Rack Power Distribution Unit For Critical IT Equipment
One Move Ahead With Emerson Network Power
Improved Performance And Management Of Dynamic IT

Emerson Network Power, a division of Emerson, is a global company that combines technology and design to supply innovative solutions for the benefit of its customers. Emerson Network Power is the leader in the “business-critical continuity” field, thanks to the company’s products and services. Emerson Network Power’s broad technology base and global expertise support a full spectrum of enterprise-wide solutions for today’s vital business needs.

**IT space is a dynamic environment.**
Successful businesses depend on adaptable technologies to help them respond quickly to market demands. Your data center must be built on a support infrastructure designed to match the power and cooling needs of rapidly changing IT initiatives such as virtualization and consolidation. Each IT move, addition or change will affect the entire support infrastructure. Therefore you need products and support that ensure your IT systems will operate reliably in these environments.

Emerson Network Power’s portfolio with brands such as Liebert, Knürr, Alber, Aperture and ASCO provide innovative and flexible solutions that ensure reliability and efficiency. With the help of monitoring and management tools from Emerson Network Power, the result is an infrastructure that will enable you to proactively manage your critical IT space.

The Rack PDU product family is the connectivity point of IT systems into your power and cooling infrastructure and the critical interface to an efficient and effective infrastructure management ecosystem.
It’s about the right move for your IT infrastructure
Liebert MPXTM- Adaptive Rack PDU
Delivers breakthrough, configurable/modular power management technology. Its ability to increase availability and provide comprehensive control and metering capabilities are examples of pure innovation. Liebert MPXTM is the perfect choice for a dynamic data center which frequently adds and moves equipment and for any data center deploying or planning virtualization.

Liebert MPH™- Managed Rack PDU
Offers several levels of metering in addition to control capabilities of connected equipment: a perfect solution for growing operations.

Knürr DI-STRIP®- Basic Rack PDU
For data centers with basic distribution needs, Emerson Network Power manufactures Basic Rack PDUs that deliver simple and expandable distribution in a robust package.

Infrastructure Management: The Key to Productive Operations
Improve the performance and management of your IT infrastructure with Liebert monitoring and control systems. Liebert MPXTM and Liebert MPH™ include the following capabilities:
- Web-based monitoring
- Liebert Nform IT based centralized monitoring
- Liebert SiteScan centralized monitoring
- User located local display with the ability to view up to four PDUs
- Liebert SN rack sensors
Infrastructure is not static: can you anticipate the next move?
Confidently take on the uncertain future of connected power requirements with Liebert MPXTM, the most responsive and adaptive rack PDU available. With Liebert MPXTM adaptive technology, you can increase availability of critical systems by leveraging hot-swappable modular power up to the receptacle level.

**Liebert MPXTM Benefits:**
- **Adaptive** capacity, distribution, monitoring, control and management of critical devices
- **Flexibility** to respond to constant change
- **Buy only what you need** and build on your investment
- **Secure communication**

**Reconfigurable Power Capacity & Distribution**
Liebert MPXTM 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.

**Designed for Critical Environments**
- **Industry’s widest operating range** - up to 55°C / 131°F to support rack environments
- **Accurate power metering** of +/-1% voltage & current for assured oversight
- **Energy and power metering** down to the individual receptacle
- **Comprehensive alarming notification** of overloaded branch circuits
- **Environmental sensing** with threshold and alarm set-points
- **Notification** on the loss or removal of individual rack equipment loads

**Fits Your Needs Now And Later**
Liebert MPXTM provides a wide selection of single and three phase power input, with the ability to change while maintaining your distribution infrastructure

**Perfect For Blade Servers And Changing Environments**
Data centers are moving to high density blade servers, utilizing more processing power in less rack space, simplify cabling and reducing power consumption. Liebert MPXTM allows the data center to respond quickly to change, therefore the right choice to manage your infrastructure.

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*Status Display (RPC-BDM)* is easily moved to the most convenient spot for the individual rack - even outside the rack. This tethered display may be located for user convenience.
Do you want to be one move ahead of your next load? MPX™ provides the flexibility.

**INPUT POWER**
- Reconfigurable 20 to 60 amp (USA);
- 16 to 63 amp (EU);
- can be positioned for top or bottom cable entrance

**OUTPUT DISTRIBUTION**
- Scalable, mix compatible & hot-swappable
- Single phase NEMA 5-20R, IEC C13, IEC C19, Schuko
- Load balanced selection

**MODULARITY**
- Input power, output distribution, communications, and display
- Add connectivity with basic rack PDU expansion unit

**METERING**
- Mix compatible levels
- Strip level + Branch Receptacle Module + Receptacle
- (1) Aggregate Rack PDU + Branch Receptacle Module
- (2) Aggregate Rack PDU + Branch Receptacle Module + Receptacle
- Environmental sensors - Temperature & humidity

**REMOTE RECEPTACLE CONTROL**
- Receptacle level

**LOCAL MONITORING**
- User located display
- Can be positioned even outside the rack

**REMOTE MONITORING**
- Secure Web/SNMP Interfaces
- Liebert Nform
- Liebert SiteScan Web

**OVERLOAD PROTECTION**
- Physically and electrically isolated breaker per receptacle module

**RACK PDU ARRAY™**
- Single IP for up to 4 Rack PDUs
- Liebert MPX™ and Liebert MPH™ on same private network

**FORM FACTOR**
- Vertical mount (Zero U)
- Fits in typical deep 23/42U racks and/or 800 mm width racks
Liebert MPX™: Hot-Swappable Power Output & Reconfigurable Power Input

Liebert MPX™ allows you to add or change distribution without powering down. The hot-swappable receptacle modules allow for easy upgrading and get IT equipment online quickly. Change input power to support dynamic environments while maintaining distribution and communications infrastructure.

Adaptive Rack PDU
Liebert MPX™ is an adaptive Rack PDU system that provides AC input power, output distribution and critical IT quality performance via its scalable, modular architecture.
Liebert MPX™ Benefits:

**Flexibility**
- Allows the users to add individual hot-swappable modules for capacity as demand grows
- Offers the ability to change input capacity or configuration while maintaining Rack PDU infrastructure
- Provides for user-located local and remote monitoring and management of connected loads
- Change monitoring and control functionality or mix on a single MPX™ to suit requirements.
- Position input power module for top or bottom cable entrance

**Higher Availability**
- Controls and manages individual receptacles and or groups of loads and devices
- Predicts overcurrent conditions before they become critical
- Shuts down non-essential equipment during power outages to maximize availability and back-up power
- Expanded branch overload protection minimizes threat of cascading PDU overload
- Reliably delivers connected UPS power to the protected equipment

**Lowest Total Cost Of Ownership**
- Provides the most cost-effective, flexible design available
- Allows redeployment of modules to suit changing needs
- Energy metering provides users the information to maximize the data center power and cooling infrastructure
- Liebert MPX™ modularity and flexibility extends the useful life of the infrastructure investment
- Employs energy efficient receptacle control technology

**Monitoring Anywhere You Need It**
From the individual receptacle of each discrete device to the complete rack PDU, monitoring is available to meet user needs. Displays are designed for easy user location to fit changing site needs. Display and sensors are designed for easy mounting on the rack. A single display can handle up to four Liebert MPX™ or Liebert MPH™ systems and associated monitoring accessories.

**RPC-BDM**
Displays power parameters and alarms for up to four Liebert MPX™ or Liebert MPH™ systems. Display orients for horizontal or vertical installation and reading.

Liebert MPX™ may be remotely monitored and controlled via secure web/SNMP interfaces or Liebert Nform or Liebert SiteScan Web.
Liebert MPH™ is the flexible Rack PDU solution with remote monitoring and control capabilities as well as environmental input options. It offers multiple power input selections and output configurations in both vertical zero-U and rackmount form factors. Up to four Liebert MPH™ PDUs may be interconnected as a Rack PDU Array™, consolidating user IP connections and device monitoring.

Liebert MPH™ Monitoring And Control Support
Monitored electrical parameters include: voltage, current, real and apparent power, power factor, and accumulated energy or consumption. Capacity based current thresholds provide comprehensive alarm notifications from the Rack PDU and branch.

Liebert MPH™ Can Benefit Your Data Center
- Monitors electrical and environmental parameters with set threshold and alarm tools
- Controls access of receptacle power
- 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

Liebert MPH™ Benefits:
Flexibility
- Local displays are easily located to suit a crowded and changing rack environment
- Supports mounting in 19” EIA, 42U rack environments
- Offered in vertical, zero U and rackmount form factors
- Provides a compatible monitoring platform for Liebert MPH™ and Liebert MPX™, offering seamless common operation if deployed together
- User positioned input power cord interface

Higher Availability
- Controls and manages individual receptacles
- Predicts overcurrent conditions before they become critical
- Shuts down non-essential equipment during power outages to maximize availability and back-up power
- Expanded branch overload protection minimizes threat of cascading PDU overload

Lowest Total Cost Of Ownership
- Provides full featured monitoring and control in a cost effective package
- A Rack PDU Array shares a single IP address for up to four Rack PDUs, making deployment faster and easier
- Energy and power metering provides users the information to maximize the data center power and cooling infrastructure
- Employs energy efficient receptacle control technology

Status Display (RPC-BDM) provides users optimal local display positioning by allowing mounting on rack doors or wherever best suited for a changing rack environment
If you know your next move and still want availability MPH™ is the choice.
Analyzing The Next Move Requires Strategy With The Management Platform, The Guess Work Is Taken Out Of The Equation

**Secure Web/SNMP Interfaces**
- User configured alarm thresholds
- High alarm and warning; low alarm
- Receptacle state and sequencing configuration
- Electrical metering, Volts, Amps, kW & kW/hr, Power Factor, frequency
- Rack PDU Array - Device consolidation
- PDU Explorer - Intuitive hierarchical interface
- View PDU status by strip or receptacle
- Device Explorer - Browsing by user defined device name
- Environmental monitoring: temperature and humidity

**Liebert Nform**
- Monitoring and control of Liebert equipment through the LAN
- Provides email alerts and local notifications
- Offers a scalable software solution for the IT environment

**Web Monitoring**
- Monitors PDUs parameters via web browser
- No dedicated software required
- Simultaneous view of up to 4 PDU

**Network Management System**
- Open standard solution
- Support any SNMP device
- Scalable software solution for businesses of any size

**Optional Hardware**

**RPC-BDM Local Display Module**
- Electrical and environmental parameters
- One RPC - BDM supports up to 4 PDUs on array
- PDU explorer
- Device Explorer

**Liebert SN Family Of Rack Sensors**
- Single or multi - probe temperature
- Multi - probe temperature and humidity
Liebert Nform
Web Monitoring
Liebert SiteScan Web
Network Management System

Monitoring Architecture

Liebert MPX
Liebert MPH
User's Server Rack
Environmental Sensors
RPC-BDM
(Local Display Module)
Power Source A
Power Source B
MPX-PEM (Power Entry Module)

Lieber MPX-BRM
(Branch Receptacle Module)
Branch Monitoring
Lieber MPX-BRM
Receptacle Management

Network PDU Array (up to four systems)
Knürr DI-STRIP® Family: Basic Rack PDU, Standard And High-Power Systems

Knürr Basic Rack PDUs are the right answer for data center users selecting robust, economic and flexible rack power solutions.

Knürr DI-STRIP® product family meets a broad range of power distribution requirements for IT and other applications. Especially designed to handle the growing number of electronic components housed within network cabinets or server racks. It is available with a range of accessories including circuit breakers, overvoltage protection and more.

Knürr DI-STRIP® Benefits:

Higher Availability
- Reliable and robust solution
- Worldwide approvals and certification
- Full-length brass busbar on standard models enhances operational reliability
- Standard system extruded casing, and High-Power system heavy duty casing provide durability

Flexibility
- Multiple configurations and input power options available including international compatibility
- The addition of the Basic Rack PDU Expansion Unit allows for growth
- 2.5 m/4 m power supply cable offers room for movement

Lowest Total Cost of Ownership
- Simple and quick installation on the rack’s extrusion requires minimal space and reduces installation time

Construction
Extruded casing and full length brass busbar enhance the durability and reliability of the standard systems. Heavy duty casing and reduced wiring contact points are quality features of the High-Power systems.

Models And Configurations
Available in a wide variety of models and power configurations to meet most site needs.
INPUT POWER
- Single or three phase
- Up to 25kW
- Single or dual input feed

OUTPUT DISTRIBUTION
- Single phase, NEMA 5-20R, IEC C13 & C19
- Combination systems
- Schuko, French, Switzerland

MODULARITY
- Add connectivity with basic rack PDU expansion unit
- GST18 PDUs

FORM FACTOR
- Vertical (Zero U) mount
- Rackmount

LOCAL MONITORING
- Fixed display

OVERLOAD PROTECTION
- Breaker/fuses per branch/outlet as required

If your moves are predictive DI-STRIP® offers this with flexibility
Knürr Miracel® and Knürr Miracel® PLUS

Emerson Network Power delivers a full range of enclosures and rack systems for your data center. Choose the right rack for your needs.

Knürr Racks
Knürr racks provide the convenience of robust 19” racks with high end features and standardized options to provide fast customization for individual site needs. The racks are designed for optimized airflow and maximize useful mounting space.

- Fully assembled racks
- Side panels
- Improved airflow with 83% open area on perforated doors – the industry’s highest

Knürr Rack

Lightweight design
extruded aluminum framing superior in strength and more than 10 kg lighter than standard steel-frame racks.

Unsurpassed airflow
83% perforated doors improve heat reduction

Tool-less accessories
simple installation with a twist of the wrist.

• Enclosure height of 42U
• Widths of 600 mm, 700 mm or 800 mm
• Depth of 900 mm, 1000 mm, 1200 mm
• Mounting and cable management options, including tool-less options
• Low profile casters
• 600 mm, 700 mm or 800 mm

PowerTrans®- Power Distribution Rack for Data Centers
The Knürr PowerTrans Rack provides the interface between the low voltage feed and the rack PDU, to feed power to servers and other IT devices. The rack is equipped with up to eight PowerTrans 19” slot-in units. The slot-in units are immediately powered with redundant, A and B power feeds when locked into the rack installation slot.
Knürr PowerTrans®

Power Distribution Rack For Data Centers

Knürr PowerTrans® provide the interface between the low voltage feed and the Power Distribution Unit (PDU) of the DI-STRIP® family, plus further components for feeding servers and other IT devices. The rack basis: Knürr Miracel® is equipped with the existing PowerTrans® 19” slot-in units by simply slotting and securing them into a free spot. The electrical connection to the rack is set up immediately. The power distribution is performed in the individual slot - in units, and therefore no longer has to be installed fixed in the building. Up to 8 slot-in units can be integrated. Each slot-in unit is supplied with an A and B feed (redundancy). With max. 250A/phase loads of up to 346 kVA can be supplied from just one single rack. Plug & Play - Only the main feed on the rack must be installed by an electrician. The individual slot-in units and the PDUs can be connected per Plug & Play installation, thereby allowing cost - effective later extensions.

Equipping And Installation

The outputs on the slot-ins can be flexibly equipped as requested by the customer with a wide range of features, with various CEE and GST 18 type plug-in connections (e.g. Adaptive, Managed and Basic PDU, as well as flexible distribution with the GST 18i5 distributor block, 3-phase).

Two 3-phase feeds
Feed A and feed B both three-phase with max. 250A/phase L1, L2, L3, N, PE ideal for providing load redundancy.
### Liebert MPXTM - Adaptive Rack PDU SUMMARY

#### Power & Comms Backplane - MPXTM PRC (Power Rail Chassis) One Per Liebert MPXTM System

<table>
<thead>
<tr>
<th>Input Power - MPXTM PEM (Power Entry Module)</th>
<th>Output Distribution - MPXTM BRM (Branch Receptacle Module)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Per Liebert MPXTM System</td>
<td>One to Six Per Liebert MPXTM System - Quantity Per MPXTM PRC Length</td>
</tr>
<tr>
<td><strong>Available Voltage</strong></td>
<td>Types</td>
</tr>
<tr>
<td>USA: 120 &amp; 208VAC / 1-Phase; 208-240VAC / 3-Phase</td>
<td>Branch Monitoring - Monitor Module and Aggreate MPXTM <strong>Receptacle Management - Control &amp; monitor to individual receptacles</strong></td>
</tr>
<tr>
<td>EU: 230 / 1-Phase, 400VAC / 3-Phase</td>
<td>Types can be mixed on single MPXTM system <strong>Receptacles per BRM</strong></td>
</tr>
<tr>
<td><strong>MPXTM PEM-Variable Capacity</strong></td>
<td>USA: 6x NEMA 5-20R; 6x IEC -C13, 4x IEC-C19</td>
</tr>
<tr>
<td>USA: 20Amp / 1-Phase to 30Amp / 3-Phase</td>
<td>EU: 6x IEC-C13, 4x IEC-C20, 3x Schuko <strong>Protection</strong></td>
</tr>
<tr>
<td>EU: 32Amp / 1-Phase to 32Amp / 3-Phase</td>
<td>Branch rated circuit breaker - 20Amps / Full rating <strong>Application / Install</strong></td>
</tr>
<tr>
<td>Input power selected with MPXTM IPC (Input Power Cord)</td>
<td>Hot-swappable <strong>All systems are RoHS compliant.</strong></td>
</tr>
<tr>
<td><strong>MPXTM PEM-Fixed Capacity</strong></td>
<td><strong>Liebert MPHTM - Managed Rack PDU SUMMARY</strong> (American Systems)</td>
</tr>
<tr>
<td>USA: 3-Phase; 50Amp 4-wire or 60Amp 5-wire</td>
<td>230VAC-Single Phase Input / Output</td>
</tr>
<tr>
<td>EU: All 3-Phase; 63Amp 5-wire</td>
<td>Rackmount Form Factor 16 or 32 Amp IEC input; 9x IEC-C13 receptacles</td>
</tr>
<tr>
<td><strong>Knürr DI-STRIP® - Basic Rack PDU SUMMARY</strong> (American Systems)</td>
<td></td>
</tr>
<tr>
<td><strong>Knürr DI-STRIP® - Basic Rack PDU SUMMARY</strong> (European Systems)</td>
<td></td>
</tr>
<tr>
<td>120VAC-Single Phase Input / Output</td>
<td>230VAC-Single Phase Input / Output</td>
</tr>
<tr>
<td>Rackmount Form Factor 15 or 20 Amp NEMA input; 9x 5-20R receptacles</td>
<td>Rackmount Form Factor 16 or 32 Amp IEC input; several receptacles</td>
</tr>
<tr>
<td>Vertical Form Factor 15, 20 &amp; 30 Amp NEMA &amp; &quot;Expansion&quot; input; 12-24x 5-20R receptacles</td>
<td><strong>230VAC-Single Phase Input / Output</strong></td>
</tr>
<tr>
<td>208-240VAC-Single Phase Input / Output</td>
<td>Vertical Form Factor 16 or 32 Amp IEC input; 27x IEC-C13 or 21x IEC-C13 plus 6x IEC-C19 receptacles</td>
</tr>
<tr>
<td>Rackmount Form Factor 20 or 30 Amp NEMA input; 27x 5-20R receptacles</td>
<td><strong>400VAC-3Phase Input / 230V Output</strong></td>
</tr>
<tr>
<td>Vertical Form Factor 20 or 30 Amp NEMA input; 27x IEC-C13 receptacles</td>
<td>Vertical Form Factor 32 Amp IEC input; 27x IEC-C13 or 27x IEC-C13 plus 6x IEC-C19 receptacles</td>
</tr>
<tr>
<td>120/208VAC-Three Phase Input / Input</td>
<td><strong>400VAC-3Phase Input / 230VAC Output</strong></td>
</tr>
<tr>
<td><strong>Knürr DI-STRIP® - Basic Rack PDU SUMMARY</strong> (American Systems)</td>
<td></td>
</tr>
<tr>
<td>Vertical Form Factor 30 Amp NEMA input; 27x IEC-C13 or 21x IEC-C13 plus 6x IEC-C19 receptacles</td>
<td>Vertical Form Factor 16 &amp; 32 Amp IEC input; several receptacles</td>
</tr>
<tr>
<td><strong>Knürr DI-STRIP® - Basic Rack PDU SUMMARY</strong> (European Systems)</td>
<td></td>
</tr>
<tr>
<td>120VAC-Single Phase Input / Output</td>
<td>230VAC-Single Phase Input / Output</td>
</tr>
<tr>
<td>Rackmount Form Factor 43 &amp; 60 Amp IEC input; 6x 48X 5-20R, IEC-C13, C19 &amp; combinations</td>
<td>Rackmount Form Factor 16 &amp; 32 Amp IEC input; several receptacles</td>
</tr>
<tr>
<td>Vertical Form Factor 43 &amp; 60 Amp IEC input; 6x 48X 5-20R, IEC-C13, C19 &amp; combinations</td>
<td><strong>230VAC-Single Phase Input / Output</strong></td>
</tr>
<tr>
<td>Vertical Form Factor 43 &amp; 60 Amp IEC input; 6x 48X 5-20R, IEC-C13, C19 &amp; combinations</td>
<td>Vertical Form Factor 16 &amp; 32 Amp IEC input; several receptacles</td>
</tr>
</tbody>
</table>

**All systems are RoHS compliant.**
Tech Support
Always On! Our Commitment to your daily Business, provided by our World Wide Tech support available in 5 languages (English, French, German, Italian & Spanish).

e-Learning Platform
A wide spectrum of information, tech-focus and knowledge test to upgrade our Partners’ competence.

Newsletter
Go On -Line and submit immediately to get our monthly IT Channel Business newsletter. Available in 5 languages, including special promo, event news and tech pills.

On Line Website
Visit the on line website fully dedicated to the Liebert MPX™, to get the most updated information! www.liebertmpx.com

Get More on line: www.eu.emersonnetworkpower.com