

Rack Power Distribution For Critical IT Equipment

More efficient – Simpler – Better



**Power Quality
Consultants**
your uninterruptable power source


EMERSON
Network Power

Enhanced Performance and Management of Dynamic IT Spaces

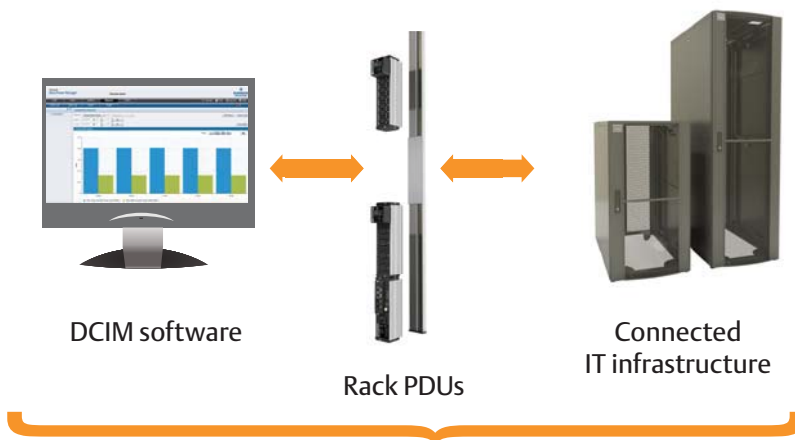
Enhance Business Agility, Efficiency and Availability with Emerson Network Power Rack PDUs

Data center investments are sizable, and each component of the power chain -from the building entrance to the rack power distribution - is crucial to enabling equipment availability. Enable your IT investment – and your business – to stay protected with Emerson Network Power’s family of rack PDU offerings.

Emerson Network Power’s next generation of rack PDUs provides the industry’s highest availability and most intelligent power metering and distribution – complete with the simplified energy

management, modular design and cost savings that ensure your data center – and your business – can operate at peak velocity and resiliency.

Our complete portfolio of rack PDUs offers value beyond just power distribution. It easily integrates to your data center infrastructure management systems to make your organization more resilient, enhance your business velocity and provide the technological support you need to grow your company.



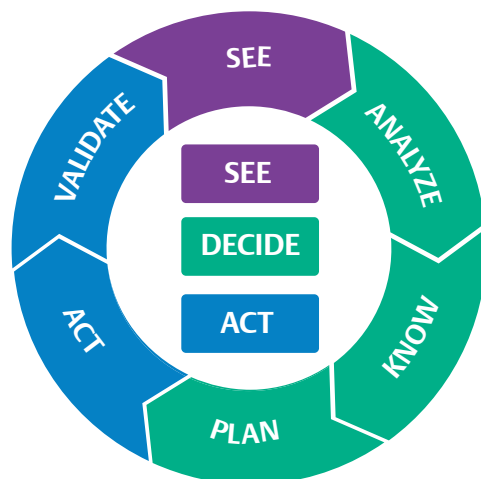
MPH2™ Rack PDUs

Intelligent, real-time infrastructure

- Communicate the status of rack-level power and environmental information to a centralized Data Center Infrastructure Management (DCIM).
- Allow monitoring and control to the receptacle level.

Optimized level of visibility and control

- Provides the information needed to make informed decisions and enhance business agility.



How you Benefit from Emerson Network Power Rack PDUs

Designed For High Availability

Emerson Network Power rack PDUs are designed specifically to accommodate higher power densities and be resistant to higher temperatures, commonly found in modern data center racks. System is designed to optimize basic power availability. They are easily upgradable to minimize downtime and carry manufacturer-provided support to ensure your own SLAs.

- High temperature rating.
- Modular hot swappable controller card.
- 100% rated magnetic hydraulic circuit breakers.
- Bistable / normally closed relays.

Optimized Energy And Capacity Management

By providing highly accurate and comprehensive energy metering from the aggregate to receptacle levels, MPH2™ rack PDUs provide visibility to control energy usage by IT equipment, right-size your power infrastructure and eliminate unnecessary capital expense. These rack PDUs also have the lowest energy consumption in this category.

- Metering of key electrical parameters with +/-1% accuracy.
- Lowest PDU power consumption in the industry of all switched rack PDU's.
- Power and environmental trend reports through several Emerson Network Power DCIM solutions.

Simplified Integration With Management Tools

MPH2™ rack PDUs offer a simplified approach to implementation and change management that translates to real cost savings and operational advantages. They support all major industry-standard management, authentication and encryption standards and protocols, and they fully integrate into Emerson Network Power's industry-leading KVM, serial console and infrastructure management systems. Plus, they integrate rack level power and environmental monitoring information from the rack PDUs with higher level data center management software provided by Emerson or third parties.

- Up to 4 units sharing an IP address within Rack PDU Array™.
- Integration with Emerson Network Power KVM, serial console and infrastructure management appliances and software.
- Integration with Emerson Network Power software stack.
- IPv6 support.
- Support of remote authentication protocols (LDAP, Active Directory, Radius, Kerberos, TACACS+) and encryption.

Compatibility With Racks And Power Chain

Deployable in most industry racks, Emerson Network Power rack PDUs are simple to install and move. When Emerson racks are purchased, the rack PDUs may even be pre-installed to save time and cut costs. All major global voltage and amperage combinations typically used in a data center or remote site are available—an Emerson Network Power expert can assist in selecting the right rack PDU for your power chain needs.

- Special Knürr DCM Rack fastening without tools.
- Ability to be preinstalled in Emerson Network Power rack solutions.
- Available in popular voltage and amperage combinations.

MPH2™ – Managed Rack PDU: Advanced Monitoring and Control Support

MPH2™ is the most intelligent, high-availability line of managed rack PDUs. It offers remote monitoring and control capabilities as well as environmental input options, with multiple power input selections and output configurations.

It is available in the following four versions:

- Outlet Level Metered and Switched.
- Outlet Level Metered.
- Rack PDU Metered and Outlet Switched.
- Rack PDU Metered.

MPH2™ Benefits

- **Monitors electrical and environmental parameters** with set threshold and alarm tools.
- **Controls and manages individual receptacles** and/or groups of loads and devices.
- **Allows you to predict failing conditions** before they occur and proactively manage connected equipment for maximum uptime.
- **Energy and power metering** to maximize the data center power and cooling infrastructure.
- **Lowest power consumption** of all switched rack PDU designs ensures lower operating costs for datacenter.
- **Up to four MPH2™ rack PDUs may be interconnected** as a Rack PDU Array™, consolidating user IP connections and device monitoring.

Designed for Critical Environments

- **Industry leading operating temperature**
 - up to 60 °C to support hot Internal rack environments.
- **Bi-stable relays ensure basic power distribution** in the event that intelligence is compromised.
- **Accurate power metering** of +/-1% voltage & current for assured oversight.
- **Energy and power metering** down to the individual receptacle.
- **Comprehensive alarming including notification** of overloaded branch circuits.
- **Environmental sensing** with threshold and alarm set-points.
- **Notification** on the loss or removal of individual rack equipment loads.

MPH2™ Savings for a Typical Data Center

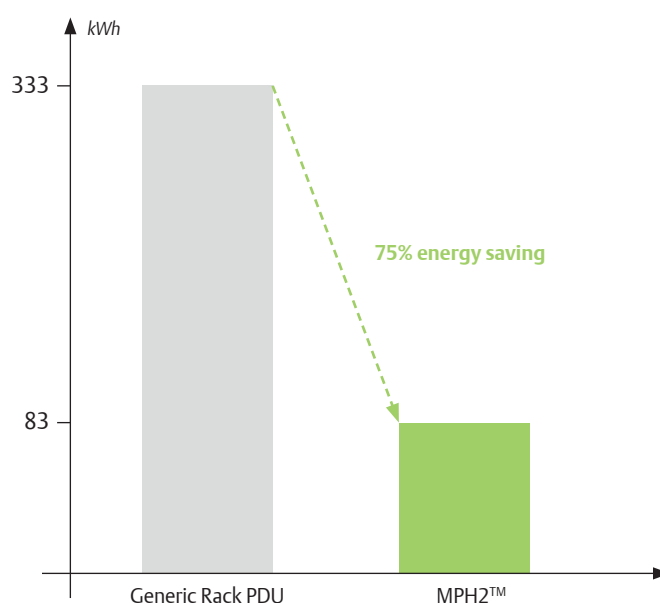
	Typical 24 Outlet Rack PDU	MPH2™
Rack PDU power consumption (Watts)	20	5
Rack PDU annual energy consumption (kWh) —24x7x365	176	44
Overall contribution to datacenter energy consumption (kWh)*	333	83

Energy saving

75%

Based on a comparison of switched rack PDU models for a typical 100 rack data center with a PUE of 1.9.

* per Energy Logic calculations



Communications Module (RPC2™):

Provides upgradable network communications, sensor and local display interface



BDM™ local display module:

Advanced diagnostics, displayed at a location that is convenient for the customer. Features include specific information on alarms, specific labels for outlets



Onboard display: Provides easy access to vital information at the rack

Slim profile breakers:

100% rated hydraulic magnetic slim profile. CB's provide reliable resettable branch circuit protection without nuisance tripping



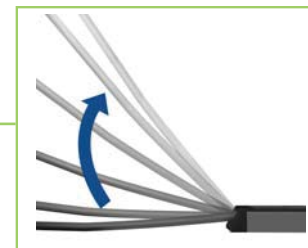
Special Knürr DCM Rack fastening without tools



Locking outlets and locking power cord: Prevents accidental unplugging of IT devices



SN Sensors: Consolidate environmental monitoring of temperature and humidity with rack level power



Flexible power cord entry: Simplifies installation of higher amperage units



Cord and hardwired options: Provide flexibility of wiring to both overhead and raised floor power distribution



Seamless DCIM Manageability and Integration

MPH2™ intelligent rack PDUs can be managed both locally and remotely. Metering of all electrical information down to the outlet, phase, bank or rack PDU level as well as integration with environmental sensors makes these rack PDUs the backbone of rack level power consumption and environmental information. Support for all major industry-standard management, authentication and encryption standards and protocols ensure that these products seamlessly fit into any existing network and security architecture.

Flexible Local & Remote Management

The MPH2™ standard onboard display provides all pertinent information required at the rack. The optional BDM local display is available for MPH2™, and provides flexibility in location of the display for most convenient visibility.

Remote communications at a rack PDU level is enabled by the modular, hot swappable RPC2™ card, providing seamless upgradeability and serviceability. RPC2 enables:

- **Support up to 4 PDUs within a Rack PDU Array™:** Minimizes IP addresses.
- **Support up to 10 environmental sensor probes:** Consolidated rack level power and environmental monitoring.
- **Support for Web UI, CLI, SSH and Telnet:** Provides Windows, Linux and network administrators their preferred way to interact with the rack PDU.
- **Support for all major remote authentication & encryption protocols:** Ensures seamless integration into any corporate security architecture.
- **SNMP v1, v2 and v3 support:** Ensures secure communications through network management systems.
- **IPv4 and IPv6 support:** Ensures continued IP support for rack PDUs.
- **Embedded data log:** Enables equipment or rack level baseline power consumption study.
- **Embedded event log:** Easier troubleshooting and auditing.

Remote monitoring interface capabilities include:

- Snapshot of all electrical parameters at outlet, branch, phase and aggregate level.
- Snapshot of environmental sensor readings and status.
- Threshold configuration, alarm creation and notifications.
- Power control of individual or group of outlets.
- Status information and configuration of all outlets.
- Network management settings.

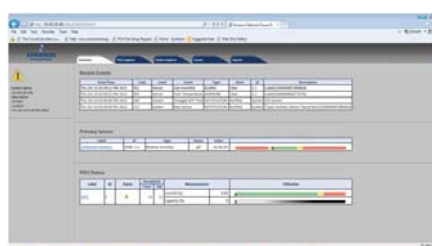
Centralized Management of all rack PDUs within a datacenter is provided by **Avocent Rack Power Manager**, providing access and control capabilities to easily maintain and configure your PDUs.

Rack Power Manager also provides state-of-the-art monitoring capabilities that enable intelligent server grouping across disparate racks. It also enables custom reporting, scheduled regular reports and the ability to set real-time threshold alerts to give you the highest quality information on your data center's power infrastructure and so you can truly leverage the investment in PDUs.

- **Measure and Track Power Costs** – The Rack Power Manager calculates and compares cost across multiple levels (rack, row, data centers or companies) to track cost over a period of time and also to measure the impact of any consolidation or expansion projects.
- **Review Historical Capacity and Consumption Reports** – Plan for future expansion or new facilities more accurately based on real historical data rather than faceplate ratings or best-guess scenarios which result in overbuilding and lead to inefficiencies.
- **Protect Against Downtime** – Help get a total reading on power usage for the data center and set a maximum threshold of power usage. Set alerts to know when the threshold is reached or exceeded and allow time to make changes before there are actual problems.
- **Accurately Plan** – Help IT know what electrical infrastructure to build into a new location or disaster recovery site. The design can be based on actual historical data rather than faceplate ratings or best-guess scenarios which result in overbuilding and lead to hard-to-correct inefficiencies.



Command Line Interface



Web User Interface



Avocent® Rack Power Manager

Leveraging your Rack PDU Investment

MPH2™ rack PDUs fully integrate into Emerson Network Power's industry-leading KVM, serial console and infrastructure management systems. Plus they integrate rack level power and environmental monitoring information from the rack PDUs with higher level data center management software provided by Emerson or third parties. By making the information available through these intelligent rack PDUs easily consumable, Emerson Network Power ensures that customers invest in a comprehensive, easy to use power distribution and management solution.

Integration with **Avocent® Advanced Console Server**, **MergePoint™ Unity KVM Switches** and **Universal Management Gateway appliances** ensures:

- Out of band management path for rack PDUs.
- Rack PDUs are a part of consolidated rack level access and control solution.
- Minimize the number of IP addresses required for rack PDU management.

Integration with **Avocent DSView™ 4** management software, which consolidates all data center management functionality into a single interface, delivers the complete data center control necessary for the 24/7 data center.

It enables secure, out-of-band, centralized management of all connected IT and network devices in today's often complex and geographically dispersed data centers.

When used in conjunction with KVM appliances, serial console appliances, service processor gateways and rack PDUs, the hardware and software combine to allow IT administrators to remotely access, monitor and control target devices on multiple platforms at numerous locations—anywhere, anytime.

In combination with rack PDUs DSView 4 management software ensures

- That rack PDUs are a part of consolidated datacenter level access and control solution.
- Easy association of IT equipment with the rack PDU outlets they are connected to.
- Rack PDUs are a part of consolidated authentication, authorization and audit solution for datacenters.

Integration with **Liebert® Nform™** and **Liebert SiteScan®** ensures:

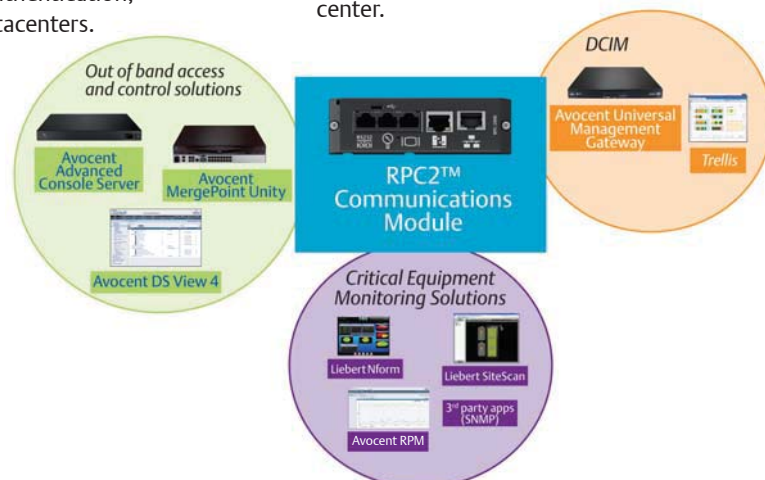
- Rack PDUs are a part of consolidated facilities level monitoring solution for datacenters.
- Real-time monitoring and control of virtually any piece of critical support equipment.
- Data analysis and trend reporting.
- Event management.

The **Trellis™** platform represents a groundbreaking DCIM innovation from Emerson Network Power – one that mitigates IT risk while at the same time increases operational efficiency – solving your problems for today and preparing you for the future.

Whether you're expanding, consolidating or planning IT initiatives, your data center requires constant monitoring, tracking and the ability to view real-time infrastructure metrics and data for accurate planning and decision making. The Trellis™ platform is a single application that provides the information you need, when you need it so you can accurately manage the data center and eliminate the need for multiple tools.

With real-time visualization, power tracking and mobile access in the Trellis™ platform, you can:

- Reduce inefficiencies without disrupting existing operations.
- Defer capital expenses and increase operating margin.
- Improve SLAs with end-to-end visibility across the infrastructure.
- Reduce operational expenses without compromising availability and agility.
- Manage remote resources more effectively.
- Improve overall efficiency with more visibility into the data center.



Ensuring The High Availability Of Mission-Critical Data And Applications.

About Emerson Network Power

Emerson Network Power, a business of Emerson (NYSE:EMR), delivers software, hardware and services that maximize availability, capacity and efficiency for data centers, healthcare and industrial facilities. A trusted industry leader in smart infrastructure technologies, Emerson Network Power provides innovative data center infrastructure management solutions that bridge the gap between IT and facility management and deliver efficiency and uncompromised availability regardless of capacity demands. Our solutions are supported globally by local Emerson Network Power service technicians. Learn more about Emerson Network Power products and services at www.EmersonNetworkPower.Asia

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