



Liebert NX UPS

Power Availability

THE NEXT GENERATION OF UPS TECHNOLOGY TO POWER THE NETWORKED ECONOMY



Optimized For Systems Availability

Dramatic Reliability Improvements

*The Latest In Control Technology That
Delivers The Best Industry Performance*

*Protection Against The Full Spectrum
Of Input And Output Power Disturbances*



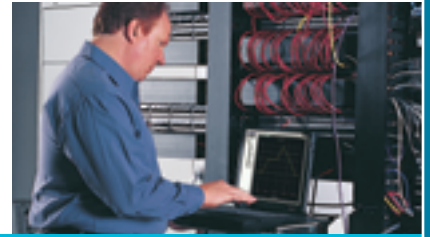
HIGH TECHNOLOGY PROTECTION FOR YOUR HIGH RELIABILITY SYSTEMS



The Liebert NX is the next generation of true on-line, double conversion digital UPS. Designed to meet the high availability power needs of a wide variety of applications, the Liebert NX combines innovation, simplicity and low cost of ownership. The result is a power system that delivers both reliability and a return on investment beyond what has been traditionally offered.

New IT Applications Require New Levels Of Protection

Today's advanced digital computing, communications, process control and medical systems require power protection that is just as innovative. These systems, however, face many of the traditional threats to their availability – foremost among them is a lack of high quality power required to operate sensitive electronics. Solving these challenges with a power solution that combines high performance, compact size, reliability and cost-efficiency is the goal.



Once Again, Liebert Has The Answer

The Liebert NX is a medium-sized power system that is ideal for a number of critical applications including:

- Server rooms and mid-sized data centers
- Network components including critical routers and switches
- Telecommunication (fixed, WiLL and mobile) billing and reporting systems
- Networks (LAN, MAN and WAN), InfoCom and WiFi hot spots
- Industrial process and motion automation for mid-sized plants
- Medical diagnostic/imaging equipment

If maintaining the availability of these systems is pivotal to the success of your enterprise — you need the Liebert NX.



RAISING POWER PROTECTION AND CUSTOMER VALUE TO A NEW LEVEL

The Liebert NX features numerous operating improvements over previous UPS systems. Its “all-in-one” design 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 (DSP) controlled IGBT rectifier and IGBT inverter.

ActiveStar™ Controls For World Class Performance

Fully digital ActiveStar™ control technology provides a highly accurate, drift-proof control compared to traditional analog electronics. These features enable the Liebert NX to provide accurate, reliable power protection under a wide range of conditions.





ALARM

Liebert NX
010kVA-3x3

2003-08-25
Unit#

16:57:32
fault

	Lead			System		
	L1-N/L2	L2-N/L3	L3-N/L1			
Age (V)	14.1	15.0	13.1			
nt (A)	0.1	0.1	0.2			
(Hz)	0.00	0.00	0.00			
(V)	25.2	24.3	23.5			
	0.00	0.00	0.00			
	09-25 16:16					
	09-25 16:37					
	09-25 16:39					

EPO

True On-line Double Conversion Operation Delivers Total Protection

Only a double-conversion topology provides 100% protection with complete input to output isolation and totally regenerated power. A double-conversion UPS delivers 100% power conditioning, zero transfer time to battery, no change in output voltage and better transient suppression than line-interactive units. Double-conversion systems also offer a wider input voltage window that allows the UPS to absorb deeper sags without having to transfer to battery.

Unique Features That Make The Liebert NX An Outstanding Performer

The Liebert NX incorporates a number of exceptional technical features that make it the best value in high availability power protection on the market today:

- Its wider input voltage window and frequency tolerances contribute to higher system availability by minimizing battery usage.
- It operates under a wide variety of conditions, handling 100% non-linear loads with 3:1 crest factor, as well as 100% unbalanced loading.
- An advanced 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.

WHY THE LIEBERT NX IS THE BEST UPS INVESTMENT YOU CAN MAKE

The Liebert NX has been designed from the ground up to meet the power protection needs of today's sensitive electronics. It combines reliability, efficiency and value in a compact package that is ideal for today's applications. It is simply the best investment you can make in a medium size UPS system. Here's why.

High Availability Of Quality Power

- The Liebert NX features built-in reliability with a redundant power supply card, redundant cooling fans and highly efficient cooling of critical components.
- Wider input voltage and frequency tolerances contribute to high power availability.
- Digital controls provide the fastest possible power management to enhance reliability, accuracy and efficiency while reducing component count.
- Dual bus compatibility and system redundancy further enhance the availability of power.
- The system's static switch overload rating makes it capable of clearing a 20 A branch circuit breaker.
- High overload protection handles 125% for 10 minutes, 150% for one minute and a 1000% overload for 10 milliseconds.

Optional Intellislot Communication Ports

Input Circuit Breaker

Cleanable Air Filters

Field Wiring Section

Leveling Feet With Casters

Top and bottom cable entry.
IP20 protection with door open.



Extended battery cabinets are also available for longer back-up times.

Rectifier Inverter and Static Switch

Maintenance Bypass Switch

Internal Battery

Reduced Cost of Ownership

- The improved input power factor of the Liebert NX can actually reduce your electricity usage.
- It delivers the highest possible input power factor — greater than 0.99 at rated linear and non-linear loads — for maximum efficiency.
- The unique ability of the Liebert NX to adjust power walk-in from 5 seconds to 30 seconds, along with reduced input current distortion and power factor correction, also enables you to save money by reducing back-up generator sizing requirement.
- The unit's compact footprint requires less floorspace, leaving you with more room for other equipment.

Upstream Green Power

- The Liebert NX provides the cleanest level of upstream power with the lowest level of input current THD (total harmonic distortion) in the industry.
- This ensures that clean power flows upstream, avoiding damage to other loads connected to the upstream power distribution bus.

Ease And Simplicity

In Scalability And Redundancy

- Two Liebert NX modules may be paralleled in a redundant configuration for added reliability and serviceability.
- The Liebert NX is compatible with Liebert's unique dual bus synchronization system.

Protection Of Your UPS Investment

- A wider input voltage window of +10 to -20% and a frequency tolerance of 40Hz to 72Hz provide high quality power, even when input power is below standard. This helps to minimize transfer to battery, reducing the charging and discharging cycles.
- Temperature-compensated battery charging extends battery life.
- Back-feed protection ensures system integrity.
- Short-circuit-proof, Active Star™ controlled inverter provides highest output power quality.

Maintainability

- For safe and convenient servicing of the UPS, the Liebert NX includes a built-in maintenance bypass, optional wrap-around maintenance bypass with IP 20 UPS enclosure protection — even with the front doors open.
- Use of a redundant configuration allows you to utilize one module while the other is being serviced.
- Dual bus compatibility enables you to transfer the load to an alternate power source for maintenance activities.

Serviceability

- The Liebert NX features easy access for service thanks to front accessibility of critical components, self-diagnostics and various monitoring options.

System Flexibility

- Flexibility is achieved through many choices including type of battery, number of single and multi-unit configurations, and an array of internal and external power and communication options.
- Auto restart capability provides added availability.
- Ultra-quiet performance with noise levels below 54dB allows greater latitude in where to place the unit.

User Flexibility

- Large and user-friendly LCD display provides operating information in twelve different languages.
- Adjustable power walk-in, numerous user-specified settings, a choice of power monitoring communications alternatives and user friendly control are all handled through the menu-driven LCD control panel with detailed data reporting.

Power Communications

- To meet a variety of needs, the Liebert NX can provide power communications through a Relay Contact Card, OpenComms™ Web Card and MultiLink™ shutdown software.

SUPERIOR PERFORMANCE DESIGNED TO MEET YOUR NEEDS

The Liebert NX incorporates a number of operational features that make it the best value in high availability power protection on the market today:



Wider input voltage and frequency tolerances — Contribute to higher system availability by minimizing battery usage.

Operates under a wide variety of conditions — Handles 100% non-linear loads with 3:1 crest factor, as well as 100% unbalanced loading.

Advanced IGBT based PFC (power factor corrected) rectifier — Enables the Liebert NX to achieve its impressive THD and PF performance.

Built-in reliability — With a redundant auxiliary power supply board and redundant cooling fans.

IP 20 UPS enclosure protection — Even with front doors open.

Auto restart capability — For added flexibility.

High overload protection:

- 125% for 10 minutes.
- 50% for one minute.
- 1000% for 10 milliseconds.

Static switch overload rating:

- Capable of clearing a 20 A branch circuit breaker.

More Intelligent, More Benefits

The Liebert NX incorporates a number of advanced features designed to enhance system operation. A large and user-friendly LCD display provides operating information in twelve different languages. The unit also provides backfeed protection, as well as flexibility in selecting effective configurations for the application.

Totally Digital Control

Digital controls offer enhanced reliability, accuracy, efficiency and reduced component count. The Liebert NX uses the most proven DSPs (digital signal processors) to control the entire system. These high-speed DSPs allow complex real-time algorithms to be performed in milliseconds. This helps the system to make the fastest possible decision with a high degree of accuracy. The use of a digital controller contributes to higher reliability by drastically reducing the number of components. Digital controls also eliminate the problem of settings that "drift" over time, usually associated with analog electronic components.

ADVANCED MONITORING AND COMMUNICATIONS CAPABILITIES KEEP YOU IN CONTROL

Keeping you in constant command of your critical power protection system is essential to reliability. That's why the Liebert NX is designed to utilize our most advanced communications capabilities.

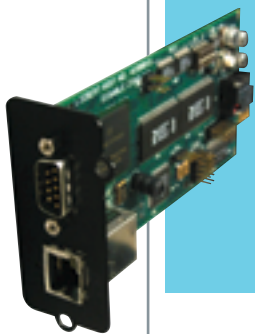
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Communications Options

The Liebert NX includes three Intellislot™ ports designed to house multiple electronic cards for a variety of monitoring and communication applications. These optional cards include:

- **Relay Contact Card** — addresses the basic monitoring and communications needs of users/maintenance personnel.
- **OpenComms™ Web Card** — to meet the needs of network managers by providing interface to network management systems.



Other Remote Communications

The Liebert NX provides other communications alternatives through RS-232 & RS-485 ports. In addition to remote communications, the RS-232 port can also be used for local downloading of data by service personnel, while the RS-485 port can be utilized for a variety of remote communications applications.

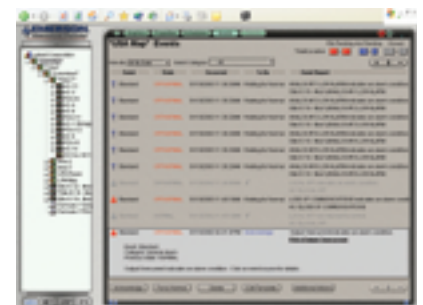
Local Communications

Liebert NX provides excellent local communications through its operating display panel. The panel includes pushbuttons such as “Emergency Power Off,” an LED-based mimic diagram and an LCD panel. While the mimic shows the live power path, the back-lit contrast-adjusting LCD provides you with detailed data on the unit and the system in twelve different languages through a user-friendly menu.

Liebert Power Monitoring Capabilities

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

- **MultiLink™ Automated System Shutdown Software**
- **OpenComms™ Nform Monitoring System**
- **SiteScan™ Web Comprehensive Facility Monitoring System**
- **Liebert Universal Monitor And Remote Power Monitor Panels**
- **Third-Party Monitoring Systems**



CRITICAL SPACE SERVICES FROM LIEBERT GLOBAL SERVICES

Liebert Global Services has the necessary resources and expertise to support the critical power and environmental infrastructure that supports your mission-critical computing and communications systems.



Total Service Capability

Service Excellence programs from Liebert Global Services provide a simple and easy to understand strategy for meeting all of your critical space service and maintenance needs. Basic, Essential and Preferred levels allow you to select the complement of critical power system services that best fits your requirements. These programs include guaranteed four-hour response time, emergency service and preventive maintenance.

With over 300 Liebert-employed Customer Engineers in the U.S.A. and a network of over 900 factory authorized service personnel, our technical capabilities, geographical coverage and ability to respond are second to none. These factory-trained service professionals have direct access to the most comprehensive factory authorized parts network in the industry. We also provide them with immediate online access to detailed schematics and your equipment's complete service record from the time it was started up.

Remote Monitoring — Always There, Always Alert

The key to providing proper service for your critical power systems is being aware of that equipment's operating status at any given time. For customers who need to have these vital protection systems continuously monitored, but don't want to do it themselves, Liebert Global Services offers our Remote Monitoring Service. This seamless, rapid-response system is designed to maximize the capabilities of your Liebert equipment by maximizing the effectiveness of its monitoring capabilities.

Continuous 24-hour remote monitoring of UPS/power conditioning equipment, environmental products and other critical space support systems is available. No matter where your facilities are located, we can provide continuous oversight of a wide range of critical installations from our Customer Response Center.

When a problem is detected, the monitoring system immediately alerts the Customer Response Center where each alarm is evaluated and processed. The center offers instant phone assistance using a customer-defined response and call escalation plan. Liebert will coordinate all service vendors, track the response and solution time for service calls and provide comprehensive reports on alarms and corrective actions.

TOTAL CONFIDENCE IN THE DECISION YOU'VE MADE.



Liebert NX UPS

Power Availability

Specifications

Models		NX 10	NX 15	NX 20	NX 30
Nominal Power Rating At 0.8 PF	kVA	10	15	20	30
Input Parameters					
Rectifier Type		PFC (Power Factor Corrected)			
Input Voltage*	VAC	208/120v 3-ph, 4-w			
Permissible Input Voltage Range	VAC	+10% -20%			
Input Frequency	Hz	50 or 60			
Permissible Input Frequency Range	Hz	40 to 72			
Input THDi At Nominal Voltage	%	<4% without any additional hardware			
Input Power Factor At Nominal Voltage		≥0.99 without any additional hardware			
Power Walk-In	Seconds	5 to 20			
Battery					
Battery Type		VRLA (Valve Regulated Lead Acid) or Wet			
Nominal Battery Bus	VDC	288			
End-Cell Voltage	VDC / Cell	Selectable from 1.67 to 1.80 (for VRLA)			
DC Ripple Current	%	<5			
DC Ripple Voltage	%	<1			
Internal VRLA Battery	Cells	144			
Output Parameters					
Inverter Type		IGBT-based Active Star Control			
Output	kVA	10	15	20	30
	kW	8	12	16	24
Output Voltage*	VAC	208/120v 3-ph, 4-w			
Output Voltage Regulation	%	+/- 1%			
Output Frequency	Hz	50 or 60			
Output Frequency Regulation	%	+/- 0.05			
Output THD At Nominal Voltage	%	1% (max) linear <4% @ crest factor			
Capability To Handle Step Load	%	100			
Capability To handle Leading PF Load		1.00 to 0.95			
Voltage Displacement With 100% Unbalanced Load	deg	120° +/- 1			
Overload Conditions	% FL	125 for 10 minutes 150 for 1 minute			
Physical Parameters					
Width	in/mm	24/600			
Depth	in/mm	32.5/825			
Height	in/mm	63/1600			
Weight Without Battery	lbs/kg	450/205	450/205	550/250	550/250
Color		PMS 877			
Degree Of Protection For UPS Enclosure		IP 20 even with front door in open condition			
Environmental Parameters					
Storage Temperature Range	°C	-20 to 70 (UPS) & -20 to 30 (battery)			
Operating Temperature Range	°C	0 to 40 (UPS) & 0 to 20 (battery)			
Relative Humidity	%	0 to 95 (non-condensing)			
Maximum Altitude Above Mean Sea Level	m	1000 (as per IEC 62040/3)			

*other voltages are available

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