

Liebert® Power Solutions
Data Center Protection As Dynamic As Your Business



A Comprehensive Power Solution—Only From Emerson

The Widest Range Of Technologies

UPS Systems

Emerson Network Power offers Liebert brand UPS in all three major uninterruptible power supply (UPS) system configurations:

- **Stand-by UPS**—Passes utility power straight through to the protected load with a 2-6 ms break in power when transferring to battery back-up.
- **Line-Interactive UPS**—Provides power conditioning with a 2-6 ms break in power when transferring to battery back-up.
- **On-Line (Double Conversion) UPS**—Delivers continuous, high-quality AC power to equipment with no break when transferring to battery. Protects equipment from virtually all power disturbances due to blackouts, brownouts, sags, surges or noise interference.

Emerson Network Power offers UPS systems in the industry's widest range of sizes including desktop and workstation UPS, rack-mount, network and large facility UPS for full facility power.

Critical Electrical Distribution

Emerson Network Power offers a range of power distribution systems designed to efficiently deliver conditioned power to your critical equipment. These products include high-reliability distribution systems, starting with rack PDU systems, specially designed for computer and communications applications, as well as transfer switches offering ultra-fast transfer between two independent AC power sources to provide virtually uninterrupted power to sensitive electronic equipment.

Power Quality Protection

For applications requiring protection from electrical line disturbances without the need for back-up capability, Emerson manufactures a full line of power conditioning equipment. It includes a wide variety of transient voltage surge suppression (TVSS) solutions ranging from high-quality surge suppressors for use with PCs, workstations and other peripherals to facility-wide systems with sophisticated active tracking capability.

DC Power Systems For Communications Applications

From major switching centers to remote shelters, Emerson DC power systems offer performance and features to match virtually every telecommunications equipment application. The line includes a variety of system capacities ranging from small systems at less than 3 kW up to large systems rated at over 60 kW. The product offering also includes distribution bays, enclosures and network management products such as controllers, monitors and supervisory software to control and maintain energy equipment in a telecommunications network.

Power System Monitoring

Liebert brand power communications software and hardware provides multiple levels of monitoring and control. Capabilities range from automated shutdown software to facility-wide centralized systems that provide a full range of monitoring, control and analysis.

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Trouble Is Coming Down The Power Line And You Must Be Prepared

Every operation in your business depends upon the instant, around-the-clock availability of computers, servers and other electronic systems. If they aren't working, neither is your company.

Unfortunately, every piece of this equipment your company possesses is subject to the whims of the electricity that powers it.

The first step in taking control of this situation is to understand the threats to your system reliability—and exactly what you can do about them.

*You Face Many **Challenges** In The Pursuit Of Productivity*

Is There Really A Problem?

"My computer can ride right through a short blip in the power—why do I need anything else?"

Different Needs Require Different Power Protection Configurations

"Should I have a small UPS for each workstation or have everything on one large system. Which is best for my facility?"

A Lot Can Happen Between Your UPS And The Equipment It Is Protecting

"We have dozens of pieces of networking equipment. How can I make sure that each one is getting exactly the power it needs?"

Every Wire Carries The Potential For Trouble

"An electrical surge came in through an outside phone line and knocked out our entire communications system. Is this going to happen again?"

A Single Source Of Power Simply May Not Be Enough

"Adding a second power feed would certainly enhance our availability picture—but who can we talk to about getting it done right?"

You Need To Optimize Life Cycle Efficiency

"Budgets are tight, so I have to consider equipment costs at all lifecycle phases — first cost, operation, and service. How do I maximize efficiency and ensure reliability?"



*But There Are Real **Solutions***

You Need Protection From All Power Problems

An outage is just the problem you can see. There are many other more frequent power fluctuations—surges, spikes, sags—that you don’t see. These are the conditions that cause the “unexplained” lock-ups and other potentially damaging results. Protecting critical network and computing systems requires the expertise of someone who understands all the risks you face from poor power quality.

Centralized Vs. Distributed UPS Protection

Emerson Network Power has the breadth of products that allows you to implement either a centralized or a one-on-one distributed power protection strategy depending on your requirements. Whatever configuration you choose, you can count on Liebert to make it the best it can be. Benefits, such as increased system security, more efficient maintenance and improved reliability, may make a centralized strategy a better choice for larger operations.

Proper Power Depends On Proper Distribution

In network applications, there may be hundreds of different loads with various voltage requirements, a mix of AC and DC power, plus any number of other electrical specifications. This calls for a distribution system that is designed to maintain the highest levels of reliability and quality between the source of conditioned power and the protected equipment.

Power Conditioning And Surge Protection Throughout The Facility

Power conditioning and surge suppression systems are key to maintaining power quality in critical facilities. Raw utility power is often far too “dirty” for sensitive systems, resulting in lost or garbled data, unexpected software glitches or shutdowns, even hardware damage. The IEEE recommended practice is to install transient voltage surge suppression (TVSS) protection on every electrical conductor that penetrates a facility shell, including power lines, telephone and other communications links.

Maximum Protection Demands Dual Power Sources

If your needs require the highest level of system availability, Emerson has the knowledge and products to implement a dual-power strategy throughout your enterprise. UPS, transfer switching, power distribution and other equipment are all brought together to create the ultimate in reliability.

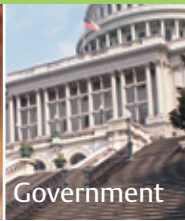
Maximum Efficiency Technologies Optimize TCO, PUE

For businesses with a focus on operational and energy efficiency, Emerson Network Power offers reliable technologies with features that provide capacity on demand, efficiency in all modes of operation, and design features that reduce installation costs and footprint, and provide easy maintenance and service.

Where Do You Need Mission-Critical Power Protection Technology?



Biotechnology
Industry



Government



Health Care



Retail
Distribution



Industrial



Computer
Systems

We have efficient, high availability power solutions for any of the applications that are part of your mission-critical business operations.

Liebert has identified ten distinct zones or areas of application, found within many business operations, which have a requirement for mission-critical power technology. While these zones have similarities in the importance of their essential functions, they also have different needs for infrastructure protection—all of which can be met by Liebert solutions.

Large Data Centers—High availability data and network applications are the heart of your enterprise with blade servers and high-density racks that demand increased power protection.

Small To Mid-Size Data Centers—Smaller sized network and computer facilities, but equally essential to your operations.

IDF Rooms and Network Closets—Housing routers, switches, modems, cabling devices and numerous other communications components.

Network Operations Centers—As networks expand and grow more complex, you need reliable and timely access to mission-critical infrastructure monitoring information long before problems arise.

Production—Smart factories backed by a complex electronic network, from computer-controlled machinery and processes to electronic sensors, business systems and utility equipment.

Laboratories and Testing—Sensitive computers and equipment used for diagnosing patients, analyzing data, performing critical tests, and operating electronic tools and lab instruments.

Telecom/CATV—Anything from indoor and outdoor spaces hosting cable, DSL and fiber optics to remote cell sites and enclosures.

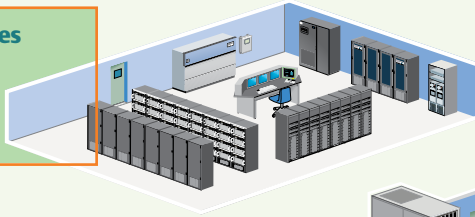
Emergency Shelters—Emergency operations centers, 911 response emergency dispatch, police and fire facilities, medical facilities, public works operations and more.

Desktop/Peripherals—Home and small office computers, modems, network components and other electronic equipment that is vital to business operations.

Point-of-Sale—Today's cash registers and store-level computer networks not only handle sales transactions, they also collect and transmit vital customer and inventory data required to make informed supply chain decisions.

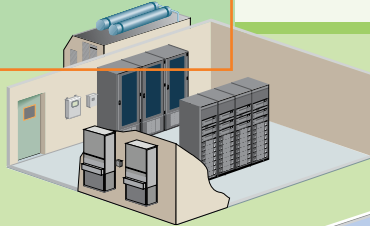
Telecom Wireline/Wireless Sites

Liebert can provide a reliable flow of both AC and DC power for telephone switching systems and other communications equipment.



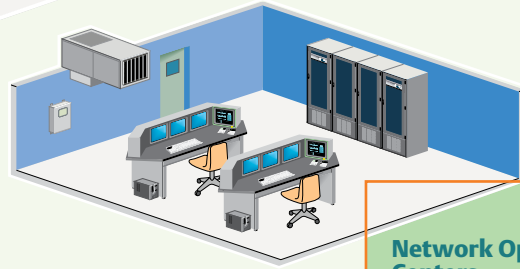
Emergency Shelters

High-reliability Liebert UPS systems and DC power equipment are critical to maintaining operations in telecommunications shelters and other unmanned structures.



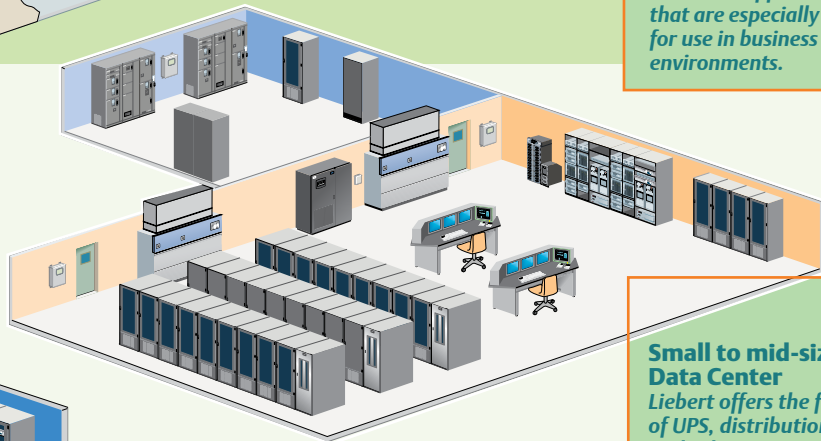
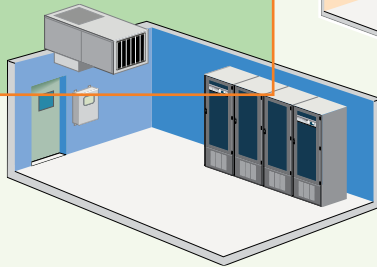
Network Operations Centers

With many mission-critical computing systems located right in the office space, there is a need for UPS protection that can be placed nearby. Liebert offers a number of power systems that are especially designed for use in business and office environments.



IDF Rooms and Network Closets

These densely-packed equipment bays, housing servers or other essential communications devices require UPS back-up plus distribution to get uninterrupted, conditioned power to each and every component in the rack.

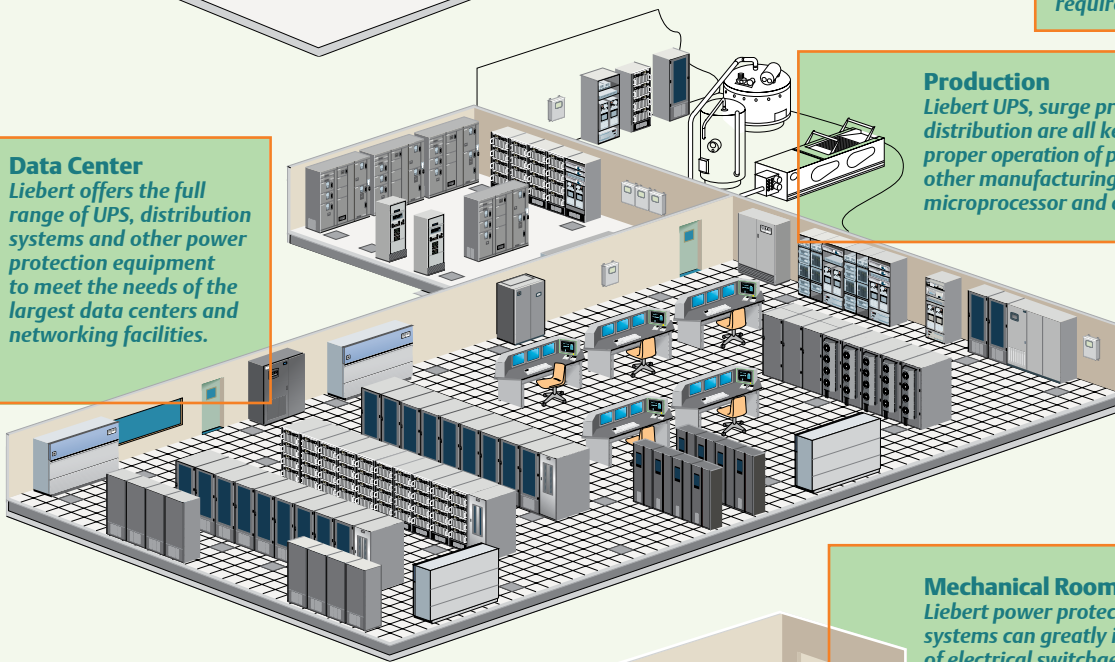


Small to mid-size Data Center

Liebert offers the full range of UPS, distribution systems and other power protection equipment that can adapt to data center growth requirements.

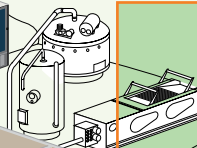
Data Center

Liebert offers the full range of UPS, distribution systems and other power protection equipment to meet the needs of the largest data centers and networking facilities.



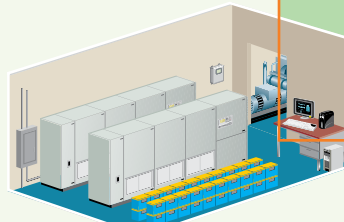
Production

Liebert UPS, surge protection and power distribution are all key to maintaining the proper operation of process control and other manufacturing systems that utilize microprocessor and computer control.



Mechanical Rooms

Liebert power protection and conditioning systems can greatly improve the operation of electrical switchgear and motor control centers vital to numerous functions throughout an industrial facility.



Racks And Cabinets

A Rack System Designed to Meet The Challenges Your Data Center Faces Today

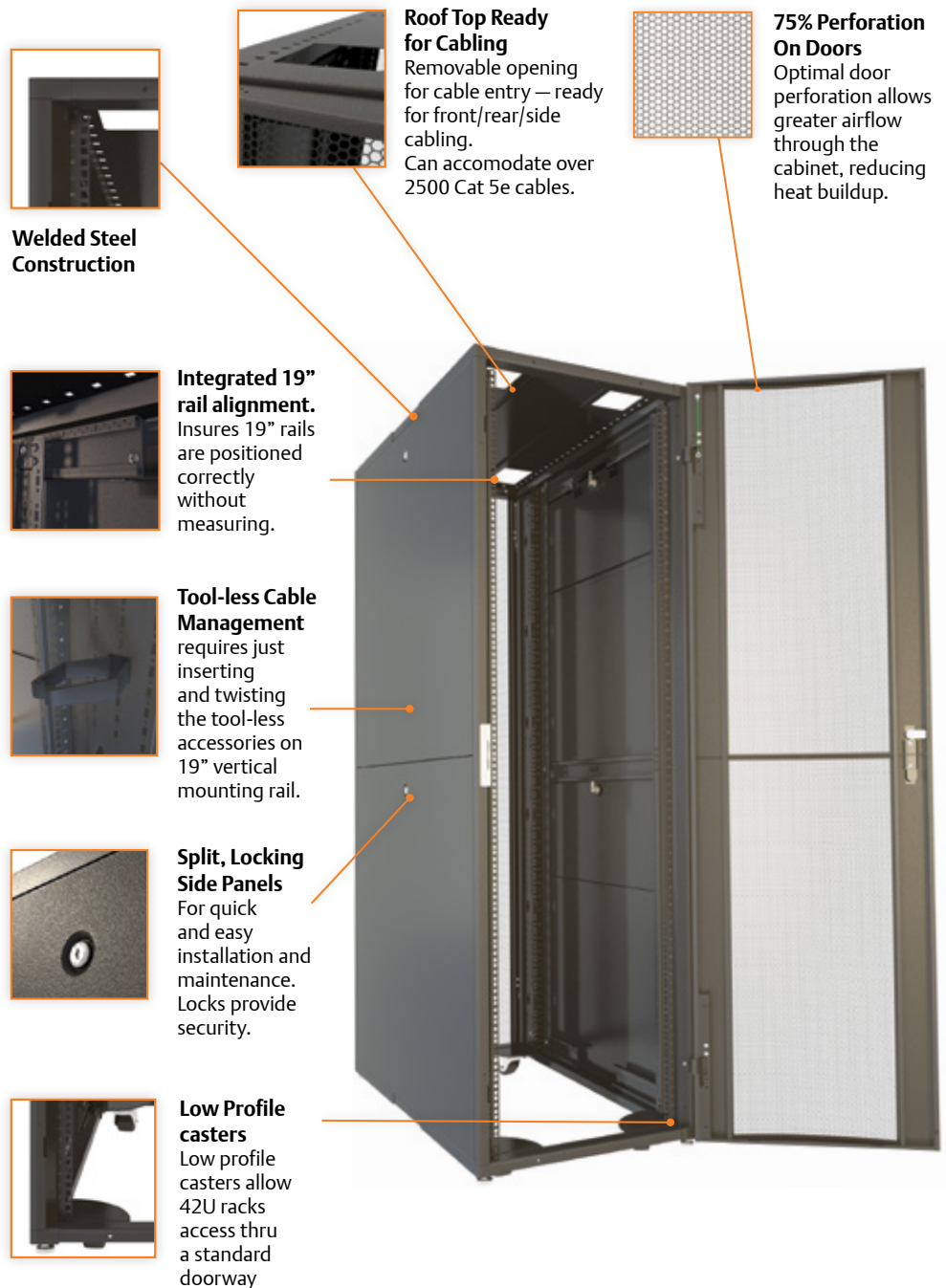
Your mission-critical networks are carrying an ever-increasing amount of voice, data and video. Looming on the horizon is a critical mass of VoIP, high speed access, wireless applications and increasing demand for blade server deployment.

The DCF optimized rack system from Emerson Network Power integrates your computing hardware, power management technologies and peripherals in your data center. It gives superior design and flexibility, allowing optimal data center equipment performance and easy installation.

DCF Rack is UL certified 2416

Ready-To-Deploy Rack And Enclosure Solutions.

DCF 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 air flow and maximized useful mounting space.



Liebert® MCR

Integrated Cooling Enclosure, 1.6kW and 3.2kW

Secure Door
lockable door provides an extra measure of security by limiting access to critical equipment

BCM
(Back-up Cooling Module)

Sealed Door
specially designed rubber gasket provides NEMA12 sealing protection

Liebert GXT3
on-line UPS

ECM
(Environmental Control Module)



Bundled UPS
systems available



Dual-Split Rear Door
available



Wall Mount Systems 12 U
Hinge Body "swing out" and 12" depth
Low Profile available.



Liebert MCR Enclosure
For smaller spaces requiring the complete power and cooling protection.



EX Cable Management Channel
This versatile option helps to enhance cabling organization and internal airflow.



Internal Power Distribution
A wide range of installed power strips is available to better accommodate power distribution needs within the enclosure.

Liebert IP Telephony Availability System

Protecting The Edge Of The Network



Liebert has brought together several of our product solutions to create the IP Telephony Availability System. Especially designed to protect switches, routers and other critical components, this solution is ideal for use in remote locations such as branch offices, retail stores and other edge of the network applications. Housed in a Liebert Foundation™ wall mount enclosure or freestanding enclosure.

The Liebert IP Telephony Availability System, version 1.0, has met the Cisco Technology Developer Partner Program test criteria for interoperability with Cisco CallManager Express 3.1, Cisco Unity Express, release 1.1.2, Cisco Unity 4.0 (3), and Unity Bridge 3.0 (2).

True On-Line Power Protection



The Liebert GXT3, a true double conversion UPS, delivers the high level power quality required to fully protect critical network switching components from all power problems. Available in sizes from 500 up to 3000 VA.

Continuous Power Availability



In most cases, your critical routers and other network components cannot be without power even for scheduled UPS maintenance. To meet this need, the Liebert 2U Power Output Distribution (POD) system ensures continuous uptime by providing maintenance bypass capability as well as power output distribution.

Power System Monitoring, Communications & Remote Control



The Liebert Webcard, housed within the UPS, will deliver SNMP and web-management communications capabilities to your power system, including the ability to remotely reboot the switch by cycling the UPS power off and on.

Smart Solutions Deliver Efficiency, Capacity, Availability, Control

To help you achieve efficiency in all aspects of your data center, Emerson Network Power has developed the Smart Solutions intelligent, integrated infrastructure for data centers. The family uses a global design approach that can be localized for specific geographies.

Smart Solutions let you cost-effectively achieve and manage your objectives for efficiency, capacity and availability. These offerings provide fast and easy implementation, through interoperable systems: precision cooling, UPS, power distribution/conditioning, management software and racks.

No other solution offers the industry's leading power, precision cooling and data center infrastructure management systems for such a wide array of applications and environments.

Smart Solutions are fast and easy to implement, and are supported by local data center design experts and service professionals. Smart Solutions are typically more affordable than conventional data center designs – and they are more energy efficient.

Each Smart Solution offering integrates industry best practices in data center design and operations including:

- Hot air and cold air separation
- Cold air containment
- High availability and high efficiency UPS
- High-efficiency precision cooling
- Space-savings, small-footprint
- Modularity for flexibility and easier expansion
- Integrated monitoring and control to optimize efficiency in planning and management
- Unique local service for design audits, configuration support, installation support, maintenance and repair

Emerson Network Power brings together the industry's finest power, precision cooling, monitoring and management brands and businesses, including Liebert, Knurr, ASCO, Avocent, Chloride, Energy Systems and Surge Protection solutions. The Smart Solutions offerings deliver Efficiency Without Compromise™ within the data center.

Smart Solutions give you the efficiency, economy, interoperability and control to implement an infrastructure strategy that outperforms any you've ever seen.

Efficient

- Up to 28% in energy savings
- Increase rack density up to 60%

Economical

- Reduce implementation costs compared to conventional data center approaches

Interoperable

- Maximize use of existing infrastructure
- Depending on the solution, you can have a complete infrastructure in just weeks

Controllable

- Easily enforce add / change policies
- Speed IT administration request response times by up to 30%

SmartRow™ Intelligent, integrated infrastructure in a self-contained line-up

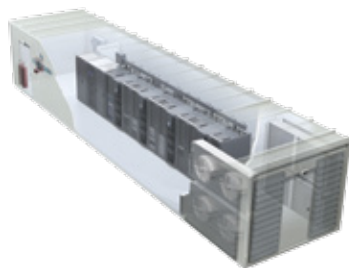


Capacity: 20kW
Racks: 3-6
Type: Self-contained
Floor: Primarily non-raised
Key Applications: Small data centers; remote sites; disaster recovery

The **SmartRow solution** has a room neutral design that lets you avoid many of the significant costs that come with a conventional data center buildout.

- Favorable implementation costs compared to using a conventional data center approach, due to savings from integrated fire suppression and ability to work in an existing non-raised floor environment without dedicated room cooling.
- Has demonstrated up to 10% CAPEX savings over conventional designs and 27% OPEX savings, perform less maintenance and reduce the costs of adding new equipment.
- Order and install in just weeks.

SmartMod™ Intelligent, integrated infrastructure in a rapid deployment enclosure.



Capacity: 30-400kW
Racks: 6-28
Type: Self-contained
Floor: N/A
Key Applications: Supplemental data center capacity; remote data centers; disaster recovery

The **SmartMod™ enclosure** lets you save on upfront design and implementation by delivering fully integrated power, precision cooling, integrated fire suppression and management systems in a modular, standalone design.

- Rapidly deploy a comprehensive data center infrastructure solution.
- Implement a stand-alone solution that won't burden the existing infrastructure.
- Save on design, equipment purchase and installation.
- Order and install in just months.
- Reduce energy consumption by up to 28% compared to a data center with conventional design.

SmartAisle™ Intelligent, integrated infrastructure using row-based building blocks.



Capacity: Most cost effective up to 400kW
Racks: Most cost-effective up to 40
Type: Open or aisle containment available
Floor: Raised, non-raised
Key Applications: Small and medium data centers; high-density zones in all data centers; new or retrofit

The **SmartAisle™ offering** can increase your efficiency through row-based power and precision cooling systems.

- Save up to 27% in energy costs
- Keep infrastructure on pace with equipment changes, with systems that operate together and can be quickly reconfigured
- Increase capacity without replacing old infrastructure.

Liebert® MB™ Modular Busway: Flexible, Economical Power Delivery From PDU To Rack

Emerson Network Power brings you the most flexible, robust power distribution system on the market today: Liebert MB Modular Busway.

Modeled on the Siemens XJ-L busway, Liebert MB provides flexible modular power distribution in high tech environments. Power cables are replaced. Installation is simplified. Each rack has a clearly identified breaker. Air flows freely. Installation and ongoing costs are reduced. And the solution is organized and easy to maintain.

Liebert MB is a convenient, economical way to provide power from a room power distribution unit to the IT rack equipment. This compact, modular system is an organized alternative to custom cabling, and is a perfect solution for dynamic data centers that require frequent updates and changes with little to no power disruptions.

System Compatibility

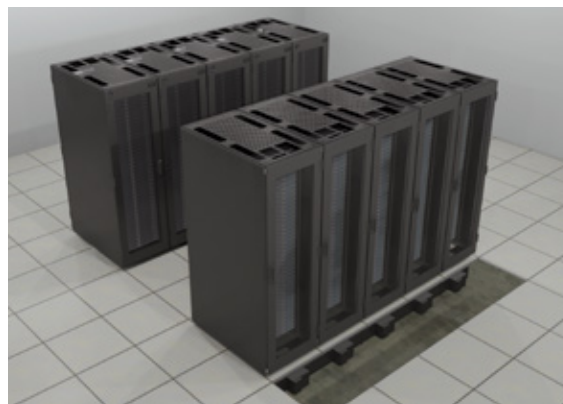
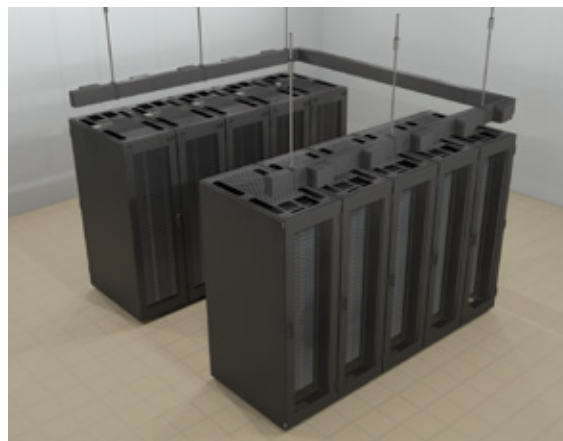
Liebert MB is compatible with the Knurr DCM rack and the entire family of Liebert power products — rack and room PDUs, UPS systems and surge protective devices — providing power distribution and protection.

Ideally Suited For:

- Large or medium data centers.
- Data centers with variable and dynamic loads.
- High power density applications.
- Single or dual bus configurations.

Liebert MB Features:

- Comprehensive offering of standard fittings.
- Reconfigure to meet growing and changing IT demands.
- Lightweight and flexible for easy installation, but rugged enough for durability.
- 15-30% lower cost than typical cabling materials and labor/installation costs.
- UL 857 and CSA 22.2 agency ratings for safety.
- 100A, 225A and 400A availability.
- Hot swappable, user replaceable bus plugs provide both flexibility and maximum safety.
- Bus plug capacities from 30A to 100A.
- Pre-assembled bus plugs with whips or receptacles.
- Multiple bus plug port spacing available.
- Rack-mount, ceiling suspended or underfloor mounting options.
- Optional metering at bus plugs or tap box.

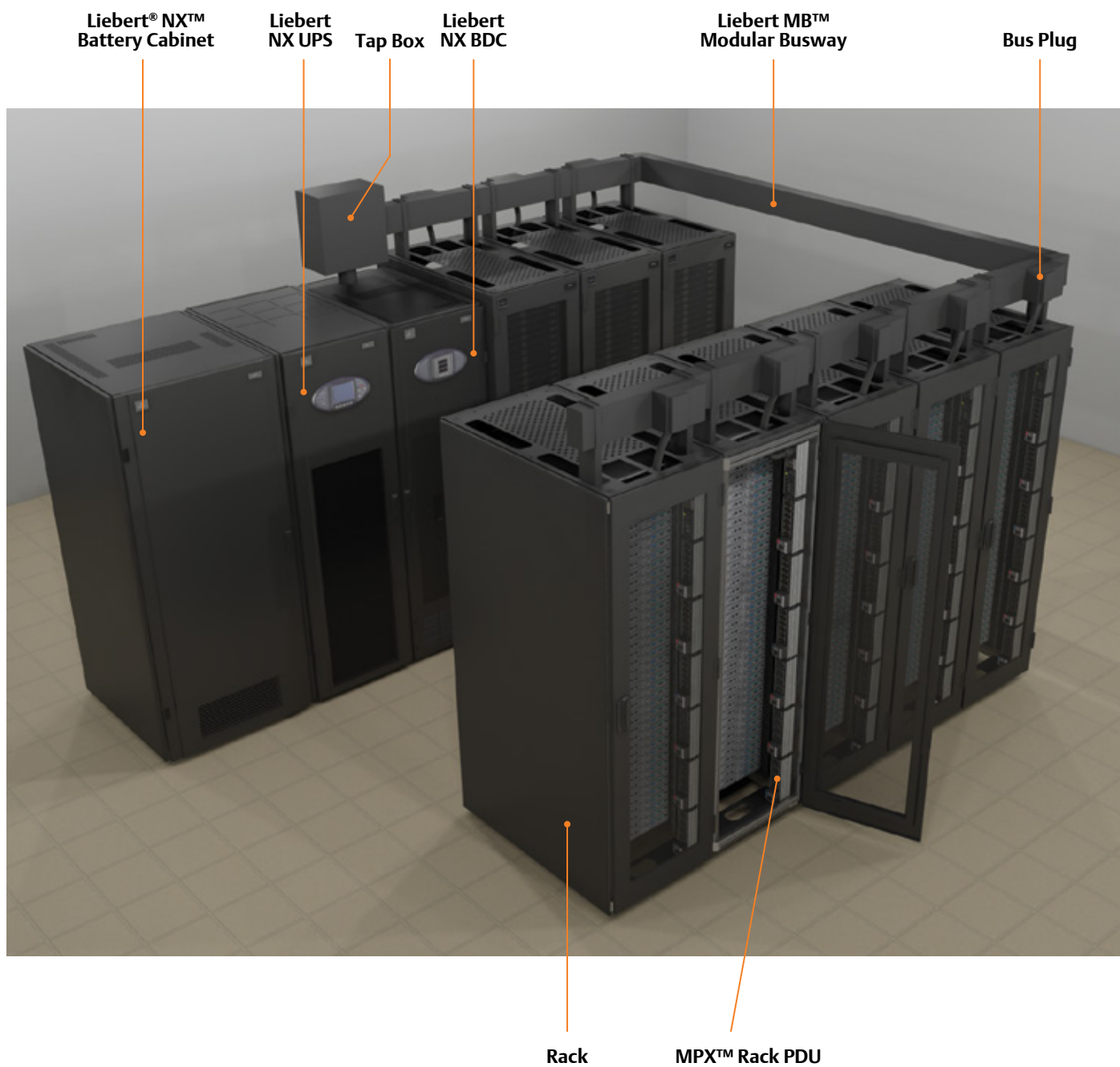


Liebert Power Monitoring Capabilities

The operation of Liebert MB can be monitored using:

- Liebert SiteScan® Web Centralized Monitoring System.

For more information, see pages 52 and 53.



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

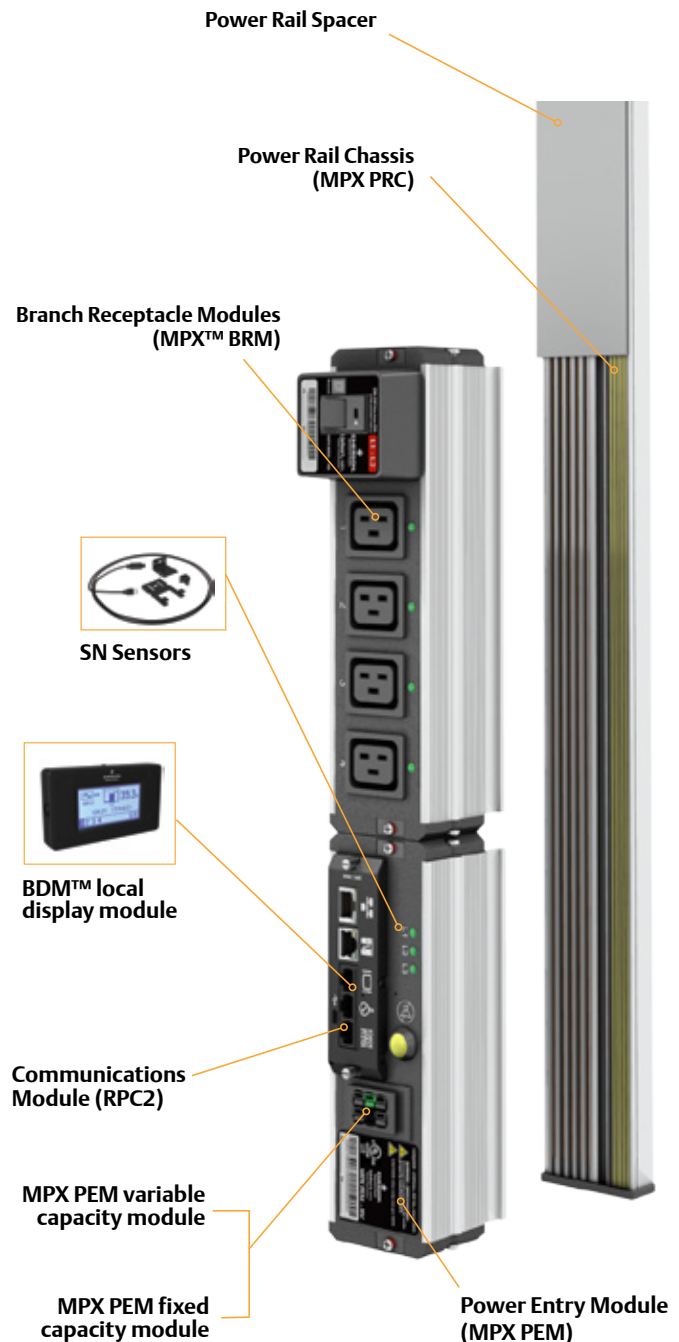
The MPX rack PDU has a scalable design that allows onsite configuration to fit immediate IT equipment needs. It is the perfect choice to respond to the needs of a growing data center. Relocate or add IT equipment to support changing needs, by easily reconfiguring the power input and distribution.

Designed for Critical Environments

- **Critical rack space 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

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.



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 / 140°F 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

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



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

Corded and hardwired options:

provide flexibility of wiring to both overhead and raised floor power distribution



Enhanced Performance And Management Of Dynamic IT Spaces

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:

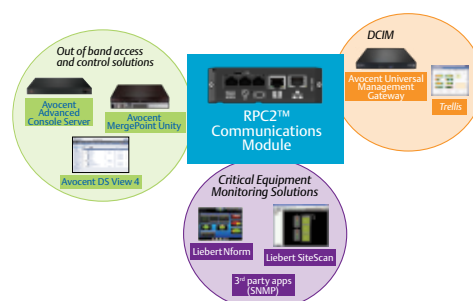
- **Support up to 4 PDUs within a Rack PDU Array™:** Minimizes IP addresses
- **Support up to 10 environmental sensor probes:** Consolidated rack level power and environmental monitoring
- **Support for Web UI, CLI, SSH and Telnet:** Provides Windows, Linux and network administrators their preferred 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

- Centralized power consumption and environmental reports at all levels within datacenter
- Centralized power control of individual or group of outlets
- Mass configuration capabilities
- Centralized authorization, authentication and auditing of all rack PDUs and pertinent data



MPX™ and MPH2™ rack PDUs fully integrate into Emerson Network Power's industry-leading KVM, serial console and infrastructure management systems.

Integration with **Avocent® Advanced Console Server, MergePoint™ Unity KVM Switches** 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 DSView4™** software ensures:

- 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

Integration with the **Trellis™** platform and **Universal Management Gateway appliances** ensures that rack PDUs are a part of a comprehensive DCIM solution that includes:

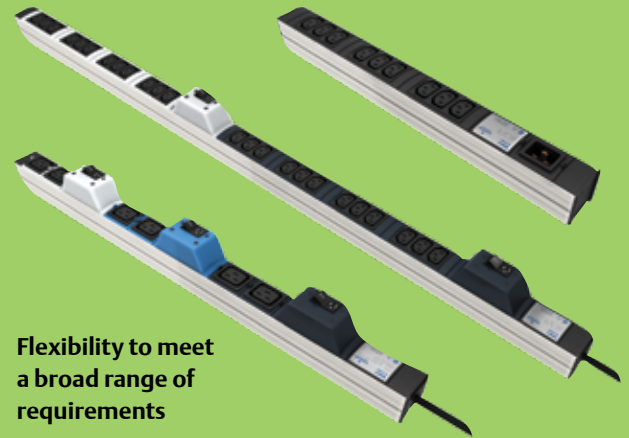
- Inventory Management of all IT and facilities assets
- Monitoring of all facility critical devices and service processor-enabled IT devices
- Capacity & Change Management
- Energy Consumption Management
- Power System Management

DI-STRIP®: Most robust and comprehensive line of basic rack PDUs in easy to use configurations

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

DI-STRIP rack PDUs meet a broad range of power distribution requirements for IT and other applications. Designed especially to handle the growing number of electronic components that can be housed within network cabinets and server racks, the space saving product line is available in a range of configurations.

- Flexibility with multiple configurations and input power options
- Critical rack space operating temperature—up to 55 °C / 131 °F to support hot Internal rack environments
- Simple and quick installation on the rack's extrusion requires minimal space



Flexibility to meet a broad range of requirements

Available in vertical zero U and rackmount form factors

Input is single or three phase power via single plug connection

Slim form factor allows easy installation



Liebert PSP Stand-by UPS: 350 - 650VA, 1-Phase

Protection For Desktop And Small Network Applications

Liebert desktop power solutions are designed for applications where one or a few pieces of equipment require surge suppression or basic power protection with battery back-up.

One-On-One Protection

The Liebert family of products includes surge protection strips and line-interactive UPS to give you a real choice in desktop and network component protection.

Liebert Products Offer One-On-One Power Protection Solutions For:

- Home And Small Office Desktop PCs.
- Network Workstations.
- Network Routers, Bridges and Hubs.
- Point-of-Sale Terminals.
- Other Sensitive Electronics.

The PowerSure PSP from Liebert is a compact, full featured UPS that delivers cost-effective power protection. Designed with simple controls for easy operation, the PowerSure PSP provides over four minutes of battery back-up at full load — more than enough time to save work in process and shut down your system.

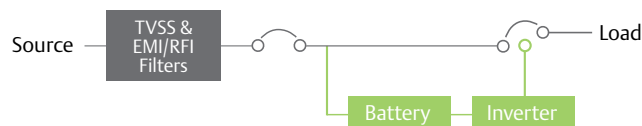
Perfect for desktop applications, the PowerSure PSP provides one-on-one power protection for PCs and other sensitive electronic equipment. Two models available: 350 and 500VA at 120VAC and 500 and 650VA at 230 VAC.

For maximum flexibility, a choice of communications options are available — USB, serial or contact closure. This option solves the legacy systems dilemma of what to do with equipment that does not have USB capabilities. A MultiLink™ automated shutdown software CD, serial communications cable and USB cable are also included.

Liebert PSP Features:

- Three battery-backed UPS outlets.
- One surge protection-only outlet.
- Up to five minutes of battery backup at full load.
- User replaceable batteries.
- RJ-45 port for data line surge protection.
- Advance early warning of UPS shutdown.
- USB port, Liebert MultiLink Software shutdown software and USB cable.
- Two-year replacement warranty.

Stand-by UPS



Liebert Power Monitoring Capabilities

The operation of the Liebert PSP can be monitored using:

- Liebert MultiLink® Automated System Shutdown Software.

*For more information,
see pages 52 and 53.*



Liebert PSA Line-Interactive UPS: 500 – 1500 VA, 1-Phase

High-Performance Power Protection For PC's And Office Equipment

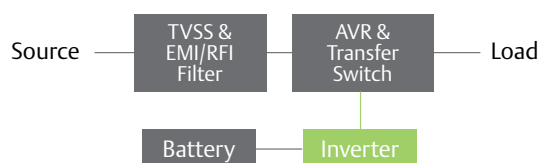
Liebert PSA is an economical line-interactive UPS that offers full-featured power protection for small office computers and electronic equipment. It is available in the following sizes: 500, 650, 1000 and 1500 VA at 120 VAC or 230 VAC.

Designed with simple controls for easy operation, the Liebert PSA provides up to five minutes of back-up time at full load – more than enough time to save work in process and shut down your connected equipment. USB shutdown software and a USB cable are also included, to allow remote alerts and automated graceful shutdown of the connected systems. Liebert PSA offers unique features and extraordinary performance not normally found in similar products in this price range.

Other Standard Features Included On All Liebert PSA Models:

- Three to six battery-backed UPS outlets, depending on model size.
- One to two surge-only outlets, differentiated by color.
- Up to five minutes of battery backup time at full load.
- User replaceable batteries.
- Advance early warning of UPS shutdown.
- RJ-45 port for data line surge protection.
- Two-year warranty.

Line-Interactive UPS



500/650 VA back view



1000/1500 VA back view



Liebert Power Monitoring Capabilities

The operation of the Liebert PSA can be monitored using:

- Liebert MultiLink® Automated System Shutdown Software.

For more information, see pages 52 and 53.

Liebert PSI And Liebert PSI-XR Line-Interactive UPS: 750-3000VA, 1-phase

Rack-Mounted Power Solutions For Growing IT Networks

Rack-mounted servers are at the heart of today's network computing systems. These critical components need reliable, compact power protection that will keep pace with their growing needs.

Protection That Fits In Anywhere

From line-interactive units to true on-line models, Liebert rack-mount UPS systems are designed for reliability and space-saving flexibility. No one packs more power capacity and features into a smaller package.

Liebert Has Rack-Mount UPS Solutions For:

- PCs.
- Network Workstations.
- Servers and Critical Nodes.
- Network Routers, Bridges and Hubs.
- Large Network Peripherals.
- Network Closets.
- VoIP.
- Storage Systems.
- Point-of-Sale Terminals.
- Test Equipment.
- Other Sensitive Electronics.



Proven high-level performance and reliability for server and network power protection.

Designed for the IT environment, Liebert PSI UPS and the Liebert PSI-XR extended battery model are slim 2U sized rack/tower style, line-interactive UPS systems. They offer configurable input voltage windows allowing the customer to precisely match their input voltage. A choice of communications options includes serial, contact closure and USB. Available in 750, 1000, 1500, 2200, and 3000 VA in 120 and 230VAC models.

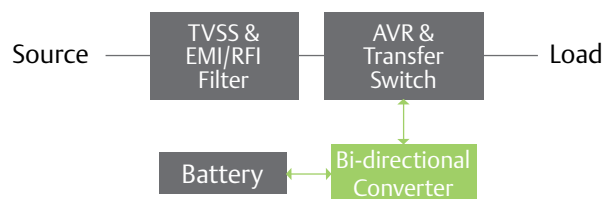
Other Standard Features Of Liebert PSI And Liebert PSI-XR:

- Seven to eight battery-backed outlets.
- 0.9 Output Power Factor.
- Rotatable display panel.
- Automatic frequency sensing.
- Wider input voltage window.
- RJ-45 Data line surge protection.
- Advance early warning of UPS system status.
- Hot swappable batteries.
- Up to five minutes of battery backup time at full load when utility fails.
- External battery cabinet available for Liebert PSI-XR models.
- Site wiring fault indicator.
- USB communications, serial and contact closure communication option.
- Remote emergency power off.
- Rack rail kit included.
- Two-year warranty.
- Liebert PSI-W and Liebert PSI-XRW web-enabled models ship with IS-WEBRT3 card installed, for fast deployment.

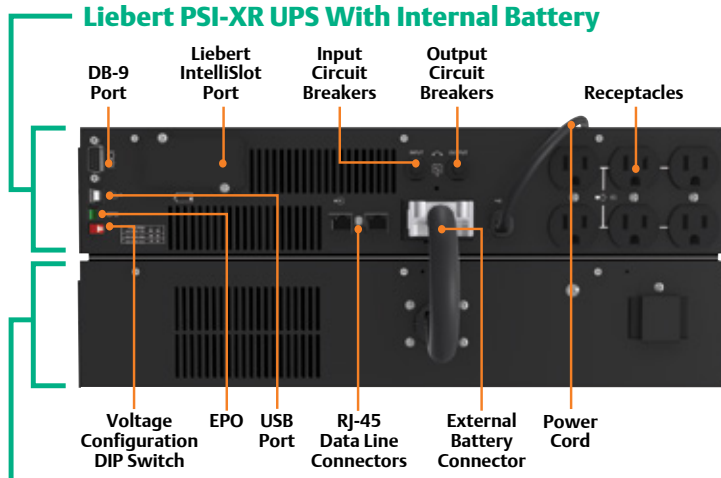
Optional Liebert MicroPOD 2U POD output distribution and maintenance bypass module ensures continuous uptime, even during UPS maintenance.



Line-Interactive UPS With Power-Factor Correction



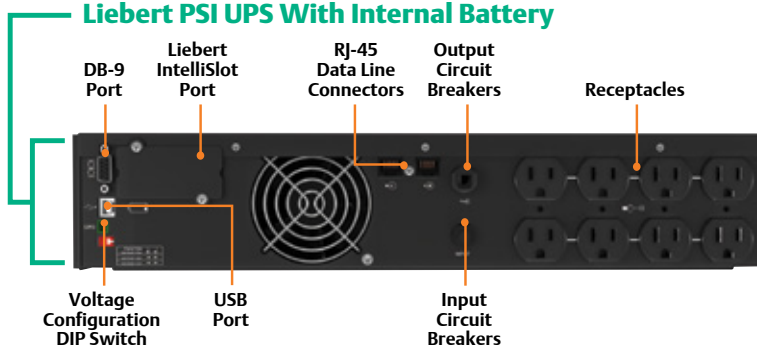
Liebert PSI-XR UPS With Internal Battery



Optional External Battery Cabinet

Add up to six cabinets for additional runtime

Liebert PSI UPS With Internal Battery

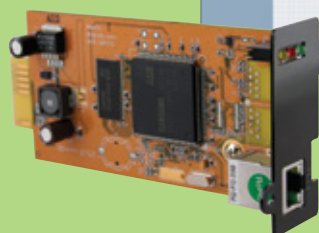


Liebert Power Monitoring Capabilities

The operation of Liebert PSI can be monitored using:

- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform Monitoring System.

For more information, see pages 52 and 53.



Optional Liebert IntelliSlot Web Card (PS ISWEBCARD) provides SNMP and web-based management

Liebert® GXT3™ On-Line UPS: 500-3000VA, 1-phase



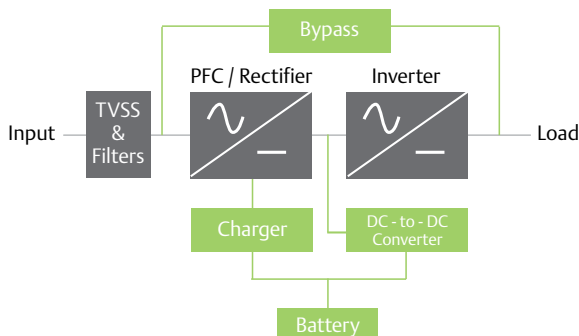
Compact UPS combines on-line reliability, configurability and internal batteries.

Liebert GXT3 leads the industry in combining small size, high capacity and multiple features. Designed to be either rack-mounted or installed in a tower configuration, the UPS is available in 500, 700, 1000, 1500, 2000 and 3000 VA ratings, in both 120 V and 230 V models.

A true on-line UPS, Liebert GXT3 includes features such as power factor correction, internal batteries, frequency conversion, unlimited external battery connectability and internal bypass capability. And all this is housed in a smaller 2U size cabinet that cuts space requirements in half while providing up to 3 kVA of true on-line power – batteries included. The UPS can also be used with external batteries for extended run times.

A Windows™ configuration program, included with each unit allows the user to program a variety of operating parameters. This capability allows you to customize Liebert GXT3 performance to your specific requirements, providing a new level of power protection control and adaptability.

On-line UPS



Liebert Power Monitoring Capabilities

The operation of the Liebert GXT3 can be monitored using:

- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

Other Features Of Liebert GXT3 2U Models:

- Microprocessor-based control and monitoring package.
- Input power factor correction.
- PWM inverter.
- Integral dynamic bypass.
- Integral sealed, non-spillable, hot-swappable battery.
- Automatic and manual battery test feature with push button and indicator.
- Input and output noise suppression.
- USB port.
- Liebert IntelliSlot® communications port.
- Two-year no-hassle replacement warranty.



Liebert GXT3 Rear View



Optional Liebert MicroPOD 2U POD output distribution and maintenance bypass module ensures continuous uptime, even during UPS maintenance.

Liebert® GXT3™ On-line UPS: 5kVA-10kVA 1-phase



The internal battery packs are hot-swappable, and user replaceable. The unit also supports up to four external battery cabinets for extended run time.

High capacity, compact on-line UPS with flexible output voltage and power distribution.



Liebert GXT3 UPS meets the need for higher power capacities in small spaces with these 5kVA-10kVA UPS systems. These true on-line double conversion UPS systems feature integrated maintenance bypass, as well as optional extended battery runtime.

Designed for use in either rack or tower configurations, all units offer the smallest available solutions for these power capacities — the 5 & 6kVA model at 120/208V output in 4U size, or the 8 & 10kVA unit 120/208V output in a 6U package. A 6kVA 208V output 5U size model is also available.

To help meet the need for choosing a single supplier for global applications, 220V, 230V and 240V 50/60 Hz models are offered with CE and C-tick markings.

Dual Voltages For Multiple Applications

Simultaneous output voltages of 240/120, 208/120, 230/115, 220/110, or 200/100 VAC provide the flexibility to adapt to multiple load requirements without the need to add additional transformers that take up extra space and add weight.

Other Product Features Of Liebert GXT3 5kVA-10kVA UPS Models Include:

- User replaceable hot-swappable internal batteries. Provide four minutes of runtime at full load.
- Additional runtime with additional battery cabinets.
- Built-in USB communications for use with Liebert MultiLink™ Automated Shutdown Software. Allows you to monitor communication between the UPS and a server, and ensures a graceful unattended shutdown.
- Built-in closure signals. Provides notification to monitoring systems of operating conditions including: on battery, low battery, battery mode shutdown and any mode shutdown.
- Emergency Power Off (EPO). Terminal connections for a normally open or normally closed emergency power off switch.
- Wider input voltage window minimizes battery use — allows the UPS to support the critical load without having to transfer to battery, extending system availability for when battery back-up is truly needed.
- Internal automatic and manual bypass. Assures continuity of power to critical loads during system maintenance or in case of internal fault.
- Self-diagnostics. Automatically tests unit electronics and batteries simplifying maintenance and troubleshooting.
- Liebert IntelliSlot Web Card provides SNMP and web-based monitoring and control of UPS.
- Standard two-year replacement warranty. No-hassle warranty provides paid shipping both ways. Optional one-year and three year extensions available.

Liebert Power Monitoring Capabilities

The operation of the UPS can be monitored using:

- Liebert IntelliSlot Web Card.
- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Liebert Universal Monitor And Remote Power Monitor Panels.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

Liebert APS™ On-Line UPS: 5-20 kVA, 1-phase and 3-phase



The Liebert APS UPS provides mission-critical availability ensuring your critical IT functions – and your business – will be available and running as expected through power disruptions, fluctuations and outages. The Liebert APS UPS adapts efficiently and effectively as the needs of your users and core business power requirements change. The UPS offers capacity on demand with FlexPower core modules – allowing you to change capacity in 5kVA/4.5kW increments up to 20kVA

Low TCO

- **Industry-leading efficiency:**
 - **90-92%** efficiency transformer-free systems.
 - **88.5-89.9%** efficiency: transformer-based systems.
- **Scalability** that allows you to cost-effectively add power capacity or battery modules as needed.
- **Two year hassle-free factory warranty program** for repair or replacement of your Liebert APS UPS.
- **Module-level redundancy** eliminates the expense of purchasing and planning for any additional cabinets.
- **Reduced installation time and cost** because units are shipped pre-configured and factory tested, no need for on-site assembly.
- **Integral battery monitoring** with temperature compensated charging to prolong battery life and help reduce replacement costs.

Reliability and Serviceability

- **Internal redundancy capability** (N+2/20kVA) enhances reliability and provides multiple layers of power protection.
- **No single point of failure** - Full redundant design allows the critical load to run on conditioned power if there is a failure of any component in the system.
- **Configurable** design allows you to customize the Liebert APS UPS for your desired level of capacity and redundancy.
- **Fault-tolerant design**, enables the power, battery and control modules to take themselves offline if there is a problem, without sacrificing overall system integrity.
- **Superior overload capabilities**, able to provide conditioned power to temporary overloads without transfers to/from bypass power.
- **Internal wrap-around maintenance bypass and Frame-level bypass with independent controls in separate assembly** provide higher reliability and availability.

Flexibility

- **Capacity on demand** with FlexPower™ core modules that allow you to change capacity as needed in 5 kVA/4.5 kW increments - without powering down.
- **More real kW** - 0.9 power factor provides more real power to support the I.T. load than other solutions in this size range.
- **Isolated and non-isolated models** to provide the right solution for your power protection needs.
- **Integrated distribution PODs** allow selection of a variety of distribution options to meet application requirements.
- **Trellis™ platform connectivity**, so the Liebert APS can easily be integrated with this robust, real-time data center optimization solution.
- **Three Liebert Intellislot® ports** allow integration and communication with a variety of infrastructure management solutions, leading to better power optimization and visibility.
- **Optional matching external battery cabinets** provide longer battery run times to protect against sustained power issues.

Service Solutions to Keep You Up and Running:

- **LIFE™ Technology** remote monitoring and diagnostic service provides early warning of issues so you can respond to them more rapidly or prevent them.
- **Remote monitoring:** by factory experts, 24 x 7 x 365.
- **Included two year warranty** includes onsite repair.
- **Start-up** by factory-trained engineers to ensure proper installation and operation.
- **Customer resolution** center provides direct access to our engineers, whenever you need them.
- **Exclusive, guaranteed four-hour response time** so you never need to wait long for critical assistance.
- **Preventive maintenance visits** to assess your equipment and make corrective adjustments



Liebert NX On-Line UPS: 10-30 kVA, 3-phase

Power designed to grow with your needs.

The Liebert NX 10-30 kVA product family offers true on-line, double conversion, three-phase UPS systems that deliver complete, centralized power protection for mission-critical systems. Available in 10, 15, 20 & 30 kVA capacities, these rugged units are designed to meet the high availability power needs of a wide variety of IT applications. Liebert NX 10-30 kVA UPS systems combine advanced operating features, compact size and low cost of ownership in a range of sizes to suit room or data center needs.

The “all-in-one” design of the Liebert NX 10-30 kVA UPS provides more protection security and efficiency than using separate, smaller power units spread throughout the facility. The Liebert NX delivers complete protection with a true on-line IGBT-based double conversion design. The system’s advanced topology features a digital signal processor controlled IGBT rectifier and IGBT inverter.



Liebert Power Monitoring Capabilities

The operation of the Liebert NX 10-30 kVA UPS can be monitored using:

- Liebert IntelliSlot Web Card.
- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform™ Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.



Other Features Of Liebert NX 10-30 kVA UPS Models:

- Increases growth flexibility by handling larger loads, and offers the ability to parallel like-sized 20 and 30 kVA modules for increased capacity and redundancy.
- Achieves higher availability by reducing the number of UPS units required to power your room.
- Reduces total cost of ownership through the use of longer life batteries and simplified preventive maintenance.
- Wider input voltage window and frequency tolerances contribute to higher system availability by minimizing battery usage.
- Operates under a wide variety of conditions, handling 100% nonlinear loads with 3:1 crest factor, as well as 100% unbalanced loading.
- IGBT-based power factor corrected rectifier enables the Liebert NX to achieve its impressive THD and PF performance.
- Advanced inverter control technology provides the highest output power quality, ensuring very low output voltage THD and superior waveform to protect connected loads.
- Fully digital control technology provides a highly accurate, drift-proof control compared to traditional analog electronics.

Liebert APM™ On-line UPS with FlexPower Technology: 15-90kVA, 3-phase

Liebert APM is a transformer-free, on-line UPS that allows quick and easy capacity increases with the addition of rack-mounted FlexPower™ core hardware assemblies. The core assemblies allow the UPS to expand for capacity or redundancy in 15kW increments within a single cabinet — 15kW to 45kW or 90kW. No additional floorspace is required. FlexPower core assemblies may even be added without powering down connected equipment.

On-line double-conversion technology and internal redundancy combine to provide protection from the full range of power irregularities, offering the highest availability.

With efficiencies of up to 94% at typical load levels, Liebert APM offers one of the industry's highest efficiency ratings. The UPS is even more efficient when sized in accordance with present system needs, instead of purchasing a larger capacity system to anticipate future requirements.

Key features and benefits include:

- **Up to 94% efficiency** — High efficiency results in lower energy consumption
- **Front service access** — for quick and easy installation
- **Transformer-free design** — provides a smaller footprint and lower cost compared to transformer-based systems
- **Matching bypass and distribution cabinet** — increase reliability and safety by switching the protected load to bypass power for maintenance and service
- **Matching battery cabinets** — provides added back-up capacity for extended runtimes
- **Distributed controls** — each FlexPower core assembly includes DSP controls, minimizing possibility of single point of failure
- **Standalone static bypass module** — features independent controls in separate assembly to provide higher reliability
- **Top or bottom cable entry** — enables installation on raised or non-raised floors
- **Large dot-matrix monitor with graphical display** — allows easy viewing and comprehensive system information Includes three Liebert
- **IntelliSlot ports for web-based communications ability** — Liebert IntelliSlot card IS-485EXI allows communication with Liebert SiteScan; Liebert IntelliSlot card IS-WEBL allows communication with Liebert Nform (90 day license included)
- **One-year warranty** — provides full system coverage for one year



Liebert APM BDC, Liebert APM 90 kW FlexPower Core,
and Liebert APM External Battery Cabinet



Other Product Features Of Liebert APM UPS Include:

- Internal bypass allows FlexPower assemblies to be added or replaced without powering down the connected equipment
- 45kW model includes internal batteries. More runtime is available with optional external battery cabinets
- 90kW units use optional external battery cabinets for battery runtime
- Conveniently positioned, easy-to-reach power terminations simplify unit wiring and installation
- Enterprise-quality batteries in an external battery cabinet provides backup time for 90kW frame size, and additional runtime for 45kW frame size
- Withstand rating of 65kAIC ensures reliability and safety under even the most extreme utility conditions
- Unity power factor design (kW=kVA) is optimized for today's high power factor loads

Liebert APM is ideally suited for:

- Small to medium-size data centers
- Server rooms
- Production areas
- Labs and testing facilities
- Telecommunications or process control centers

Liebert APM 90kW
FlexPower Core



Liebert Power Monitoring Capabilities

The operation of the Liebert Series 610 UPS can be monitored using:

- Liebert IntelliSlot Web Card.
- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Liebert Universal Monitor And Remote Power Monitor Panels.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

Liebert NX On-Line UPS: 40-200 kVA, 3-phase

Now There's A Data Center UPS That Matches Your Growth Plans.

For high availability, high capacity applications, the transformerless Liebert NX 40-200kVA UPS systems offer true on-line, double conversion technology to protect and condition against the full range of power irregularities. Plus they do it with a level of flexibility not previously found in systems of this size.

A wider input voltage window and frequency tolerances help to minimize transfers to battery, reducing the number of charging and discharging cycles. Availability is also enhanced with a triple mode battery charger that enables fast battery recharge. Longer battery backup time may be achieved by paralleling additional battery cabinets to the system.

Softscale™ technology provides flexibility to increase UPS capacity without changes in your infrastructure. From 40 up to 80kVA, 80 up to 120, and 160 to 200. You may also parallel UPS modules for capacity and redundancy.

The Liebert NX power core combined with the optional Liebert NX BDC (Bypass Distribution Cabinet) lets you simplify power distribution and voltage conversion. This combination provides packaged power distribution for today's rack-based data centers and IT facilities.



Liebert Power Monitoring Capabilities

The operation of the Liebert NX 40-200 kVA UPS can be monitored using:

- Liebert IntelliSlot Web Card.
- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform™ Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

Liebert NX UPS 160-200 kVA

Cutting-Edge Power Technology Makes The Difference

Liebert NX UPS Systems Incorporate A Number Of Other Exceptional Features:

- High overload rating handles 125% for 10 minutes, 150% for one minute and a 1000% overload for 10 milliseconds.
- Digital controls provide the fastest possible power management to enhance reliability, accuracy and efficiency.
- Front access models available for installation along a wall. Front and rear access models available for installation in a row.
- Compact footprint requires less floor space, leaving you with more room for other equipment.
- Load Bus Synchronization standard.
- Soft Switching technology increases efficiency by up to 2% and saves energy.
- Integrated ground fault detection allows for effective transformer-less design while saving space and lowering the unit weight.
- Parallel for redundancy or capacity.
- Active input rectifier is generator and utility friendly.
- Web card monitoring standard.
- One year warranty.



Liebert NX Power Core
40-80 kVA

Softscale™ technology, paralleling capabilities and Eco-mode™ all contribute to lower initial, incremental and operating costs.

Liebert NX 40-200 kVA UPS Systems Softscale Technology

Liebert NX 40-200 kVA UPS systems have Softscale technology that provides flexibility to increase UPS capacity by 20 or 40kVA without changes in your infrastructure. Allows paralleling of unlike-sized models for capacity or redundancy. Designed for optimized performance with the same high efficiency at 40% utilization as at 100% utilization.

Paralleling Capabilities

Liebert NX 40-200 kVA systems allow you to parallel UPS modules for capacity and redundancy, eliminating the batteries as a single point of failure because each UPS has its own isolated battery. Liebert NX also features integrated dual bus synchronization as a standard feature. This provides the capability to synchronize the outputs of two independent UPS modules when they are configured as a redundant system feeding independent distribution paths.

Eco-Mode High Efficiency Configuration

If selected, this operating mode switches the UPS to static bypass during normal operation, increasing efficiency to up to 97% at full load. When power problems are detected the UPS automatically switches back to double conversion mode.

Liebert NX BDC

The optional Liebert NX BDC provides flexibility in input and output voltage for a variety of applications. This cabinet is available in capacities to cover the Liebert NX UPS range of 40-200kVA. The monitoring panel matches the UPS unit. Power and control cabling from this cabinet to the UPS is included, enhancing ease of installation and availability. For ease of installation and maintenance, the cabinet offers top or bottom cable entry and models are available in front and rear access, or front access only configurations.

Liebert® eXL™ On-Line UPS: 625-1200kVA, Single Module and Multi-Module Systems



Reducing energy consumption—and driving down operating expenses, PUE and TCO in the process—is on every data center professional's mind.

Industry-Leading Efficiency

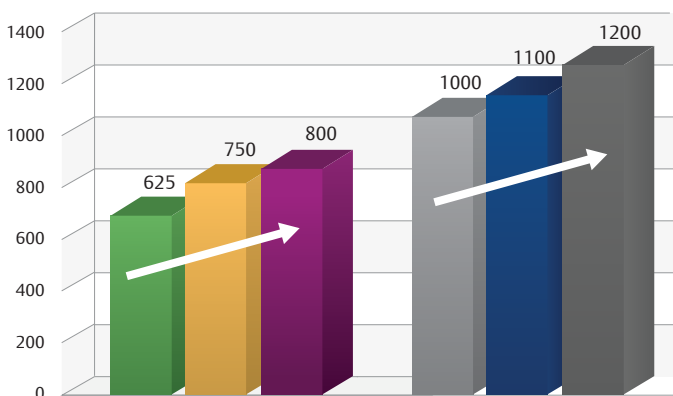
To help achieve this goal, the Liebert® eXL™ UPS utilizes a transformer-free topology with up to **97%** efficiency in double conversion mode, helping to optimize your PUE. And each Liebert eXL UPS is eco-mode ready, providing you future options for enhancing data center efficiency.

Meanwhile, our tested and proven designs, featuring architectures that both engineers and users trust, help to ensure that you can obtain high levels of efficiency without sacrificing availability or uptime.

Do More with Less

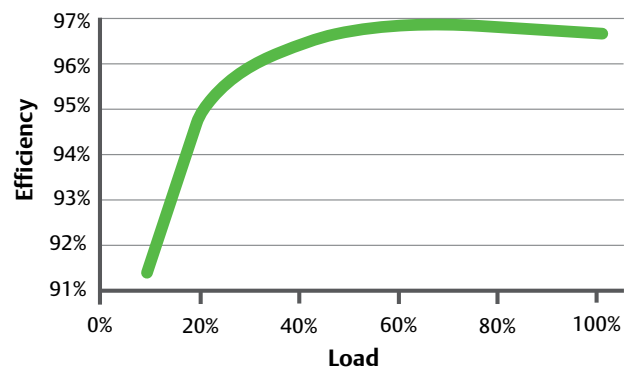
Because many of today's data center face physical space restraints, the Liebert eXL UPS provides high capacity in a smaller footprint, delivering more usable power, best space utilization, and reduced installation costs.

Conserve Capital with Capacity-on-Demand



The Liebert eXL UPS can grow from 625 - 800kVA or 1000-1200kVA without increasing footprint. Using SoftScale™ technology, you can preserve up-front capital and easily add capacity-on-demand to respond to dynamic business needs. You purchase only the capacity you need, when you need it.

Liebert eXL UPS Efficiency Curve



1% Higher Efficiency = ~\$10,000 Annual Savings

Deploy Faster with the Liebert eXL UPS

The Liebert eXL UPS enables faster deployment through:

- **Light weight and small footprint**, allowing the UPS to fit easily into available space and flooring--and making it ideal for deployment on prefabricated skids.
- **Optional matching battery cabinets with internal bussing**, reducing wiring and offering factory-integrated Albér® Battery Monitoring.
- **Three-wire design**, eliminating the need for neutral and providing compatibility with aluminum conductors if desired.
- **High input power factor with low THDi** draws more kW from source, and allows for smaller breakers, feeders, and generators and for quicker expansion and upgrades.



Business is accelerating. Needs and objectives are changing faster than ever. To help your data center keep pace, the Liebert® eXL™ UPS facilitates rapid deployment through flexible configurations and easy scalability.

Multiple Configurations to Fit Your Challenges

The Liebert eXL UPS offers **both single module and multi-module configurations in a selection of kVA ratings**, allowing you to deploy the same technology in a variety of applications.

Single-module Configuration

Single-module Liebert eXL UPS configurations provide basic protection with high levels of efficiency. The critical bus is powered by a single Liebert eXL UPS system with bypass capability. Large capacity modules can replace multiple smaller modules in dual bus configurations, reducing complexity and increasing reliability.

Multi-Module (1+N Parallel) Configuration

The Liebert eXL UPS can also provide multi-module operation without the need for a system control cabinet. Multi-module Liebert eXL UPS configurations utilize paralleling of single units to offer easy scalability for capacity or redundancy. Each unit has its own bypass static switch; bypass sharing is assured through integral bypass load sharing inductors, which also help simplify wiring and installation.

And, with a high input power factor and low input harmonics, the Liebert eXL eliminates the need to oversize the generator.

Dual Bus or 2N

A dual bus system features two identical UPS systems and supporting power systems, each capable of carrying the full load. During normal operation the two systems support the load. Each system may have redundancy built-in to maintain redundancy while one system is offline.

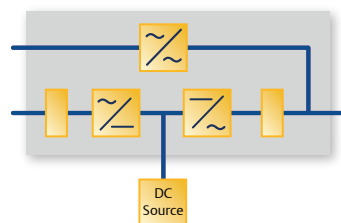
Reserve or Catcher Bus

Creates a redundant overall system architecture, and can be created with downstream power distribution similar to a dual bus 2N architecture. This allows the UPS to operate at higher utilization rates, while providing a highly fault tolerant power system design.

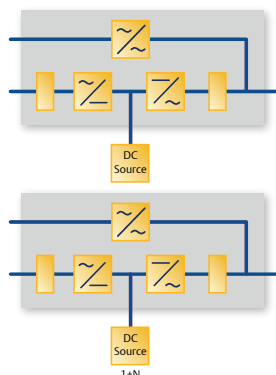
Scalable Capacity to Keep Pace with Growth

Leveraging SoftScale technology, the Liebert eXL UPS can seamlessly add capacity as your business needs expand—without increasing physical footprint. This helps to avoid unnecessary upfront capital outlays on extra capacity.

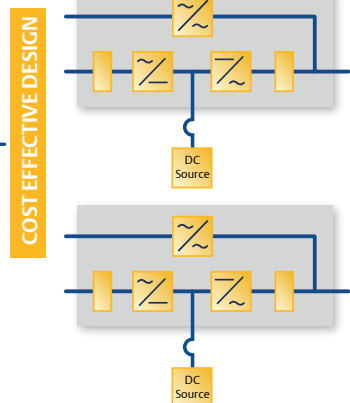
Single Module System (SMS) Tier 1



Distributes Bypass (1+N)

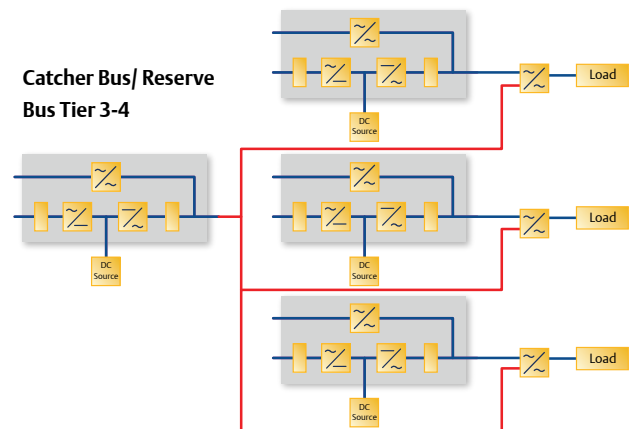


DUAL BUS 2NTier 2-4-Parallel up to 6 modules



COST EFFECTIVE DESIGN

Catcher Bus/ Reserve Bus Tier 3-4



Liebert® NXL™ On-Line UPS: 250-1100 kVA, 3-phase

Liebert NXL UPS Provides Reliable Power Protection And Advanced Technology For High Power Applications.

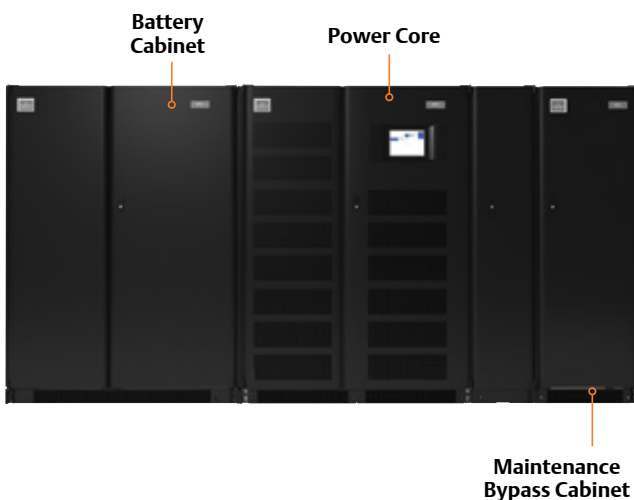
The industry's most reliable power protection and advanced technology has been combined into a new generation of three-phase UPS systems for high power applications — the Liebert NXL from Emerson Network Power.

Available in 250, 300, 400, 500, 625 and 750 kVA single module models and multi-module systems, the transformer-based Liebert NXL provides excellent dynamic performance, with the ability to handle virtually any input condition while still providing computer grade output to critical loads.

Liebert NXL—Stack Up Performance

100% Load
Low & High Line Conditions
40 °C / 104 °F Temperature
50% Clogged Air Filter
Fan Failure
High Altitude 1500 Meters

Liebert NXL is designed to handle all severe conditions simultaneously and still support 100% load with no need for derating.



Higher Availability:

- 100% rated continuous duty bypass static switch—unfused.
- Superior handling of present and future leading power factor computer loads.
- Short Circuit Withstand Rating (SCWR) withstand capability: 480V - 65kA, 100kA; 600V - 35kA, 65kA.
- Color touch screen display improve user interface and reduce risk of human error.
- Built-in galvanic isolation provides proper grounding without requiring a neutral.
- Excellent dynamic performance.
- Liebert ActiveStar® Digital Signal Processor (DSP) all digital controls.
- Multi-module configurations provide for greater total capacity and module redundancy.
- Module level redundant components—fans and power supplies.
- Generator and utility friendly with low input current distortion.
- Highest documented MTBF > 5 million hours.

Lowest Total Cost Of Ownership:

- Front access for installation and service.
- Reduced installation and service time.
- Internal bypass backfeed breaker avoids the complication of a device in the distribution switchgear that must be controlled from the UPS but trip power provided from a source energized when the bypass is deenergized.
- Up to 98% efficiency when operating in Active Inverter Eco-Mode. Up to 94% operating efficiency in dual conversion mode.
- Optimized part-load efficiencies.
- Improved cable access results in faster installation.
- Built-in battery cabinet breaker isolates string for ease of service.
- Battery cabinet with interconnecting bussing reduces site cabling.

Liebert® Power Monitoring Capabilities

The operation of the Liebert NXL UPS can be monitored using:

- Liebert MultiLink® Automated System Shutdown Software.
- Liebert Nform™ Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Liebert Universal Monitor and Remote Power Monitor Panels.
- Third-Party Monitoring Systems.
- Four Liebert IntelliSlot ports. Ships with standard 485 Liebert SiteScan Web interface.
- Albér BDSi Integrated Battery Monitoring System.

For more information, see pages 52 and 53.



Optimized Performance

Intelligent Eco-Mode™ — Liebert NXL offers up to 97% full load efficiency during user-selectable Intelligent Eco-Mode™ operation. The always-on inverter ensures high availability and seamlessly assumes the load in case of a utility power disturbance.

Intelligent Paralleling™ — Modules paralleled with a system control cabinet (N+1 configuration) may be customer selected to use Intelligent Paralleling, which increases efficiency by turning off redundant modules. Off time is equally distributed between all modules.

Configuration Options

Single-Module Configuration (250-750kVA models)

- Single-module systems provide a basic protection configuration.
- The critical bus is powered by a single UPS system with bypass capability.

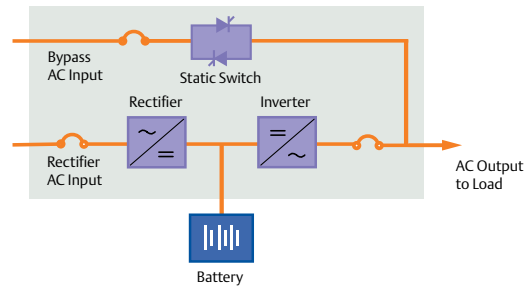
1+N Parallel Configuration (250-750kVA models)

- Paralleling of single UPS units, offers easy scalability for increased capacity or redundancy
- Each unit has its own static switch for bypass
- Provides redundant capacity without the need for a system control cabinet

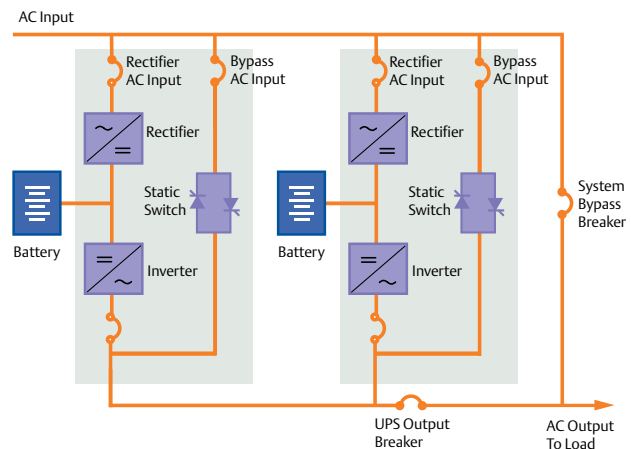
N+1 Parallel Configuration (500-750kVA models)

- Paralleling of Multi Module units, without built-in static switch
- Requires System Control Cabinet with centralized static switch
- System Control Cabinet can be easily integrated into any switchgear solution
- System rated static switch with bypass breaker offers high fault clearing capability, and high availability
- Centralized monitoring allows good visibility and easy control of total system
- Up to six units may be used together for capacity/redundancy

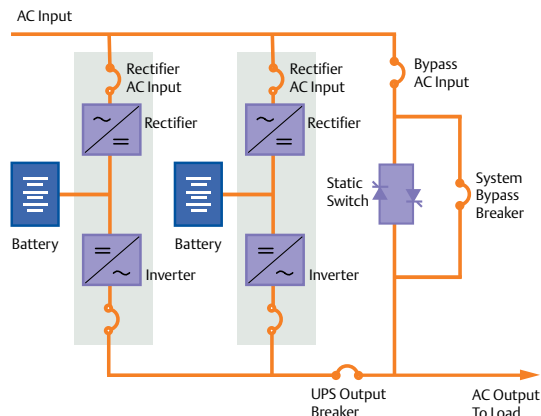
Liebert NXL Single Module System One-Line (250-750 kVA)



Liebert NXL 1+N Multi-Module System One-Line (250-750kVA) Distributed Static Switch



Liebert NXL N+1 Multi-Module System One-Line (500-750 kVA) Centralized Static Switch



Liebert NXL System Control Cabinet - SCC

When paralleling two or more units, a system control cabinet monitors the output of the UPS's and assures that all of the outputs are synchronized. The System Control Cabinet also contains a static bypass switch which assists in the maintenance of the system.

- System Control Cabinets are integrated into the switchgear of your choice.
- Centralized monitoring controls allow for greater visibility into the system.
- The Liebert SCC contains a static bypass switch with manually operated disconnects and two motor operated system circuit breakers.
- Standard and custom power distribution switchgear systems are available for use in Tier 1 through Tier 4 UPS system configurations.

Each SCC includes:

- Microprocessor-based monitoring with backlit LCD display, controls.
- Continuous duty static switch options with custom switchgear.
- Automatic system isolation and bypass breakers.
- Automatic equalize charge timer.
- Interface for a remote power off.
- Liebert SiteScan® Web interface.
- Alarm status contacts.
- RS-232 port.
- Visual/audible alarms.



Liebert NXL



Liebert SCC



ENERGY STAR® Qualified UPS Products

The ENERGY STAR Program was established by the U.S. Environmental Protection Agency (EPA) as a way to identify and promote energy-efficient products, in order to reduce energy consumption, help individuals save money and aid in the protection of our climate through superior energy efficiency.

The ENERGY STAR UPS Program helps customers make informed decisions when purchasing, as they consider ways to efficiently design and apply UPS from small server deployments to large data centers. ENERGY STAR qualified UPS products use an average of 35% less energy than their standard counterparts.

Following is a list of Liebert® UPS products tested and qualified to bear the ENERGY STAR mark.

EPA models	Product
Liebert GXT3™ 120V UPS	GXT3-3000RT120
	GXT3-2000RT120
	GXT3-1500RT120
	GXT3-1000RT120
	GXT3-700RT120
Liebert GXT3 208V UPS	GXT3-10000RT208
	GXT3-8000RT208
	GXT3-6000RT208
	GXT3-5000RT208
	GXT3-3000RT208
Liebert GXT3 UPS	GXT3-6000L630

EPA models	Product
Liebert APS™ 200-240V input, 200-240V output UPS	Liebert APS 15 kVA rated, 10 bay Frame, 1PH Transformer-Free
	Liebert APS 20 kVA rated, 16 bay Frame, 1PH Transformer-Free
Liebert APS 200-240V input, 200/100-240/120V output UPS	Liebert APS 15 kVA rated, 12 bay Frame, 1PH Transformer-Based
	Liebert APS 20 kVA rated, 16 bay Frame, 1PH Transformer-Based
Liebert APS 200/100-240/120V input, 200/100-240/120V output UPS	Liebert APS 15 kVA rated, 10 bay Frame, 2PH Transformer-Free
	Liebert APS 20 kVA rated, 16 bay Frame, 2PH Transformer-Free
Liebert APM™ 208V UPS	APM 90 kVA (15, 30, 45, 60, 75, 90)
	APM 45 kVA (15, 30, 45kva)
*all are approved with and without top fan assembly except 15kva rating in 90kva frame	
Liebert NXL™ 800 480V UPS	NXL 800
Liebert NXL 1100 480V UPS	NXL 1100

Liebert® RX™ Remote Power Distribution Cabinet

Industry's Smallest Footprint; 400 Amp, 84 Poles

Power When And Where You Need It

Producing quality power is the first step—getting it to critical equipment in the most efficient manner while maintaining proper voltages and other key parameters is the important next step.

Making Sure The Power Is Always There When You Need It

Liebert's range of power distribution equipment is specially designed for high-availability applications. It includes both distribution and switching systems to provide reliable power to critical loads.

Liebert Power Distribution Solutions Are Ideal For:

- Large-Scale Computer Centers.
- Facility-Wide Networks.
- Large-Scale Telecommunications Centers
- Colocation Facilities.
- Internet Data Centers.
- Server Farms.
- Data Warehouses.
- Network Management Centers.
- Medical Imaging Equipment.
- Test and Laboratory Facilities.
- Industrial Process Control Operations.

The influx of client/server rack equipment is changing the content of data centers. There are more devices than before, and they consume more power than their predecessors. Space is at a premium, so the data center power support infrastructure must be compact and flexible, to meet changing room demands.

The Liebert RX supplies packaged power distribution in the smallest possible footprint, with 400 Amp and 84 poles in one panelboard, and only requiring 24"x12" of space.

Flexibility

- 84 poles in a 24"x12" footprint. Up to 168 poles in a 24"x24" footprint
- Multiple configuration options allow optimization of data center space – two, three or four units may be installed in space-saving clusters
- Floor or wall mount, or attach to supports at end of rack aisle
- Fits standard raised-floor tile, while permitting removal of adjacent floor tiles

Higher Availability

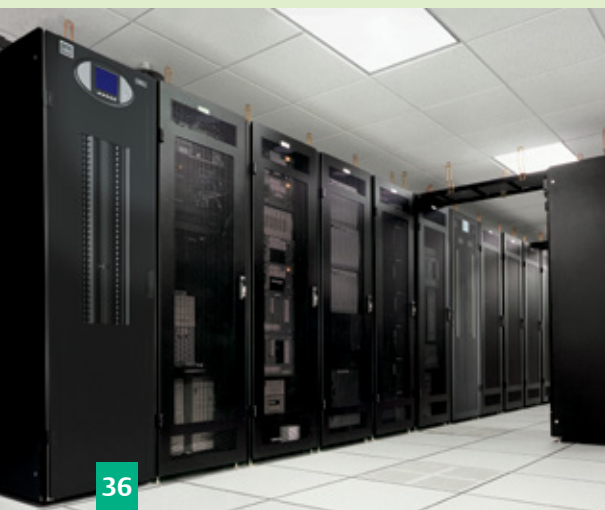
- The 100% rated 400 Amp main circuit breaker better coordinates with today's 30A and 60A branch breakers than smaller 225A mains, providing better selective tripping.
- Each panelboard is totally isolated – any potential arc flash is contained within the cabinet when installed back-to-back and each is receiving a separate feed from a dual bus system
- Factory assembled and tested to ensure reliability and consistent performance
- Wide open access channels provide six inches of access space, and individual hinged covers, allowing easy addition of future circuits

Lowest Total Cost Of Ownership

- Compact cabinet conserves valuable floor space
- Packaged system is easy to install, maintain and add additional circuits

Ideally Suited For

- Data centers
- Telecommunications
- Manufacturing





System Monitoring

The Liebert® RX™ is available with two monitoring options: at the panelboard level with Current Plus Monitoring (CPM) and at the panelboard level and the branch circuit level with Liebert Distribution Monitoring (LDMF).

Panelboard Monitoring:

The integral **Current Plus Monitoring (CPM)** optional display monitors the current and voltage of the panelboard. The display includes a monochrome LCD, power and alarm LEDs, audible alarm, and a silence push button. It provides true RMS measurements and battery backed memory.

Monitored parameters include:

- Voltage - Line-to-Line
- Voltage - Line-to-Neutral
- Neutral Current
- Ground Current
- kVA
- Power Factor
- Voltage Total Harmonic Distortion (THD)
- Current Total Harmonic Distortion (THD)
- Crest Factor

Branch Circuit Monitoring:

Advanced monitoring is available through the optional **Liebert Distribution Monitoring (LDMF)** display. This option provides a large LCD screen that allows viewing of monitored information for the panelboard as well as each individual branch circuit breaker. Alarm data may be viewed from this display for up-to-date breaker status. It provides true RMS measurements and battery backed memory.

Monitored parameters are the same as those for the CPM monitor, plus for each branch circuit:

- Phase Current
- kW- hours
- kW
- Percent load

Centralized Monitoring

- An optional Liebert SiteScan® interface allows centralized monitoring of the Liebert RX.
- A Liebert IntelliSlot® communications card may be installed to allow monitoring through a Building Management System (BMS). RJ-45 Ethernet and BACnet options are available.



High-Availability Configurations

The flexible Liebert RX is easily configured to accommodate current site needs and future growth.



Single, 1'x2', 84pole, 400A

- Wall mounted
- Back supported by column, unistrut, or wire cage



Double, 1'x4', 168pole, 2x400A

- Wall mounted
- Back supported



Double, 2'x2', 168pole, 2x400A

- Free standing
- Drop-in replacement for floor tile



Triple, 2'x3', 252pole, 3x400A

- Free standing
- Panelboards front, rear, one side



Quadruple, 2'x4', 336pole, 4x400A

- Free standing
- Panelboards front, rear, both sides

Liebert® FDC Rack Power Distribution

Rack Sized Power Distribution Cabinet

As your rack-based systems grow in number, complexity and criticality—so must your power distribution system. To meet this challenge Liebert has created a product designed to optimize power distribution at the rack level with the “plug and play” flexibility that today’s IT managers demand from their systems.

The Liebert FDC distribution cabinet extends the functionality of the PDU by packaging 168 poles in a stand-alone cabinet with a rack foot print.

The Standard Liebert FDC Unit Includes:

- 4 complete panelboards with main breaker (total 168 poles).
- Front and rear access only.
- Bottom cable exit.
- 22kAIC main panelboard breakers.

Optional Features Include:

- Top cable exit.
- LDM monitoring with remote communications—Modbus output.
- Isolated ground bus bars.
- EZ-view doors enable visual inspection of the breakers without unlocking the cabinet.
- Square D or GE inline panelboards in bolt-in or plug-in styles.
- Current monitoring panel.
- Tie-breakers to allow connection of two panelboards to a common panelboard main breaker (requires side access).
- Plug-in main panelboard breakers.



Front



Back



Liebert® FPC Rack-sized Power Conditioning and Distribution Cabinet

Optimized For Row-based Applications.

The Liebert FPC power conditioning and distribution cabinet provides higher quality, more flexible power distribution for high-density data centers. It is engineered to combine the convenience and cost savings of a pre-packaged, factory-tested unit with the flexibility of a custom-tailored power system. This self-contained system provides power isolation, power distribution, computer-grade grounding and power monitoring.

Ranging in capacity from 15kVA up to 300kVA, the Liebert FPC comes in a 19" rack and 47" wide rack, the size of two 19" racks, and is designed to fit at the end of, or within, a row of racks, as well as in a stand-alone configuration.

The packaged system approach of the Liebert FPC is convenient and space-saving, reducing installation time and cost compared to a conventional approach using multiple interconnected components.

Other Standard Features Of The Liebert FPC:

- Computer-grade grounding.
- Fully compatible with the non-linear loads.
- Main input breaker with shunt trip.
- Double-shielded TP1 listed isolation transformer.*
- One or more individually enclosed 42-pole output panelboards.
- Built-in metering and alarm annunciation with communication to Liebert centralized monitoring.
- Compact single cabinet conserves valuable floor space.
- Single input cable connection reduces installation time and cost.
- Full front and rear access.
- Can be easily relocated to protect your investment.
- UL and ULc Listed as a complete system.

*Energy Policy Act of 2005 requires that all "distribution transformers" and all "low-voltage dry-type distribution transformer" manufacturers produce only TP-1 units as of January 1, 2007. TP-1 transformers have a higher efficiency than standard isolation transformers, and are optimized to have the highest efficiency at 35% load.



Liebert® PPC Packaged Power Conditioning and Distribution

Optimized For Room-Based Applications.

Liebert Precision Power Center

The Liebert Precision Power Center (PPC) power conditioning and distribution cabinet is designed to bring you a distribution system that offers the benefits of a custom-tailored power system, with the convenience and cost savings of a pre-packaged, factory-tested unit. Housed in a single, self-contained cabinet, it combines distribution, computer-grade grounding, isolation, and power monitoring to provide the protection your vital computer or communications equipment demands. Available in 15-800 kVA capacity systems for raised floor applications and 15-150 kVA capacities in top-exit models for non-raised floors, the Liebert PPC offers flexible expansion capabilities to fit growing sites.

The packaged system concept of the Liebert PPC is convenient and space-saving, reducing installation time and cost compared to a conventional approach using multiple interconnected components.

Other Standard Features Of The Liebert PPC:

- Secure distribution and circuit identification.
- Non-linear load compatibility.
- Individual circuit breaker protection.
- Built-in metering and alarm annunciation, with communication to Liebert-centralized monitoring systems.
- Double-shielded TP-1 listed isolation transformer.*
- Easy installation, with single input cable connection and application matched connections to the load.
- Expandable with add-on panelboards and flexible cabling.
- Flexibility to protect your investment by allowing the unit to be easily relocated.
- UL and CSA Listed as a complete system.



Liebert Power Monitoring Capabilities

The operation of the Liebert Precision Power Center and Liebert FPC can be monitored using:

- Liebert Nform™ Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

*Energy Policy Act of 2005 requires that all “distribution transformers” and all “low-voltage dry-type distribution transformer” manufacturers produce only TP-1 units as of January 1, 2007. TP-1 transformers have a higher efficiency than standard isolation transformers, and are optimized to have the highest efficiency at 35% load.



Easy-To-Use Color Touch-Screen Interface
The controls of the Liebert STS2 are intuitive and simple. The pop-up menus are easy to understand and provide a wealth of operational and diagnostic information.

The color LCD monitor is divided into three segments. In addition to a system mimic diagram, there is a status/alarm panel and a section dedicated to operator instructions and menus. You benefit from improved operator effectiveness, reduced training time, and less chance of operator error.

Liebert® STS2 Static Transfer Switch

The Key To High-Availability Power.

The Liebert STS2 Static Transfer Switch provides an automatic, seamless transfer between the outputs of two independent UPS systems and the input of a critical load in a dual-bus power system. If the primary UPS should fail, the switch will automatically transfer the loads to the surviving UPS. For redundancy, the Liebert STS2 features three separate, self-correcting logic modules. Each controller is capable of working independently and each helps monitor the other two. Available in capacities ranging from 100 up to 1000 amps.

True Front-Access Design

All mechanical and electronic components of the Liebert STS2 are accessible from the front of the unit.

This gives you several immediate benefits:

- Greater freedom in system design. The Liebert STS2 can be placed adjacent to or in back of other equipment. It can also be placed against a wall or partition.
- Simplified installation, with ample space for cable connections through top and bottom access plates.
- Less floor space required for maintenance access.
- Simplified maintenance, with all key components visible, serviceable and removable from the front of the unit, without the need to shut down the connected load.

Other Features Of The Liebert STS2:

- Internal CANBUS protocol provides high-bandwidth communication between system components via twisted-pair cables. Options can be added as simple network nodes.
- Internal dual-bus control power.
- Simplified installation and maintenance.
- Full range of communications options to fit any monitoring strategy.
- Three-pole switch configurations.
- Optimized Transfer option uses the patented Liebert static transfer control algorithm to eliminate downstream transformer inrush saturation. Meets CBEMA and ITIC standard for critical loads.



True Internal Redundancy

The Liebert STS2 has triple-redundant logic. Each DSP controller is capable of working independently, and each helps monitor the other two. If one malfunctions, the other two lock it out. Each controller has power feeds from both power supplies.

The two power supplies feature true dual-bus power distribution. Both have dual inputs, one from each AC input source. All power connections have diode protection, so that internal or external faults cannot propagate. The result is a rugged, fault-resilient package that is optimized for real-world applications.

Liebert® STS2/PDU Static Transfer Switch/ Power Distribution Unit

Combines Power Distribution And Automatic Switching.

With a single, space-saving unit, the Liebert STS2 Static Transfer Switch/Power Distribution Unit combines the switching capabilities of the STS2 with the benefits of a proven power distribution unit.

Liebert designed the STS2/PDU to bring you a distribution system that will close the power delivery loop in your critical facility. It offers the benefits of a custom-tailored power system, with the convenience and cost savings of a pre-packaged, factory-tested unit.

Housed in a single, self-contained cabinet, it combines distribution, computer-grade grounding, isolation, and power monitoring, as well as dual-source switching, to provide the protection your vital computer or communications equipment demands.

Available in capacities from 250 to 800 amps, the Liebert STS2/PDU offers flexible expansion capabilities to fit growing sites. The packaged system approach of the Liebert STS2/PDU is convenient and space-saving, reducing installation time and cost compared to a conventional approach using multiple interconnected components.

Features Of The Liebert STS2/PDU Include:

- True dual-bus power distribution switches automatically or manually between two AC power sources.
- Computer-grade grounding automatically establishes a single point ground to meet major manufacturers' recommendations and the requirements of the National Electric Code.
- Fully compatible with the non-linear loads of modern computer systems and other electronic equipment.
- Built-in metering and alarm annunciation with communication to Liebert SiteScan® Web centralized monitoring.
- Compact single cabinet conserves valuable floorspace compared to non-packaged solutions.
- Single cabinet design reduces installation time and cost.
- The unit can be easily relocated to protect your investment.
- UL Listed as a Complete System to meet safety requirements for fast, hassle-free inspection and building code approvals.
- A choice of distribution options to fit site requirements.



Liebert Power Monitoring Capabilities

The operation of the Liebert STS2 and Liebert STS2/PDU can be monitored using:

- Liebert Nform™ Monitoring System.
- Liebert SiteScan® Web Centralized Monitoring System.
- Liebert Universal Monitor and Remote Power Monitor Panels.
- Third-Party Monitoring Systems.

For more information, see pages 52 and 53.

Liebert® Power Systems Test Center



QUALITY

The Liebert Power Systems Test Center

The Liebert Power Systems Test Center for large UPS systems is a state-of-the-art test facility designed to provide customers with pre-installation testing of the performance, interoperability, and efficiency of Liebert UPS modules and systems under a variety of conditions. Located in Delaware, Ohio, the 25,600 square-foot facility, including a 2,600 square-foot customer observation station, is the largest and most comprehensive in the industry.

Testing includes individual modules as well as the complete power system — including large UPS units such as the Liebert NXL UPS, Liebert STS2 static transfer switches and associated switchgear support systems — and is essential to the smooth, rapid installation and commissioning of large power systems. Customers leave the Liebert Power Systems Test Center with documented proof and confidence that their complex power system will operate seamlessly in accordance with business-critical availability requirements.

Offering you the UPS industry's largest power systems testing center is another way that Emerson Network Power strives to make sure our product solutions are a perfect match for your critical power requirements.



Typical UPS system verification, testing and test capabilities include but are not limited to the following:

- DC functions.
- Transfer functions.
- Alarms and display verification.
- Parallel module tests.
- Module and system Internal fault testing such as component failures or power supply failures.
- Module and system loading from no load up to 150% load.
- Unbalanced loading.
- Battery discharge simulation.
- Module and system step loading from 0 to 100%.
- Integrated tests with UPS, flywheels, switchboards, static switches, power distribution, etc.
- Short circuit tests.
- Integrated Load Bus Sync testing with multiple UPS systems.
- Integrated Power Tie™ testing.
- Integral switchgear testing.
- Power quality meters.
- High resistance ground.
- Power monitoring.
- Mimic panels.
- Current and voltage harmonic analysis.
- Key interlock systems.
- PLC or relay based transfer controls.
- Module and system level full load heat runs.
- Infrared scanning.
- Thermal scanning.

Power Quality Solutions

For applications requiring protection from electrical line problems without the need for back-up capability, Emerson Network Power manufactures a full line of surge protection and power conditioning equipment.

The Best Possible Power

Emerson Network Power's wide range of Surge Protective Devices, (SPDs) have numerous applications throughout a facility, including protection against transients that are generated by other equipment within the building. Our power conditioning systems shield critical loads from external disturbances, particularly those coming through the utility power line.

Emerson Network Power Protection Solutions Are Ideal For:

- Computer Centers
- Facility-Wide Networks
- Telecommunications Centers
- Colocation Facilities
- Internet Data Centers
- Network Management Centers
- Medical Imaging Equipment
- Test And Laboratory Facilities
- Industrial Operations
- Surveillance Systems



High Quality Surge Protection

Panelmount (Facility-wide)

500 Series - is a premium family of surge protection devices offering individually fused MOV (Metal Oxide Varistor) arrays. This "True Surge" tested design provides redundancy and high survivability to repetitive impulses.



570 Surge Protective Devices—A true hybrid device offering a coordinated multi-stage system of suppression, integrating the fast response time of the SAD (Silicon Avalanche Diode) modules with the high-energy capability of the MOV modules. Superior clamping at surge current ratings up to 375kA per mode or 750kA per phase.



560 Surge Protective Device—A modular design with available surge current ratings from 160kA to 1000kA per phase. Provides facility-wide surge suppression and EMI/RFI filtering at service entrance and distribution panels.



510 Surge Protective Device—A modular or non-modular line available at surge current ratings up to 250kA per mode or 500kA per phase offering continuous protection from damaging transients and electrical line noise.

400 Series - The 400 Series of surge protective devices consists of thermally protected MOV (Metal Oxide Varistor) technology providing reliable protection against repetitives surges and transients.



460 Surge Protection Device- a modular, surge protective device capable of diverting high-energy transients. It incorporates either single or dual modules that contain multiple, large block MOVs.



440 Surge Protection Device- is a non-modular, surge protective device that incorporates the same design platform as the 460 SPD; high-energy capable, thermally protected large block MOVs and a similar assortment of accessories



430 Surge Protection Device- a non-modular compact, surge protective device that offers high-end surge capability at a competitive price. It uses thermally protected MOVs, provides EMI/RFI filtering in a package that focuses on basic features and reliable performance.



425 Surge Protection Device- is a compact surge protective device that offers protection in each connected mode—line to neutral, line to ground, neutral to ground or line to line and line to ground.



420 Surge Protective Device - A compact, non-modular design with surge ratings up to 50kA per mode or 100kA per phase. Includes LED status indication, summary alarm contacts, and is housed in a weather resistant enclosure.

Emerson Network Power manufactures the industry's widest range of Surge Protective Devices (SPDs). These SPDs are ideal for small facilities, large equipment rooms or entire buildings, plus a wide range of power, control and data line applications. Each surge protection product features the rugged reliability that has been the Liebert trademark for more than 40 years.

Installing protection at the electrical service entrance, distribution points, branch panelboards and on specific sensitive loads or equipment throughout your facility is the best way to prevent damage and eliminate associated downtime to sensitive microprocessor-based electronics.



300 Series - The 300 Series of surge protection devices are specifically designed for low to medium exposure locations.

330 Surge Protective Device— The 330 line is available with surge current ratings up to 80kA per mode or 160kA per phase. A status LEDs per phase and relay contacts provide indication of the suppression system failure or power loss.

320 Surge Protective Device - The 320 line is available with surge current ratings up to 50kA per mode or 100kA per phase. A status LED and relay contacts provide indication of the suppression system failure or power loss.

Security/Surveillance Protection



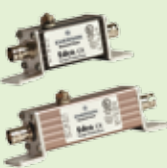
Edco CP24—Ideal for protecting the DC power input to your security camera. The Edco CP-24 is a quick snap installation for power applications up to 24 VDC. For complete protection add the Edco CCTV-1 to the video input.



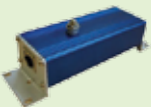
Edco CCTV-1-The Edco CCTV-1 application is specifically designed for protecting closed circuit TV systems. The protector is easily installed directly at the camera's BNC video output.



Edco HVCP-48-BNC -The Edco HVCP-48-BNC is a hybrid surge protection product. Each separate circuit is capable of handling high-current impulses while tightly clamping transients and allowing critical power and data to be transmitted.



Edco CX-06-MI- The Edco CX06 Series implements a three-stage hybrid technology; offering high energy surge handling capability directly at your camera. This product is ideally suited for protecting your video signal in high exposure applications.



Edco CAT6-POE-I- The Edco CAT6-POE Series is designed to work on Category 6 Power-Over-Ethernet transmission line applications and is ideal for protecting POE cameras. For optimum protection use the Edco CAT6-POE-I at the camera and the Edco Cat6-POE at the head-end. Optional DIN mount available.



Edco FAS-1- The Edco FAS-1 and Edco FAS-2 are multi-stage single-pair or two-pair surge suppressors designed for high exposure applications. These products were specifically designed to meet multiple low voltage protection applications in the fire and security industries.



Edco PC642 Series—The Edco PC642 Series surge suppressor is a two-pair (four-wire) module implementing three-stage hybrid technology. This module addresses over-voltage transients with gas tubes and silicon avalanche components.



Edco Islatrol™ RM Series—This line of AC surge protectors is ideal for protecting the power feeding valuable rack equipment. This series provides 40,000 Amps of surge protection and up to 60 dB of high-frequency noise filtering.



Edco RM-CAT6 Series—Includes 16 and 48-channel high-speed data line protectors that utilize three-stage hybrid technology. These units address high-energy voltage transients that can damage expensive network equipment. Ideal for network patch panels, switches and hubs, these units mount easily in the same racks as the equipment they are protecting.

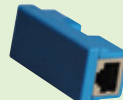
Data/Signal Protection



Edco LCDP Series—The Edco LCDP Series is designed to conveniently protect 8 wire, low voltage data circuits and employs two RJ-45 jacks for easy installation.



Edco RJA-RJD Series—The Edco RJA and Edco RJD Series are four pair telephone/data line protectors that implement advanced two stage hybrid design.



Edco CAT6-5 POE Series—The Edco CAT6-POE Series is designed to work on Category 5 Power-Over-Ethernet transmission lines as well as CAT 6 applications.



Edco PHC Series—This surge suppressor is designed to protect two pairs of wires specifically for alarm and security systems where operating currents can be as high as 5 Amps. It utilizes three-stage hybrid technology to address overvoltage transients and sneak and fault current for signaling circuits.

Home and Office Protection



Islatrol™ SP-6TVN Series—The Islatrol SP-6TVN is a surge suppressor/filtering device that features uniquely designed repositionable outlets and protects sensitive home/office equipment including home theaters, satellite dishes, computers, printers and faxes.

Powerful Solutions For Critical Data And Telecom Applications

From major switching and data centers to remote shelters and computer rooms, Emerson Network Power -48V DC power systems have the features and proven performance to match your network application needs.

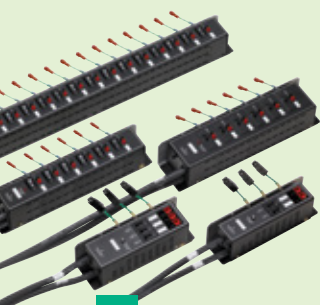
Visit: EmersonNetworkPower.com/DCPower

Benefits of DC Power for Data Centers

Emerson Network Power's platform of AC to 400V DC power systems is designed to address emerging applications in telecommunications, data centers, and commercial buildings.

400V DC can increase overall power efficiency, reduce infrastructure footprint, and improve availability.

- **DC architecture simplicity:** Fewer components, conversion stages and distribution breakers throughout the power chain ensure high availability; elimination of complex synchronization circuits and the need to de-rate capacity for phase balancing or harmonics makes it easy to engineer.
- **Scalability and ease of deployment:** Minimize your initial investment and avoid stranded power by adding expansion DC UPS modules without interruption in the field as power needs increase.
- **High system efficiency:** Reduced end-to-end power conversion stages combined with efficient power conversion units (PCUs) and an advanced energy optimization mode enable significant energy savings even at low loads.



NetSure™ 9500

The 120kW NetSure™ 9500 is an efficient, reliable AC to DC power system for critical 400V DC power applications. A flexible and modular design enables deployment in a variety of site configurations and allows for scalable buildouts to avoid stranded capacity. Built on the patented, proven 15kW eSure™ rectifier, the system offers high efficiency over a wide operating range and exceptional NetSure™ reliability.



NetSure™ 9500

48 to 400V DC Power Input

NetSure™ 400V DC to -48V DC converter systems can also be used to extend the copper reduction benefits of 400V DC to existing -48V DC networking loads in core telecom applications.

DC UPS

NetSure™ ITM 400/480V AC 3 Phase Input

The NetSure™ ITM lowers the cost of data center design, operation and management. This 48V direct current solution is a row-based DC UPS that delivers simple, scalable and highly efficient power protection in 70kW modules. Up to four DC UPS modules can be installed together for 280kW of total power.

The NetSure™ ITM is deployed directly on the server room floor, providing protected 48V power to nearby equipment racks. This preserves the efficiency and reliability benefits of DC power, minimizes the amount of copper required, and enables modular growth.



NetSure™ ITM 140kW,
Two Module System

48V DC Rack Power Distribution

NetSure™ RDB Series

Deploy DC power in your rack with zero U, rear mount power distribution units (PDUs) to maximize rack space available for revenue generating equipment. Featuring plug-and-play connectors for simple field operation, NetSure™ RDB 48V Rack Distribution Units are designed for ultimate ease of use. No special tools are required to maintain or move IT equipment.

eSure™ high-efficiency rectifiers from Emerson offer superior performance and uncompromised reliability, with efficiency levels near 97%. eSure™ technology delivers the highest efficiency in the industry, reducing power consumption and lowering operation cost.



Large DC Power Systems 208/480VAC 3-Phase Input

Power systems for data center and central office applications, including wireline and wireless switching, transmission, data routing and large telecom hotels



NetSure™ 801
The NetSure™ 801 high-density power system offers the increased flexibility of a cabled plant in a centralized architecture.



NetSure™ 802
Integrated -48V DC 3-phase rectifiers, distribution, control and monitoring in a single frame. Expandable to 16,000A with additional frames.

Medium DC Power Systems 240VAC Single Phase and 208VAC 3-Phase Input

Modular, flexible design for switching, wireless base stations, transmission, LAN, WAN and other networking operations



NetSure™ 710
The NetSure™ 710 power system with 3000W rectifiers and 1500W DC to DC converters provides up to 2000A of current at +24V DC and up to 500A at -48V DC.



NetSure™ 721
Modular power system with 3500W or 2000W high efficiency eSure™ rectifiers and 1500W DC to DC converters provides up to 4000A of current at -48V DC and up to 500A at +24V DC.



NetSure™ 722
The NetSure™ 722 Bulk Output Power System, with high-efficiency 3500W rectifiers providing up to 2000A of power at -48V DC, is intended for use to expand or upgrade legacy -48V DC solutions while retaining the site's existing distribution architecture.

Small DC Power Systems 120/240VAC Single Phase Input

Highly reliable, uninterruptible and cost-effective power systems for small data or telecom installations

NetSure™ 502
The NetSure™ 502 is a flexible system capable of providing DC power through the use of 2000W standard or high-efficiency eSure™ rectifiers, an ACU+ controller, and a variety of output distribution options.



Mini DC Power Systems 120VAC or 220/240VAC Single Feed Input

High-density mini-sized DC power solutions for outside plant enclosure, central office or embedded applications

NetSure™ 211
This DC power solution offers 1RU and 2RU configurations, combining reliable NetSure™ rectifiers with an advanced Ethernet-accessible controller for mini power applications.



DC Power Distribution Equipment

Power protection and load distribution equipment for various communication applications

NetSure™ 801 DB
Battery Distribution Fuse/Circuit Breaker Bay featuring high capacity, front access, modularity, and simplified installation to effectively provide secondary load distribution and protection for multiple -48V DC feeds up to 640 amps.



Enclosure Solutions

Custom designed or standard enclosures available for all types of data and telecom equipment.

Batteries & Accessories

Products frequently used together with DC power systems are also available, including battery disconnects, batteries, battery strands, battery trays, bus covers, assorted panels, circuit breakers and much more.

Power System Monitoring: The Key To Continuous Operation

What You Don't Know Can Hurt You.

A small problem in a critical facility can quickly escalate into a disaster—knowing what is happening with your power equipment, so you can keep that protective “envelope” at peak operating efficiency, is vital to system reliability.

Different People Need To Know Different Things.

Liebert offers you more monitoring solutions than anyone else because getting the right information about your power equipment to the right people, with the right level of urgency, is so important to system availability.

We do this by allowing you to receive and use information from your Liebert power equipment's microprocessor controls—no matter where it is located or what communications protocol, operating platform or building management system is being used. In-band, out-of-band and web-based monitoring are all available. From enterprise monitoring systems to individual pieces of communications hardware, you will know the exact problem so that you can implement the right solution.

How Deep Does Your Monitoring Need To Be?

Monitoring can range from a automated shutdown software that provides basic operating information from a single UPS unit, all the way to full-scale monitoring and control of a critical facility including trending and data analysis.

Your requirements will vary according to the specificity of the information you need. You may require no more than a local readout of a unit's operating status. Or you may need the ability to control its operation and receive alarms.

These information requirements may also go beyond basic monitoring and control. You may need the ability to analyze performance data in order to pinpoint trouble spots so that the same problems don't happen again and again.



Maximizing Your Investment Through System Monitoring

Distributed Management with Liebert IntelliSlot Interface Cards

For enhanced remote communications and control of your Liebert units, the Liebert IntelliSlot Web and 485 Cards deliver the communication capabilities you require.

Monitoring and control through your existing Network with no additional software required.

Each Liebert system equipped with a Liebert IntelliSlot Web Card takes full advantage of your Ethernet network, allowing remote monitoring from your computer desktop, network operations center or wherever network access is permitted, without the need for front-end software.

Monitoring integration with your existing Building Management System.

A Liebert system equipped with a Liebert IntelliSlot™ 485 Card can be seamlessly integrated with your existing Building Management System.



Liebert IntelliSlot Web

Centralized Management with Liebert Nform® Software

As business grows, your critical equipment infrastructure will expand, thus the need for centralized management of this equipment will be key to your business success.

Connecting to equipment in the distributed critical space is only part of the monitoring challenge.

Liebert Nform leverages the network connectivity capabilities of your Liebert equipment to provide a centralized monitoring view of your distributed equipment.

Utilizing the SNMP and Web technologies built into each of the Liebert IntelliSlot communication cards, Liebert Nform will centrally manage alarm notifications to provide you with an easy interface to access critical status information. Liebert Nform puts critical systems information at the fingertips of support personnel—wherever they are—increasing responsiveness to alarm-event conditions, thus allowing IT organizations to maximize their system availability.



Liebert Nform

Enterprise Management with Liebert SiteScan® Web Software

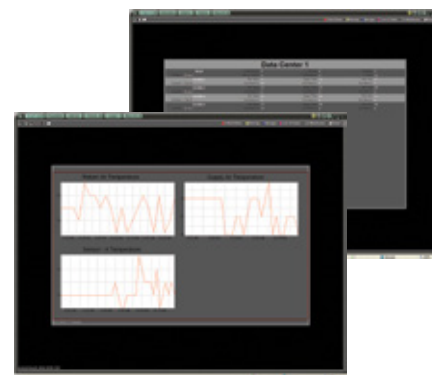
For customers who require extensive management of critical system equipment that may span multiple locations in an ever-moving global enterprise, Liebert SiteScan Web will centrally manage your critical equipment and give you the power to move beyond the event-responsive service paradigm.

Liebert SiteScan Web does it all:

- Real-Time Monitoring and Control.
- Event Management and Reporting.
- Data Analysis and Trending.
- Building Management Integration.

Liebert SiteScan Web is a comprehensive critical systems management solution dedicated to ensuring reliability through graphics, event management and data extrapolation. The standard Web interface allows users easy access from anywhere at anytime.

- Single and multi-site applications.
- Event management and unit control.
- Trend and historical data captures and reporting.
- Full ASHRAE BACnet compatibility.
- Java based.
- Windows 2000, XP and 2003 compatible.



Liebert SiteScan Web

A Higher Level of Critical Power Service Expertise

Maximizing the performance and efficiency of your data center's uninterruptible power supply (UPS) and other power distribution systems requires they be properly maintained by factory-trained technicians.

Emerson Network Power has the only service organization in the world that has been factory trained on Liebert power equipment and is continuously supported and updated by the engineers who built the equipment.

As the service arm of the original equipment manufacturer, we have been providing integrated solutions for mission-critical environments for more than four decades—servicing more than 115,000 pieces of equipment for 16,500 customers at more than 21,000 sites. In fact, the company's system-wide expertise is utilized by more than 70% of FORTUNE 500 companies.

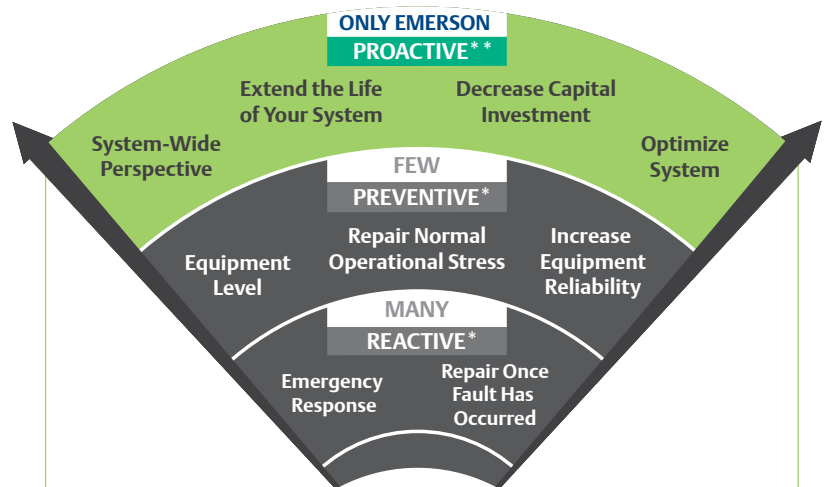
With service from Emerson Network Power, customers have 24/7 access to a network of data center infrastructure specialists armed with the knowledge and parts needed to resolve problems—anytime and anywhere.

On average, calls to 1-800-LIEBERT are resolved in less than three minutes, but if an emergency on-site visit is needed, the typical response time of our service technicians is less than two hours.

Emerson Network Power is able to deliver this unparalleled level of service because of significant investment in the following:

- Field technicians
- Parts logistics system
- Technical support network
- Safety and compliance
- Tools and instruments
- Emergency response infrastructure
- State-of-the-art training facility

As a continuously improving organization that heavily invests in our ability to keep your system available, customer engineers undergo the intensive training required to achieve the highest level of knowledge regarding the equipment they service. This is a commitment that the Emerson Network Power service team continues to make to keep your data center operating at peak performance.



The Emerson Critical Difference

Many service organizations can perform basic repair activities and maintain equipment at some level of competency, but Emerson Network Power can take your critical maintenance to the next level—proactive maintenance that can significantly extend the life of your power systems, decrease your capital investment, optimize system efficiency and effectiveness, and increase overall system availability.

Protecting Power System Availability In Your Data Center

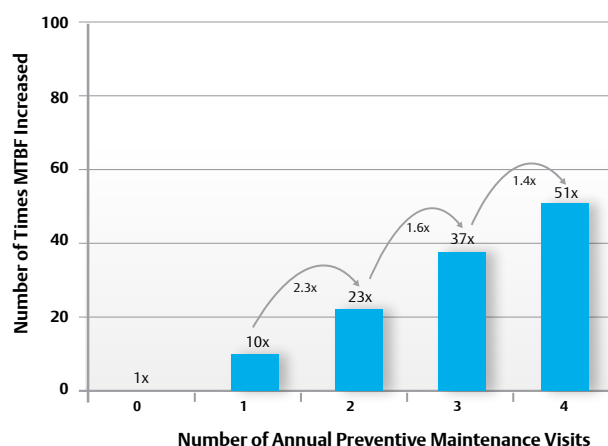
A regular preventive maintenance program from Emerson Network Power is the best way to ensure maximum reliability of data center equipment. Systematic inspection, detection and correction of incipient failures keep infrastructure issues from turning into costly downtime.

One study has shown that for a three-phase UPS system (≥ 100 kVA), the Mean Time Between Failures for those units that received two preventive maintenance visits a year is 23 times higher than a system with no preventive service events in a year.

Our power preventive maintenance includes the following:

- Repairing and reporting of all high temperature areas that may affect component and unit performance.
- Complete visual inspection of the equipment including subassemblies, wire harnesses, contacts, cables, major components and air filters.
- Checking of inverter and rectifier boards, and checking all mechanical connections for heat discoloration and tightness.
- Replacement of swelled and leaking power capacitors and DC capacitors with extruded vent caps.
- Replacement of any life-limited components that may have failed or show signs of failure.
- Installation of all factory-recommended engineering field change notices as necessary.
- Inspection maintenance of individual batteries including on-site and remote preventive maintenance options utilizing Albér battery monitors.
- Customer engineer consultation and system recommendations.

Preventive Maintenance Directly Affects
Your Critical System Availability



SERVICES TO COMPLEMENT A REGULAR PREVENTIVE MAINTENANCE PROGRAM

Battery Replacement	Keep your power system running within specifications and minimize the risk of downtime through proactive replacement of batteries by an expert who complies with all manufacturers' and IEEE standards.
Battery Service with Integrated Monitoring	Use Albér monitoring technology to detect potential problems, and rapidly respond to defects and degradation—improving overall system availability.
Battery Spares	Utilize fully charged on-site spares for minimal downtime and a more stable environment for your business-critical power supply.
Capacitor Replacement	Extend the life of your UPS by proactively replacing the full bank of capacitors before an unexpected failure occurs.
Power Assurance Package	Safeguard your Liebert GXT or PSI systems and optimize the use of staff at your small IT site with total maintenance and repair coverage for five years.
LIFE™ Services	Utilize technology embedded into your UPS and thermal equipment for continuous monitoring by infrastructure specialists; data analysis by product and engineering experts; and corrective action by highly trained customer engineers and field technicians.

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

Emerson Network Power, a business of Emerson (NYSE:EMR), is the global leader in enabling *Business-Critical Continuity™* from grid to chip for telecommunication networks, data centers, health care and industrial facilities. Emerson Network Power provides innovative solutions and expertise in areas including AC and DC power and precision cooling systems, embedded computing and power, integrated racks and enclosures, power switching and controls, monitoring, and connectivity. All solutions are supported globally by local Emerson Network Power service technicians. Liebert AC power, precision cooling and monitoring products and services from Emerson Network Power deliver *Efficiency Without Compromise™* by helping customers optimize their data center infrastructure to reduce costs and deliver high availability.

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