 100 or 500.

Integrated Power Management Solutions

What was once a simple task of mounting 15-20 Amp power strips has evolved into a calculated strategy to manage power-intensive servers in densely packed enclosures. Eaton provides the widest variety of power and power management capabilities through its basic, monitored and switched power distribution offering with solutions ranging from .5 kVA up to 15+ kVA.

Three-phase power distribution

Running three-phase power directly to the rack reduces the required number of feeds/whips/drops, resulting in lower installation costs. In addition, three-phase power offers the flexibility of providing 120V and 208V receptacles on a single unit. Eaton offers a broad range of three-phase power distribution solutions and also offers a 400V solution.

Three-phase rack power distribution
Easily handle today's increasing power requirements with three-phase ePDUs from Eaton.

Rackmounted power distribution
Eaton ePDUs offer safe, efficient and reliable power distribution.

Integrated Power Management Solutions

Basic/monitored/switched power

Eaton's ePDU™ broad product line offers a reliable solution to your every day power distribution needs. From basic solutions, to monitoring at the outlet level, Eaton provides horizontal and vertical rackmounted solutions from 1-15+ kVA. The plug-and-play architecture, industry leading software and space-saving mounting options make these units the perfect solution for your IT environment.
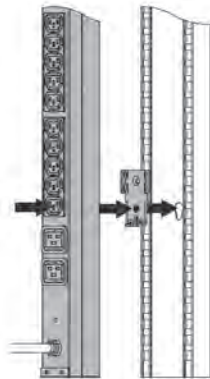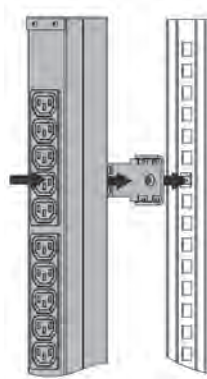
Space-saving mounting options

Installing your new ePDU is quick and easy. There are models that mount horizontally in minimal rack space (1U or 2U), or vertically in rack side pockets or rear channels or on a wall or floor, saving traditional U space for IT equipment.
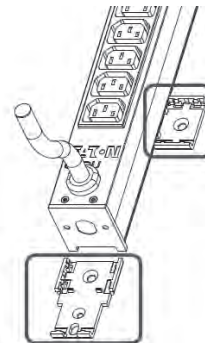
The units come with mounting hardware included, ready to install. Some units use a button-mount system and can be mounted in keyhole-type openings in popular racks, with no tools required. Depending on rack size, some units may require additional brackets.

ePDU mounted horizontally in rack

Button mount with clip feet

Blind mount with clip feet

Bracket mount with clip feet

ePDU mounted vertically in rack

Benefits of vertical mounts

Eaton ePDUs can be mounted vertically, allowing you to save valuable space. You can mount them vertically in rack side pockets, rear channels, or on a wall, which allows you to save traditional U space for IT equipment.

Uninterruptible power supply

Eaton helps protect critical equipment by providing uninterruptible power, backup power systems and power management through rack-based UPSs. Eaton delivers clean and efficient backup power from the desktop to the data center, protecting your critical IT systems. These units are integrated with ABM® technology, which increases battery service life up to an additional 50 percent.

BladeUPS
The scalable and modular BladeUPS expands power protection from 12 to 60 kW in a single 19" rack. Key solution for blade server and data center environments.

9130 Rack UPS
The 9130 UPS delivers premium performance with a 0.9 power factor and with greater than 95 percent efficiency. Key solution for small to medium business data centers and networking solutions.
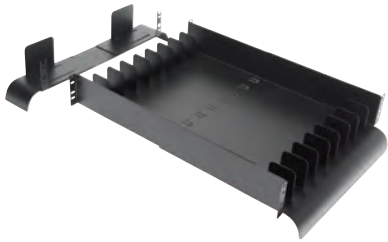
5PX Rack/Tower UPS
The 5PX UPS offers integrated power management with 99 percent efficiency and up to 28 percent more power available. Key solution for networking and server applications, as well as virtual environments.

Cable Management —
made simple

Paramount takes a unique approach by addressing cable and access management concurrently. From a structural standpoint, Paramount's frame design efficiently accommodates large quantities of cables and provides unmatched enclosure–to–enclosure, raised floor and overhead cable access. This approach is not only crucial to safeguarding cabling, but it is required to maximize airflow and provide clear, easy access to equipment.

High-density Cable Organizer
Organize and manage large amounts of cables front-to-rear in compliance with TIA/EIA-568-A bend radiuses.

Integrated trough
Allows for overhead cable distribution in an enclosed cable raceway.

Waterfalls
Provide the optimal bend radius for CAT 5e/6 and fiber cables as specified in TIA/EIA-568-A.

Vertical cable manager
Creates a vertical trough in the side channel that allows up to 300 CAT 5e/6 fiber cables.

Vertical cable distribution spools
Manage surplus power cords or network cables (available in Side Cable Chase only).

Top cable ports
Allow cables to be dropped from overhead.

Cable Management — made simple

Side Cable Chase
Provides 8" (203mm) or 12" (305mm) plenum for management of network cables, power strips and power cords. Routing cables away from the back of equipment optimizes airflow and reduces heat build-up by allowing air to exhaust from the enclosure.

Overhead cable management system
Allows users to route cables on top of the enclosure and offers separate trays for power and data.

Active equipment cable managers
Provide bend radius support for patch cables.

Open base
Offers unsurpassed access of cables through the bottom of the enclosure.

Network Management

A broad range of products provide streamlined solutions for management of the network. By combining keyboard, video and mouse (KVM) switching, LCD displays and environmental monitoring products, we offer flexible connectivity, efficient switching and convergence of technologies.

IP or Analog CAT5 KVM
Eaton offers a large selection of the industry's best performing KVM switches, including single, dual and multi-user models. Port densities range from 8 to 32 (for both IP and analog models).

IP Gateways
IP Gateways enable customers to upgrade virtually any analog KVM switch, regardless of manufacturer, to an IP KVM switch. Additionally, the family has a single port IP KVM (PX) with virtual media, perfect for remote offices and MSPs.

Extenders
Eaton offers an extensive line of KVM, Serial, USB, Audio, Audio/Video and Video CAT5 extension products.

Data Center Management
Eaton offers a Remote Access Management Platform that allows customers to quickly and efficiently access, troubleshoot and fix servers and devices in the data center, server room or locations around the world from a single web-based interface.

Rackmount LCD Monitors & KVM
Our LCDs are available with an integrated 16 port IP or analog KVM switch and in a two-user model that supports up to 32 ports. All models come in a seamless 1U form factor.

Protecting your Investment

Security remains a growing concern in today's data center environments. After all, the life-blood of your business is running on the equipment that is stored and monitored within your enclosures. In addition to the storage, thermal and cooling issues Paramount solves, it also offers a wide selection of safeguard and security devices that protect the mission-critical equipment behind your enclosure doors.

With security appliances and accessories ranging from standard key locks to electronic access control and graphical management tools, you can rest assured that we're completely focused on the deployment and reliability of your systems.

Cages
Provide the ultimate level of security for your valuable information systems. The cage system is the perfect solution for data center environments requiring subdivision or a higher level of security.

Standard Locks
High quality standard locks feature 125 key options with master override.

Swing Handle
Cost effective locking handle that will hold in position with and without the use of keys.

Combination Lock
Mechanical handle with combination lock and override key. Cost effective multi-layer security.

Friction Lock
Kaba Mas self-powered friction lock offers advanced yet traditional access keypad.

To contact an Eaton salesperson or
local distributor, please visit
www.eaton.com/wrightline or call
800-225-7348

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