Rack Power Distribution For Critical IT Equipment

More efficient – Simpler – Better

EMERSON™
Network Power
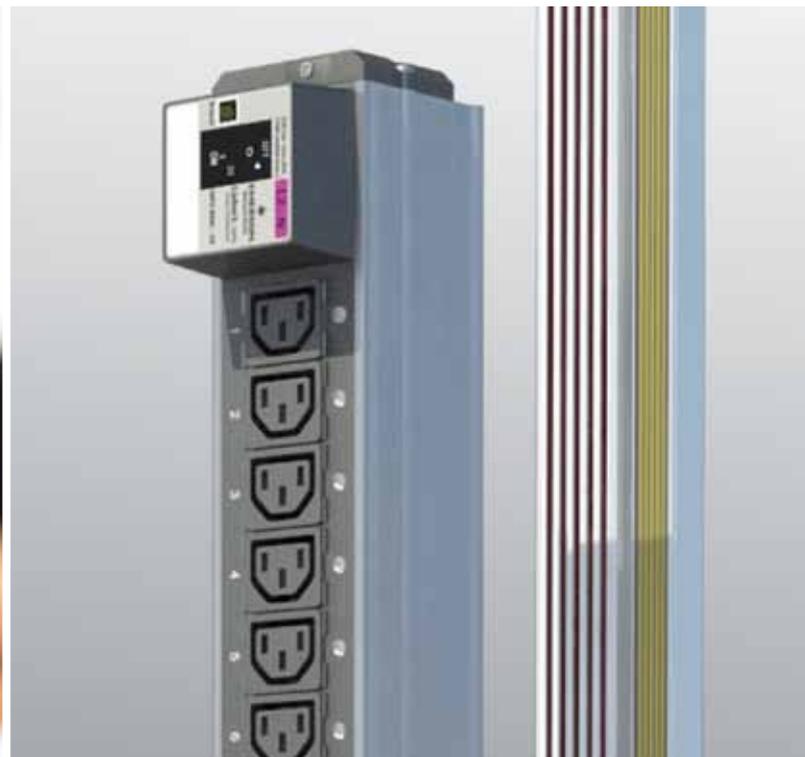
Enhanced Performance and Management of Dynamic IT Spaces

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.

DCIM software

Rack PDUs

Connected
IT infrastructure
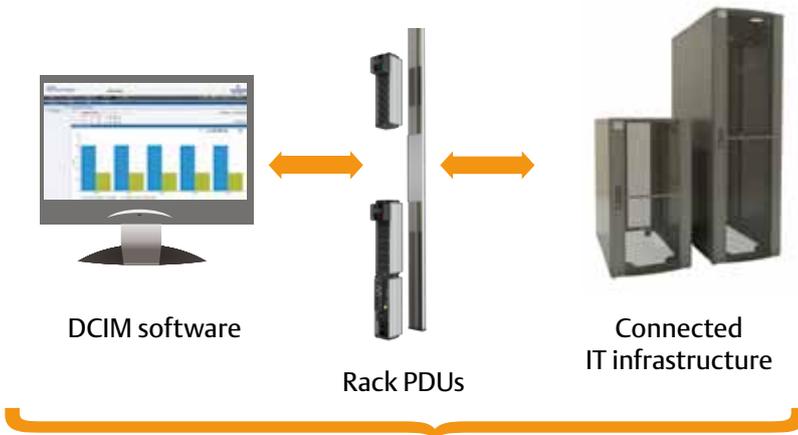
MPX™ and MPH2™ Rack PDUs

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.

SEE
ANALYZE
KNOW
PLAN
ACT
VALIDATE

SEE
DECIDE
ACT
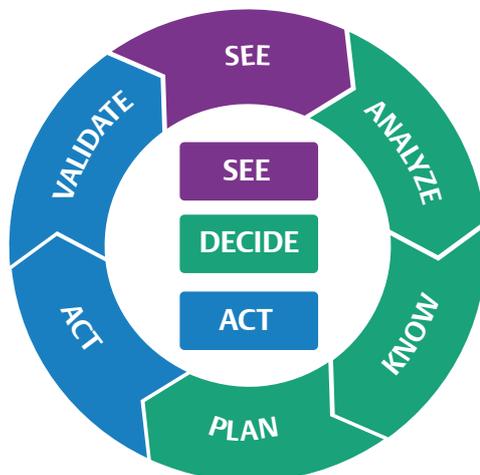
How you Benefit from
Emerson Network Power Rack PDUs

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.
- MPX™ rack PDU system-modular, adaptive design.
- Bistable / normally closed relays.

Optimized Energy And Capacity Management

By providing highly accurate and comprehensive energy metering from the aggregate to receptacle levels, MPX™ and 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

MPX™ and 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.

MPX™ - Adaptive Rack PDU:
Respond to Change while watching your Bottom Line

Confidently take on the uncertain future of connected power requirements with MPX™, the most responsive and adaptive rack PDU available. With MPX™ rack PDU technology, you can respond to rack equipment changes and dynamic capacities by leveraging:

- Hot-swappable modular output power.
- Hot-swappable modular communications.
- Modular input power.

MPX™ Benefits:
- **Adaptive** capacity, distribution, monitoring, control and management of critical devices.
- **Flexibility** to respond to constant change—redeploy modules to suit changing needs.
- **Buy only what you need** and build on your investment.
- **Secure communication.**

Reconfigurable Power Capacity & Distribution

The MPX™ rack PDU has a scalable design that allows onsite configuration to fit immediate IT equipment needs. It is the perfect choice to respond to the needs of a growing data center. Relocate or add IT equipment to support changing needs, by easily reconfiguring the power input and distribution.

Fits Needs Now And Later

The MPX™ rack PDU provides a wide selection of single phase and three-phase power input configurations—with the ability to field change while maintaining distribution infrastructure.

Designed for Critical Environments
- **Critical rack space operating temperature** – up to 55°C to support hot internal rack environments.
- **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.

Hot Swappable Output Power
deploy easily to get IT equipment online quickly

Receptacles & Modules
may be remotely controlled and metered, providing operator flexibility and allowing increased site security

Modular Input Power
- May be reconfigured to support changing power needs, single and three phase input.
- Can be positioned for top or bottom rack entrance.

Power Rail Chassis (MPX™ PRC): Distributes power and communications to all of the support modules. Available in two separate heights to accommodate varying rack heights

Branch Receptacle Modules (MPX™ BRM): Provide output power and branch circuit over protection. Elementary, branch metered and outlet metered & switched versions available

Power Rail Spacer: Reserves the unused space until an MPX™ module is needed

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

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

Communications Module (RPC2): Mounts in the Power Entry Module and provides upgradable network communications, sensor and local display interface

Power Entry Module (MPX™ PEM): Provides Input power. Elementary (without RPC2™) and input metered (with pre-installed RPC2™) versions are available.

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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.
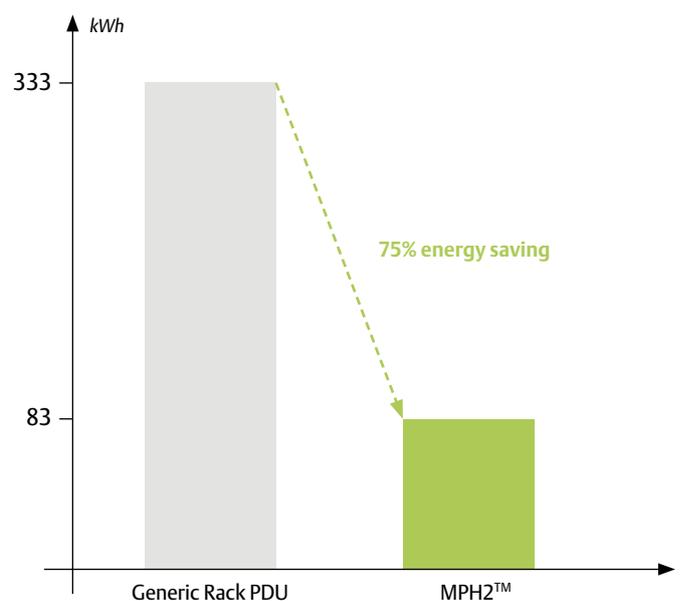- **Notification** on the loss or removal of individual rack equipment loads.

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 a comparison of switched rack PDU models for a typical 100 rack data center with a PUE of 1.9.
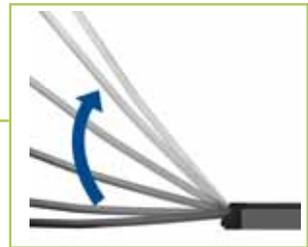
* per Energy Logic calculations

kWh

333

83

75% energy saving

Generic Rack PDU   MPH2™

Special Knürr DCM Rack fastening without tools

Communications Module (RPC2™): Provides upgradable network communications, sensor and local display interface

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

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

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

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

Flexible power cord entry: Simplifies installation of higher amperage units

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

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

Seamless DCIM Manageability and Integration

MPH2™ and MPX™ 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™ or MPX™, 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.
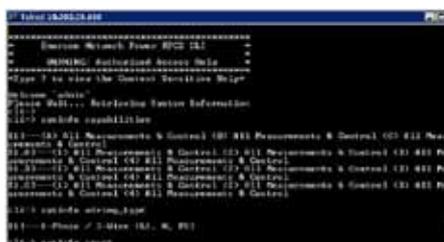
Command Line Interface

Web User Interface

Avocent® Rack Power Manager

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Leveraging your Rack PDU Investment

MPX™ and 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.
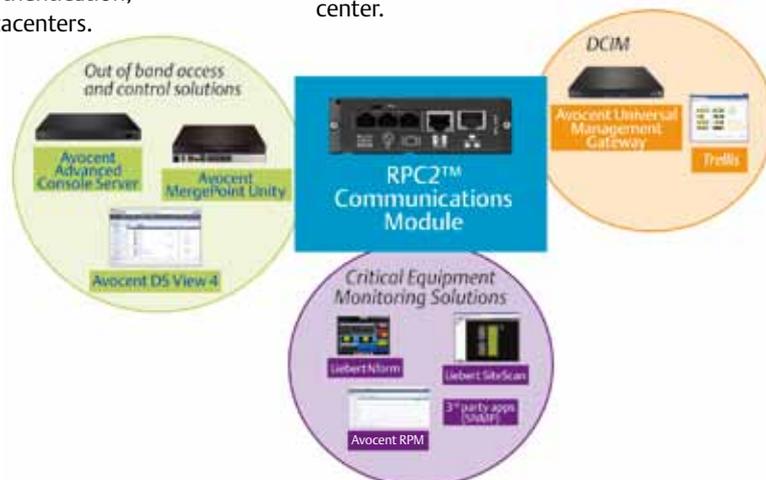
DI-STRIP® – Basic Rack PDU:
Robust PDUs with helpful equipment features

Emerson Network Power Basic Rack PDUs are the solution for every data center looking for robust, economical and flexible rack concepts. For power distribution the DI-STRIP® product family meets the requirements of numerous IT applications and other areas. Specially configured for the growing number of electronic components in network switching racks of server racks. Available with different accessories, such as circuit breakers, surge protection, mains filter, master-slave function, emergency off button, fault current circuit breaker, local and remote power measurement, for example.

Highest possible security and availability with:
- Closed sheet steel extrusion, which means high stability and torsional strength.
- Extensive certification in acc. with international standard.
- Double spring contacts for shock hazard-proof and low contact resistance.
- Unbalanced load monitoring with 3-phase feed prevents overload on the feed cable (only DI-STRIP versions M and RM).
- Optimum load monitoring with installation of the servers (only DI-STRIP versions M and RM).
- Individual outputs backup with the DI-STRIP BladePower and Pizza Power.
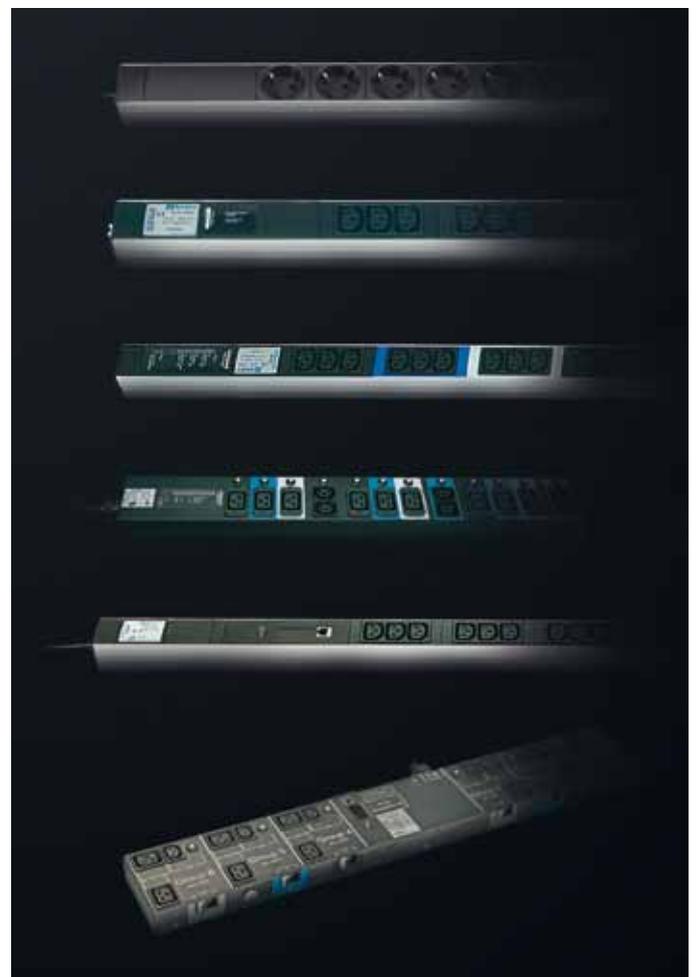
Maximum flexibility with:
- Configurations and options with international compatibility.
- 2.5 m or 4 m long mains cable for more spatial flexibility.
- Rotating display in 90° steps (only DI-STRIP versions M and RM).
- Tool-less installation, which means quick and easy extension in the rack (only DI-STRIP HighPower).

All DI-STRIP M / RM with display rotation for better reading.

Extremely low operating costs with:
- Quick and easy installation on the rack requires minimum space and shorter installation time.
- Automatic background light reduction extends the display's service life and reduces the rack PDU power loss (only DI-STRIP models M and RM).
- Especially flat housing extrusion, providing full accessibility to the 19" level with 600 mm wide server racks.

	MPX™	MPH2™	DI-STRIP®
Mounting	Preinstalled Toolless brackets Universal Mounting bracket Ability to ship rack PDU preinstalled in Emerson Racks		
Input Power Options North America	100 - 120V 1-ph 20A/30A 200 - 240V 1-ph 20/30A 200 - 240V 3-ph 20/30/50/60A 208/120V 3-ph 20/30A 415V/240V 3-ph 20A/30A		100 - 120V 1-ph 15/20/30A 200 - 240V 1-ph 20A/30A
Input Power Options International	230V 1-ph 16A/32A 230/400V 3-ph 16A/32A/63A		230V 1-ph 16A/32A 230/400V 3-ph 16A/32A
Input Wiring Options	10 ft. pluggable power cord	10 ft. pluggable power cord or Hardwired	8/10 ft. pluggable power cord
Max. Capacity North America	17.2 kW	17.2 kW	4.9 kW
Max. Capacity International	27.7 kW	22.2 kW	22.2 kW
Outlet Options	NEMA 5-20; IEC 320C13; IEC 320 C19; Schuko; French UTE; Schuko; Switzerland CH SEV 1011; GST 18	NEMA 5-20; IEC 320C13 IEC 320 C19 Locking capability on all outlets	NEMA 5-15; NEMA 5-20; IEC 320C13; IEC 320 C19; French UTE; Schuko; Switzerland CH SEV 1011; GST 18
Maximum Outlets	Basic BRM's: 42 Rack PDU Metered BRM's: 36 Outlet Metered & Switched BRM's: 36	Strip Metered: 42 Outlet Metered and / or Switched: 24	Max. 48
Maximum Operating Temp. Range	0°C to 55°C	0°C to 60°C	0°C to 45/55°C
Storage Temperature Range	-25°C to 85°C	-25°C to 85°C	-20°C to - 85°C
Relative Humidity	5% to 95%	5% to 95%	5% to 95%
Overcurrent Protection	Software Electronic Overcurrent Protection 100% Rated 20A Branch Overcurrent Protection - Hydraulic Magnetic Circuit Breakers		Hydraulic Magnetic Circuit Breakers/Fuses
Idle Power Consumption	3 W – 22 W	3W - 5W	N/A
0U Units Width x Depth	75 mm x 104 mm	56 mm x 50 mm	45 mm x 46 mm and others
0U units Length	1035 mm / 1880 mm	916 mm / 1004 mm / 1737 mm/ 1827 mm	333 mm - 1833 mm
Agency Approvals	UL, CSA, CE, RoHS, REACH, FCC Class A, CB, WEEE, ISTA		UL, CSA, CE, BG, CB, RoHS, REACH, WEEE
Metering Levels	Aggregate, Branch, Phase, Outlet		Aggregate (only DI-STRIP M/RM)
Parameters Measured	Volts, Current, kW, KVA, kWh, Power Factor, Crest Factor, Frequency		Current (only DI-STRIP M/RM)
Metering Accuracy	+/-1%		+/- 1% (only DI-STRIP M/RM)
Switching Capability	On, Off, Recycle, Lock, Unlock, Outlet Grouping Capability		N/A
Modularity	Power Entry Module Branch Receptacle Module RPC2™ communications module	RPC2 communications module	N/A
Local Management	Optional Local Display	Onboard Display, Optional Local Display	Onboard Display (only DI-STRIP M/RM)
Remote Management	Onboard Web Interface; CLI; SNMP; SSH; Telnet Integration with Avocent® ACS, Avocent Universal Management Gateway & Avocent MergePoint™ Unity Integration with DSView®, Rack Power Manager, Nform™ and the *Trellis™* platform		Onboard Web Interface, SNMP, Syslog, Integration with Liebert NformTM (only DI-STRIP RM)
SNMP version support	v1, v2 and v3		v1,v2
Authentication	Local Remote: Active Directory, LDAP, TACACS, Radius, Kerberos		N/A
Encryption	MD5, AES, DES		N/A

All systems are RoHS compliant.

RoHS 2002/95/EC

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.eu

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