

■ AC Power  
For *Business-Critical Continuity™*

**Liebert Nfinity®**  
A Powerful UPS Solution For Small To Medium Data Centers



 **Liebert.**

  
**EMERSON™**  
Network Power

## *You Depend On Your Network More Than Ever*

**IT managers are experiencing more change and uncertainty today than at any time in the last 20 years. Network technology is advancing faster than your infrastructure support strategy. It's no longer just about managing system availability and growth; it's also about managing uncertainty, equipment density and capacity.**

### **Smaller Rooms, Bigger Challenges**

If you operate a small data center (up to 25 racks) or network closet, you undoubtedly realize the importance of these critical IT facilities to your operations. You will have to do more to protect the operation of your critical networks in order to maintain business continuity. As servers and other components shrink in size, capacity and criticality are increasing.

Powering all of this equipment is no small task. That's why Liebert has developed a power protection solution that can expand easily as your needs grow.

### **Putting It All Together: The Liebert Nfinity UPS System**

The Liebert Nfinity power system is a scalable UPS utilizing fault-tolerant technology in two scalable models: 4 to 16 kVA and 12 to 20 kVA. Designed with N+x parallel redundancy capability, its modular design was devised to provide easy scalability to users as their power demands grow. Configurations can be cost-effectively upgraded without re-investing in a new system or installation. The patent pending frame design houses all of the modular system components, including 4 kVA power modules, battery modules and system control modules.

Liebert Nfinity is the perfect power protection solution for:

- Small Data Centers
- Network Closets
- VoIP



*"The Liebert UPS systems were absolutely perfect. We've not had any battery problems with the Liebert systems and we used to have that all the time."*

**Brad Thomas**  
Network Engineer  
University of Wyoming



**Liebert Nfinity's modularity and scalability allow you to specify a system that is right for your needs today — but has the ability to expand with your requirements for the future.**

### **Wider Input Voltage Window**

A wider, variable input voltage range minimizes transfer to battery to increase battery life. For lighter loads, low line transfer can range down to 110V.

### **Generator Compatible**

Full time output voltage and frequency regulation is provided — a necessity for sensitive electronic equipment and a must for sites with back up generators.

### **Highest Overload Capability**

Liebert Nfinity offers the highest overload capability of any system in its class — capable of sustaining 110% of the system's rated load for an extended period of time.

### **Two-Year Factory Warranty Program**

Liebert's two-year warranty provides for repair or replacement of your Liebert Nfinity UPS during the initial warranty period.

### **Higher Availability And Flexibility Start With Higher Intelligence**

The Liebert Nfinity is a true on-line, double-conversion UPS that delivers 100% power conditioning, zero transfer time to battery, no change in output voltage and better transient suppression than line-interactive units. Built-in intelligence is provided by system level and individual module microprocessor controls which increase UPS functionality, communications and reliability. The Liebert Nfinity also offers added reliability with internal bypass and optional redundant monitoring.

### **Liebert Adaptive Solutions For Today's Computers**

The Liebert Nfinity is part of the Liebert Adaptive Architecture — a combination of power, cooling and monitoring technologies that provide mission-critical IT support across your entire enterprise. The Liebert Adaptive Architecture delivers higher performance with greater flexibility than any other infrastructure design.

#### **Higher Availability**

Proven mission-critical technologies that minimize single points of failure produce the highest possible availability of your IT systems. With the Liebert Adaptive Architecture, mission-critical technologies aren't limited to the data center — they extend wherever you have mission-critical equipment.

#### **Flexibility**

The components of the Liebert Adaptive Architecture can be reconfigured to meet the demands of new technologies, achieve higher tiers of availability or support increased densities — with minimal disruption to operations.

#### **Lowest Total Cost of Ownership**

Liebert technologies are designed to minimize capital equipment expenses and optimize efficiency. Their ability to adapt to change prevents obsolescence and extends their useful life.



### **Cabinet Stands Small, Stays Small**

Liebert Nfinity's compact, efficient design allows you to pack more power and battery capability into a much smaller sized unit, so it takes up less of your valuable floor space.

## There's A Liebert Nfinity Configuration For Your Application

**Your Liebert Nfinity UPS can be ordered in dozens of different power and battery capacities — and then upgraded at any later time as needs change.**

- Using an 8 Bay, 16 kVA frame, Liebert Nfinity provides capacities up to 16 kVA in a non-redundant mode and up to 12 kVA in an N+1 redundant mode — with an incredibly small footprint (only 20"W x 28"D x 41"H).
- The 12 bay, 16 kVA frame provides capacities up to 16 kVA in an N+1 redundant mode.
- The 12 bay, 20 kVA frame provides capacities up to 20 kVA in an N+1 redundant mode (both in only 20"W x 28"D x 54"H).

The **system control module** provides communications and control for the unit.

The system utilizes **independent 4 kVA power modules**. Up to six power modules can be operating at one time.

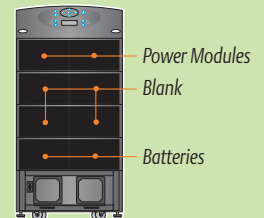
Each **battery module** is composed of ten individual 12-volt batteries encased in a plastic housing.

**Power and battery modules** are housed in identical bays within the frame. Power modules must be contained in the top half of the frame, while battery modules can be utilized in any of the bays. This allows battery backup times to be configured to customer needs.

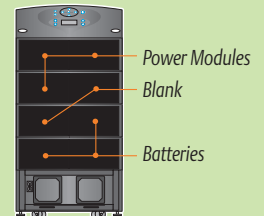


### More Choices For Extended Runtime And Redundancy

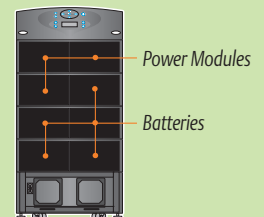
Initial System  
4 kVA Redundant



Upgrade  
System Capacity  
8 kVA Redundant



Extend System  
Run Time  
8 kVA Redundant





### Higher Availability

- Shipped as a complete, fully tested system, ready for final connection.
- Hot-swappable modules allow installation or replacement of power, battery, control and display modules without shutting down or compromising power to the load.
- Redundant components at critical points of UPS operation.
- Maintenance performed without shutdown.
- Intelligent, fault-tolerant design enables the power, battery and control modules to take themselves “off-line” if there is a problem, without compromising system integrity.
- Full self-diagnostic test is performed when modules are inserted and before going on-line.
- Emergency power off capability.
- Designed with N+x parallel redundancy.
- Patent pending intelligent bypass technology provides seamless transfers to and from the bypass source.
- Wide input voltage window minimizes battery operation to maximize battery life.
- Generator compatible due to full time output voltage and frequency regulation.
- Highest overload capability of any system in its class, capable of sustaining 110% of the system’s rated load for an extended period of time.

### Flexibility

- Scalable 4-16kVA & 12-20kVA models available.
- Customizable battery backup times, due to a flexible frame design that allows addition of battery capacity without increasing footprint.
- Scalable design allows UPS capacity or redundancy upgrades without the expense or installation downtime associated with the purchase of a new UPS.
- Additional battery cabinets can be added for extended backup times up to 72 hours.
- Remote management and control software enables greater control.

### Lowest Total Cost Of Ownership

- Longer battery lifetimes and fewer battery replacements because online technology minimizes transfers to backup.
- Modular batteries, controls and power components help reduce maintenance cost thanks to user-serviceability.
- Scalability allows you to cost-effectively invest in added capacity as it is needed.
- Reduced installation time and costs, because UPS units are shipped with batteries connected and charged.

## Incredibly Intelligent

The Liebert Nfinity’s intelligent power system is the key to higher availability and flexibility. The fault-tolerant design enables the power, battery and control modules to take themselves “off-line” if there is a problem, without compromising system integrity. System level and individual module microprocessor controls increase UPS functionality and reliability.

**IntelliControl™ Module** — works with the user interface to provide vital information about the condition of the power and battery modules. The use of a paired system control provides full systems functionality in the event of any single failure and ensures that operations and communications are always available.

**IntelliBattery™ Modules** — continuously monitor the battery’s voltage, current, and temperature to determine their condition and predict performance. A built-in microprocessor in each battery module provides the intelligence and communication capability to allow the module to automatically remove itself from the critical DC bus if necessary.

**Intelligent Power Modules** — ensure protection against power outages, spikes, surges, noise, and sags. Designed in 4 kVA “building blocks,” they utilize patent pending current sharing technology that ensures premium quality power. Liebert Nfinity power modules feature a power factor corrected (PFC) rectifier to create a sinusoidal input current waveform. This allows the system to use utility power more efficiently and reduces reflected distortion. A true online system, Liebert Nfinity provides continuous, regenerated sinewave output power.

**Intelligent Bypass** — provides seamless transfers to and from the bypass source to insure continuity of power and provide maximum system availability.

## Accessory Components Enhance Availability

### Maintenance Cabinet

The Liebert Nfinity maintenance bypass cabinet provides complete “wrap around” protection, allowing the Liebert Nfinity UPS to be pulled from service without interrupting power to the protected loads. Controls include a manual bypass transfer switch, UPS input disconnect switch and a branch rated output circuit breaker.



### Extended Battery Cabinet

The Liebert Nfinity extended battery cabinet is available when extra run time is critical to your protected loads. This unit has 12 bays that accept up to 12 standard Liebert Nfinity intelligent battery modules, allowing you to add battery capacity as needs change.



### Configurable Output Distribution

The Liebert Nfinity configurable output distribution option provides the flexibility to easily connect multiple loads with various receptacle types and current ratings to the Liebert Nfinity. Receptacles range from 15A to 30A types and include a branch rated circuit breaker to protect each individual load. Select a maximum frame size of 6, 8, or 10 distribution plates, as well as a choice of 6, 12, or 25 feet of cabled conduit.



## Power Monitoring And Control Capabilities

The Liebert Nfinity UPS incorporates extensive firmware that provides a comprehensive range of controls and operating information, as well as communications capabilities.

### User Interface Control Panel

The user interface is the main source of communication between the Liebert Nfinity UPS and the user. It features an easy-to-read LCD display and LED mimic diagram. The control panel informs the user of the status of the UPS, including the power and battery modules, and allows you to configure the system to fit specific needs or preferences.

### Communication Connections

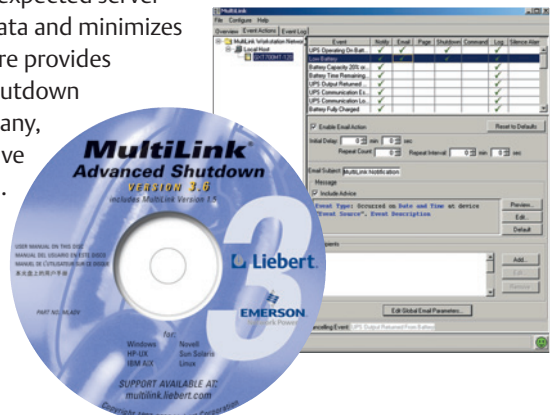
Dry contacts and a serial communications port are standard. The unit also includes four Intellislot® ports for multiple user options including:

- SNMP/WEB card that allows the Liebert Nfinity to communicate with an Ethernet network.
- MultiPort4 cards that enable up to four client computers to monitor UPS status.
- Relay contact cards to provide contact closures for remote monitoring of alarm conditions.
- The system also communicates to and monitors internal and extended battery cabinets.



### Shutdown Monitoring Software

Liebert MultiLink® is the perfect complement to the Liebert Nfinity UPS because it prevents unexpected server shutdowns, protects data and minimizes downtime. The software provides unattended, orderly shutdown for one computer or many, and is especially effective with large server farms. Liebert MultiLink has full event management and displays UPS instrumentation on screen.



## It All Adds Up To A Better Solution

The Liebert Nfinity brings it all together to provide a perfect answer to your critical power needs in smaller data centers and network closets.

## Service Solutions To Keep You Up And Running

To enhance the availability and trouble-free operation of your Liebert Nfinity UPS, the Emerson Network Power Service Business offers a range of optional service programs which include:

### Start-Up

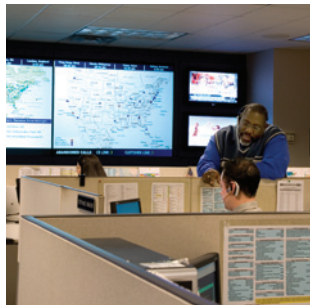
The best UPS system in the world can't operate right if it's not installed properly. During the start-up process, the correct installation and operation of your new Liebert Nfinity UPS is verified by our factory-trained customer engineer. This ensures that the unit, the installation and the environment meet published specifications for design use. Operator training is also provided.

### Remote Monitoring

Remote monitoring is our comprehensive service program connecting your Liebert Nfinity UPS to our 24 x 7 x 365 Customer Resolution Center (CRC). The CRC continuously monitors your critical equipment, detects alarms, and initiates a response according to a customized, predetermined corrective action plan.

### Customer Resolution Center

When a customer call or alarm is received at our Customer Resolution Center (CRC), it activates the Emerson Network Power 24-hour service network. This network provides immediate two-way radio access to our factory-trained customer engineers through our wireless communication system.



### Exclusive Guaranteed Four-Hour Response Time

We can guarantee a four-hour response time from the time your call is received at our CRC until a Liebert Customer Engineer arrives on-site. (Applicable in U.S. and Canada. Distance limitations apply).

### Preventive Maintenance

Preventive maintenance visits are designed to assess the status of your installed equipment and make any necessary corrective adjustments or repairs.

### Higher Availability

Proven mission-critical technologies minimize failure to produce the highest possible availability of your IT systems.

### Flexibility

The Liebert Nfinity can be reconfigured to meet the demands of new technologies, achieve higher tiers of availability or support increased densities - with minimal disruption to operations.

## LOWEST TOTAL COST OF OWNERSHIP

Now you can achieve the highest levels of UPS reliability and efficiency in a system that is sized to protect medium to small IT applications. The Liebert Nfinity UPS provides continuous, high-quality AC power to your mission-critical systems, protecting them from any power aberrations due to blackouts, brownouts, surges or noise interference.

**Talk to your local Liebert Representative or Liebert Network Solutions Partner to find out how the Liebert Nfinity power system can add up to a big plus for your IT operations.**

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

## Specifications

		Scalable 4 - 16 kVA		Scalable 12 - 20 kVA		
<b>General &amp; Environmental</b>						
Unit Rating	Units					
	kVA	4	8	12	16	20
	kW	2.8	5.6	8.4	11.2	14
Conducted and Radiated EMC Levels		FCC Part 15, Class A				
Compliant Safety Standards		UL 1778; c-UL				
Compliant Immunity Standards		IEEE C62.41, Category B				
<b>Mechanical</b>						
	Units	8 Bay		12 Bay		
Dimensions: Width		20 (508)		20 (508)		
Dimensions: Depth	In (mm)	28 (711)		28 (711)		
Dimensions: Height		41 (1041)		54 (1372)		
<b>Environmental</b>						
	Units	4	8	12	16	20
Operating Temperature (max)	F (C)	32°-104° (0°-40°)				
Relative Humidity		0-95% non-condensing				
Maximum Operating Altitude	Ft. (M)	10,000 (3,000)				
Nominal Heat Dissipation	BTU/Hr	1062	2124	3186	4248	5307
<b>Input Data</b>						
	Units					
Nominal Input Voltage	VAC	170 to 276				
	VAC	110-276 (variable, based on output load)				
Power Factor	Cos $\phi$	>.98				
Input Frequency (nominal)	Hz	60				
Input Frequency Range	Hz	40-70				
<b>Battery Module</b>						
	Units					
Battery Capacity	A/hr	9				
Autonomy Time (full load)	Mins	7				
		(With an equal number of Battery & Power Modules, in a non-redundant configuration)				
Maximum Charge Current (full load)	A	3				
Nominal Voltage	VDC	120				
Recharge Time	Hrs	3-5 (to 90% capacity)				
<b>Output Data</b>						
	Units					
Output Voltage	VAC	208/120 or 240/120				
Voltage Regulation	%	$\pm$ 3				
Voltage Transient Response (100% step load)	%	$\pm$ 7				
Voltage Stability (100% step load)	%	$\pm$ 7				
Recovery Time	msec	96				
Voltage distortion:	%	<3 THD, linear load				
		<7 THD, non-linear load				
Output Frequency	Hz	60				
Efficiency at 100% load	%	89				
Output Overload Capability	%	110-125% for 10 min				
		126-150% for 10 sec				
		>151-200% for 2 cycles				

## Liebert Corporation

1050 Dearborn Drive  
P.O. Box 29186  
Columbus, Ohio 43229  
800 877 9222 Phone (U.S. & Canada Only)  
614 888 0246 Phone (Outside U.S.)  
614 841 6022 FAX

Via Leonardo Da Vinci 8  
Zona Industriale Tognana  
35028 Piove Di Sacco (PD)  
Italy  
39 049 9719 111 Phone  
39 049 5841 257 FAX

Emerson Network Power Asia Pacific  
7/F., Dah Sing Financial Centre  
108 Gloucester Rd, Wanchai  
Hong Kong  
852 25722201 Phone  
852 28029250 FAX

## liebert.com

### 24 x 7 Tech Support

800 222 5877 Phone  
614 841 6755 (outside U.S.)

While every precaution has been taken to ensure accuracy and completeness in this literature, Liebert Corporation assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

© 2007 Liebert Corporation. All rights reserved throughout the world. Specifications subject to change without notice.

All names referred to are trademarks or registered trademarks of their respective owners.

® Liebert and the Liebert logo are registered trademarks of the Liebert Corporation.

SL-23900 (R03/07) Printed in USA

## Emerson Network Power.

The global leader in enabling *Business-Critical Continuity™*.

- AC Power
- Embedded Computing
- Outside Plant
- Racks & Integrated Cabinets
- Connectivity
- Embedded Power
- Power Switching & Controls
- Services
- DC Power
- Monitoring
- Precision Cooling
- Surge Protection

*Business-Critical Continuity*, Emerson Network Power and the Emerson Network Power logo are trademarks and service marks of Emerson Electric Co.  
©2007 Emerson Electric Co.

## EmersonNetworkPower.com