

■ AC Power  
For Business-Critical Continuity™

## Emerson Network Power Rack PDU Solutions

Rack Power Distribution For Critical IT Equipment



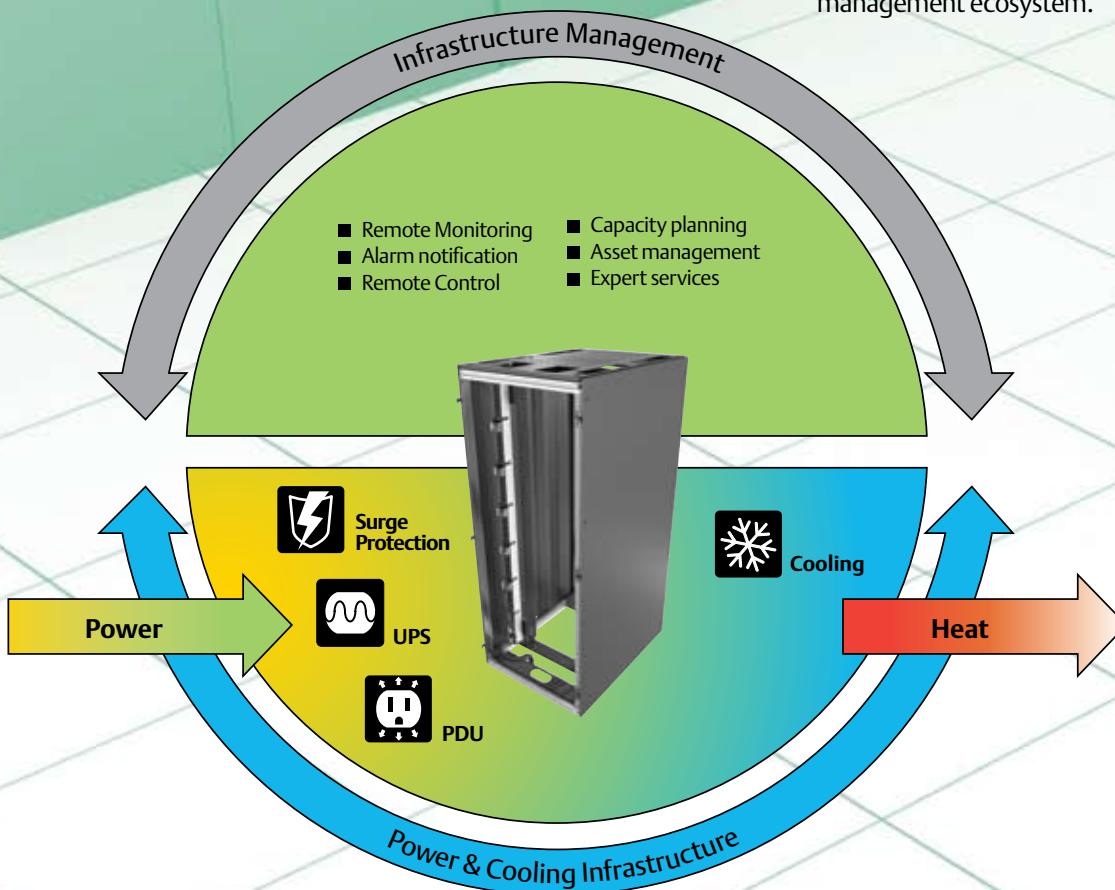
## Enhanced Performance And Management Of Dynamic IT Spaces

### IT space is a dynamic environment.

Today's 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 change, move or addition will affect the entire support infrastructure—you need products and support that ensure your IT systems will operate reliably in these environments.

Emerson Network Power's portfolio of products from brands such as Liebert, Knurr, Alber, Aperture, and ASCO provide innovative, 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 spaces.

The Rack PDU family of products 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.



## Emerson Network Power Rack PDU Family: Distribution Solutions From Basic To Adaptive

### Infrastructure Management: The Key to Productive Operations

Improve the performance and management of your IT infrastructure with Liebert monitoring and control systems.

Liebert MPX 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 PDU's
- Liebert SN rack sensors

### Liebert MPX— Adaptive Rack PDU

Delivers breakthrough, configurable/modular power and management technology. Its ability to increase availability and provide comprehensive control and metering capabilities are examples of pure innovation.

Liebert MPX is the perfect choice for a dynamic data center which frequently adds and moves equipment, and for any data center deploying or planning to deploy 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.

### Knurr DI-STRIP— Basic Rack PDUs

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



## Liebert MPX - Adaptive Rack PDU: Respond To Change While Watching Your Bottom Line

Confidently take on the uncertain future of connected power requirements with Liebert MPX, the most responsive and adaptive rack PDU available. With Liebert MPX adaptive technology, you can economically increase availability of critical systems by leveraging hot-swappable modular power and managing power all the way to the receptacle level.

### Liebert MPX 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 MPX 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 leading operating temperature**—up to 55°C / 131°F 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

### Fits Needs Now And Later

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

### Perfect For Blade Servers And Changing Environments

Data centers are moving to high density blade servers to utilize more processing power in less rack space, simplify cabling and reduced power consumption. Liebert MPX allows the data center to respond quickly to change, making it the right choice to manage the infrastructure.



The adaptive Liebert MPX offers a variety of user specified modules, including the MPX BRM (Branch Receptacle Module).

## Liebert MPX



### Scalable Design Allows Onsite Configuration To Fit immediate IT Equipment Needs.

*The Liebert MPX Adaptive Rack PDU features essential characteristics to support fast-paced, growing data centers.*

**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

**Input Power**

- may be reconfigured to support changing power needs, single and three phase input
- can be positioned for top or bottom rack entrance



### 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.

#### INPUT POWER

- Reconfigurable—20 to 60 amp (NA); 16 to 63 amp (EU); single and three phase

#### 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

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

#### REMOTE RECEPTACLE CONTROL

- Receptacle level

#### LOCAL MONITORING

- User located display

#### REMOTE MONITORING

- Secure Web/SNMP Interfaces
- Liebert Nform
- Liebert SiteScan Web

#### OVERLOAD PROTECTION

- Physically and electrically isolated breaker per receptacle module
- Hydraulic-Magnetic breaker

#### RACK PDU ARRAY™

- Single IP for up to 4 Rack PDU's
- Liebert MPX and Liebert MPH on same private network

#### FORM FACTOR

- Vertical mount (Zero U)
- Fits in typical deep 23/42U racks and/or 800mm width racks

# Liebert MPX: Hot-Swappable Power Output & Reconfigurable Power Input

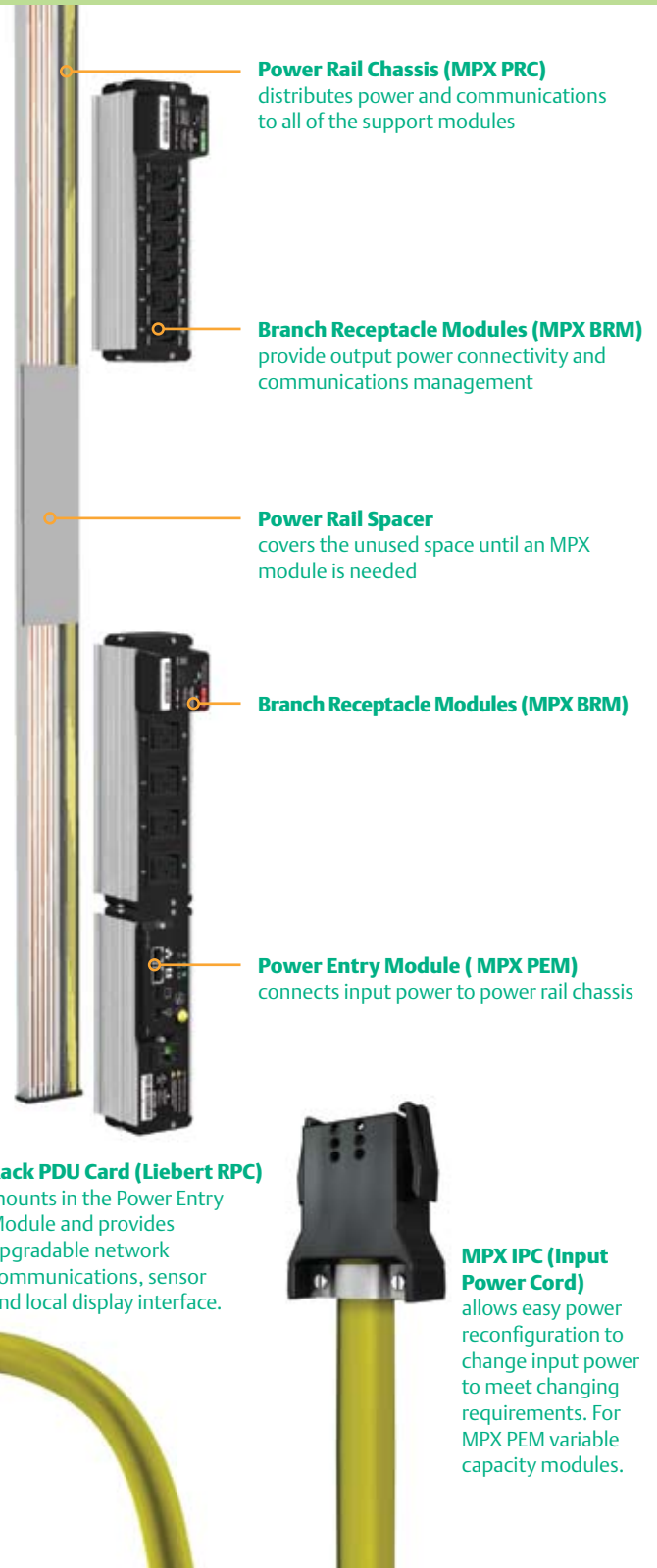
Liebert MPX allows you to add or change distributed power without powering down. The hot-swappable receptacle modules allow for easy upgrading, and get IT equipment online quickly. Change input power configuration to support dynamic environments while maintaining distribution and communications infrastructure.

## 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.

**MPX PEM fixed capacity module** for 40-63A 3-phase applications.

**MPX PEM variable capacity module**, 30A (NA)/32A (EU) and below 1 or 3 phase applications. Detachable power cord supports changing input power requirements.



**Power Rail Chassis (MPX PRC)** distributes power and communications to all of the support modules

**Branch Receptacle Modules (MPX BRM)** provide output power connectivity and communications management

**Power Rail Spacer** covers the unused space until an MPX module is needed

**Branch Receptacle Modules (MPX BRM)**

**Power Entry Module (MPX PEM)** connects input power to power rail chassis

**Rack PDU Card (Liebert RPC)** mounts in the Power Entry Module and provides upgradable network communications, sensor and local display interface.

**MPX IPC (Input Power Cord)** allows easy power reconfiguration to change input power to meet changing requirements. For MPX PEM variable capacity modules.



Liebert MPX may be remotely monitored and controlled via secure web/SNMP interfaces or Liebert Nform or Liebert SiteScan Web.



### 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 manage 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 SN Family of Rack Sensors



## Liebert MPX Benefits:

### Flexibility

- Allows user 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 rack 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 design available—build, add on, or modify the platform design
- 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

# Liebert MPH—Managed Rack PDU: Advanced Monitoring And Control Support

## Rack PDU Card (Liebert RPC)

Provides upgradable network communications, sensor and local display interface

Liebert MPH is a 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
- Industry leading operating temperature—up to 55 °C / 131 °F to support hot Internal rack environments

### 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

## Branch Overload Protection

## Flexible Power Cord Mount

User adjustable for horizontal or vertical orientations

## Liebert MPH

### INPUT POWER

- 20 to 30 amp (NA); 16 to 32 amp (EU); single and three phase

### OUTPUT DISTRIBUTION

- Single phase NEMA 5-20R, IEC-C13 & IEC-C19 ; Combination systems

### MODULARITY

- Modular card-based communications and display
- Add connectivity with basic rack PDU expansion unit

### METERING

- Branch and aggregate Rack PDU
- Environmental sensors – Temperature & humidity

### REMOTE RECEPTACLE CONTROL

- Receptacle level

### LOCAL MONITORING

- User located display

### REMOTE MONITORING

- Secure Web/SNMP Interfaces
- Liebert Nform
- Liebert SiteScan Web

### OVERLOAD PROTECTION

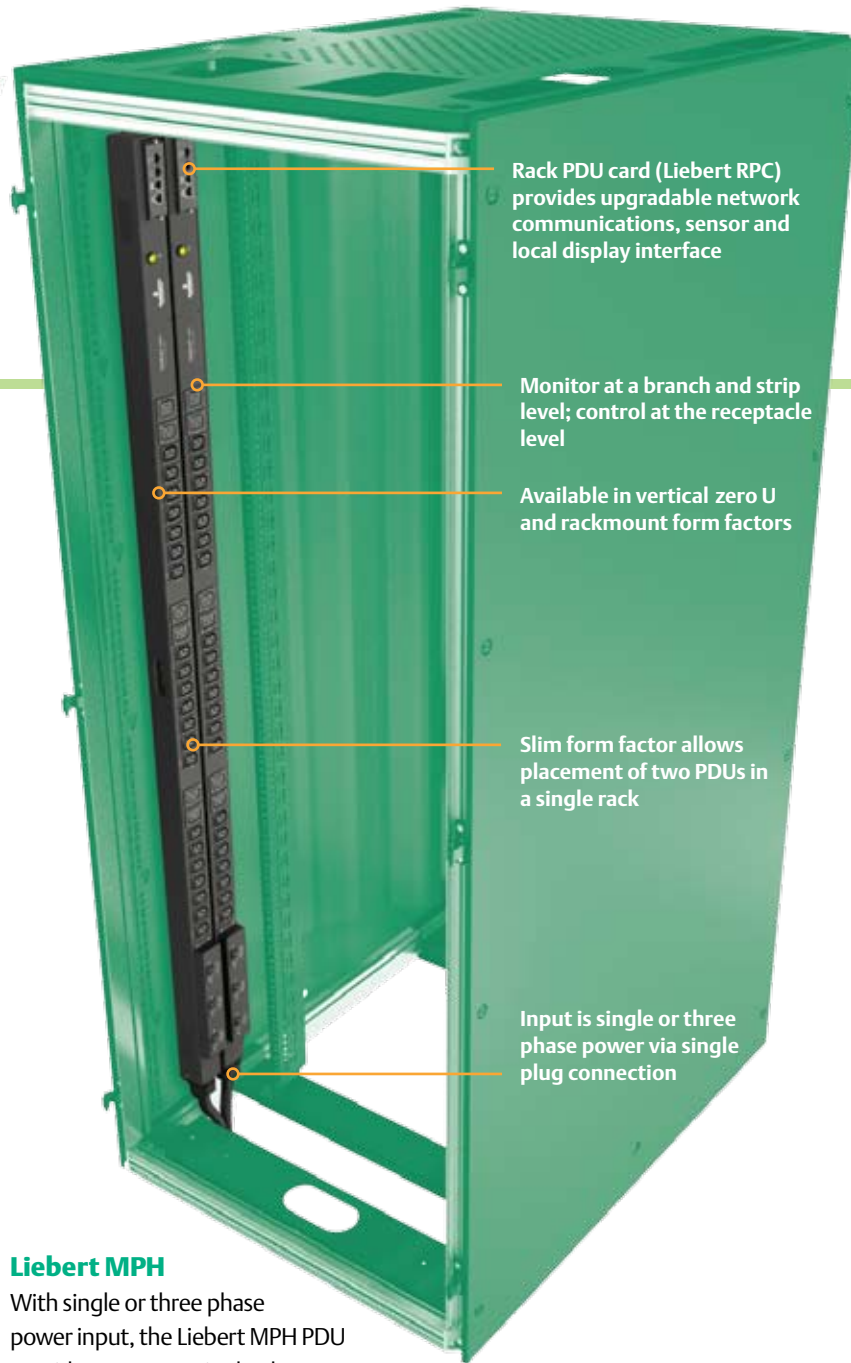
- Breaker per branch as required
- Hydraulic-Magnetic breaker

### RACK PDU ARRAY

- Single IP for up to 4 Rack PDU's
- Liebert MPX and Liebert MPH on same private network

### FORM FACTOR

- Vertical mount (Zero U)
- Rackmount



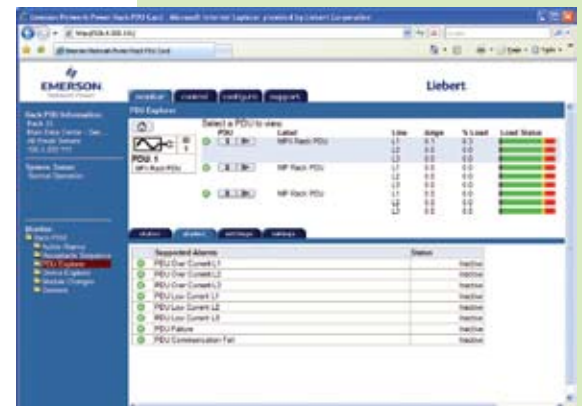
### Liebert MPH

With single or three phase power input, the Liebert MPH PDU provides output as single phase power and is offered in vertical, Zero U and rack mount form factors to support mounting in 19" EIA 42U rack environments.



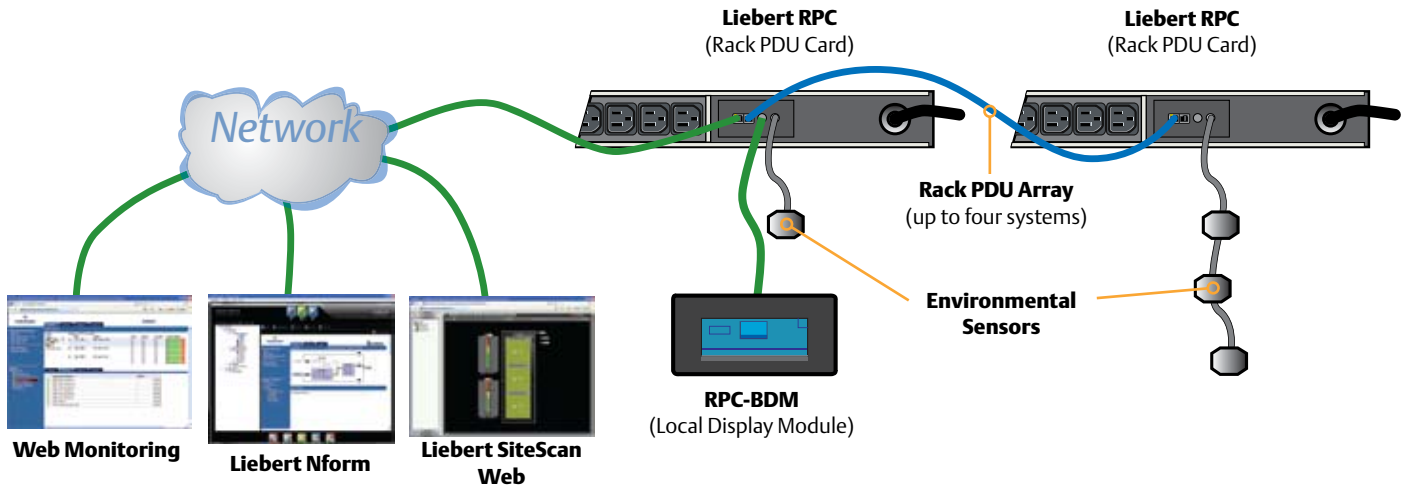
### Status Display (RPC-BDM)

provides users optimal local display positioning by allowing mounting on rack doors or wherever best suited for a changing rack environment.



Liebert MPH may be remotely monitored through a variety of convenient interfaces.

# Rack PDU Power Management And Monitoring Interfaces



## Infrastructure Management



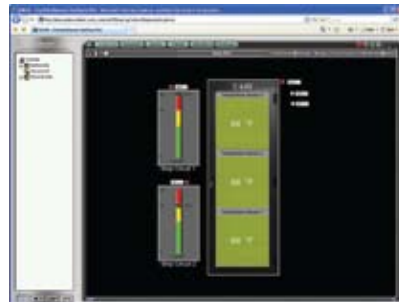
### Secure Web/SNMP Interfaces

- User configured alarm thresholds
- High alarm and warning; low alarm
- Receptacle state and sequencing configuration
- Electrical metering, volts, amps, kW & kW/hr
- 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



### Liebert Nform IT Based Centralized Monitoring Software

- Trending of power data
- Receptacle group control



### Liebert SiteScan Web

- Centralized monitoring software
- Provides real-time monitoring and control

## 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
- Auto-config – no set-up required











