

■ AC Power
for Business-Critical Continuity™

Liebert NXr Series

30kVA to 160kVA





Anticipating Technology Changes Through Adaptive Architecture

Today, you need a power infrastructure that can work across your enterprise and respond to constant change. An infrastructure that allows you to deploy blade servers and other high-density equipment safely and cost-effectively. An infrastructure that can meet the strict power quality requirements of VoIP switches. An infrastructure that allows you to add capacity without compromising availability or serviceability.

Scalability alone can't get you there. You need an infrastructure that takes it one step further. An infrastructure that can adapt to your needs.

How the Liebert NXr enables Adaptive Architecture

Lowest Cost of Ownership

Liebert NXr is sized to minimize capital equipment expenses and designed for optimum efficiency. Its low footprint saves costly floorspace while effectively managing data center facilities with high densities. It provides 100% usable real power with high generator compatibility because of low input THDi, high input PF, low input cable and switch gear rating.



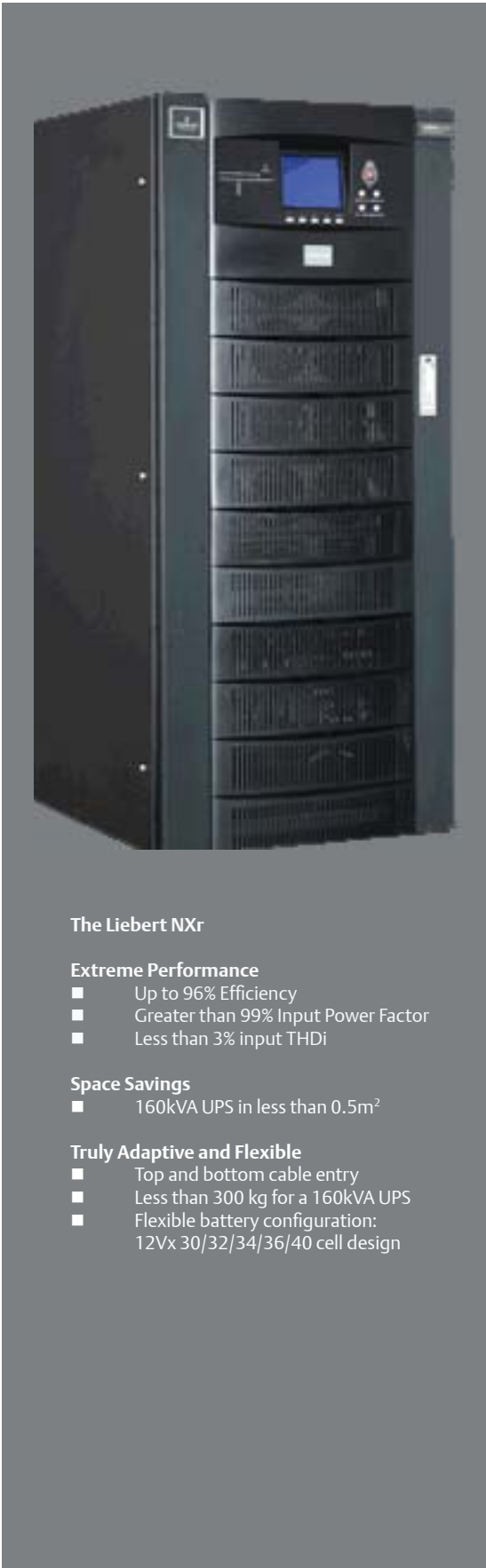
Enhanced Operational Flexibility

In response to the demands of new technologies, the Liebert NXr achieves higher tiers of availability or support even with increased densities with minimal disruption to operations. It has configurable battery and standard top cable entry. Liebert NXr allows easy configuration of different system architecture like dual bus and parallel ability.



Higher System Availability

Liebert NXr provides a mission-critical technology that minimizes single points of failure in your network. A UPS that promises the highest possible availability of your IT systems, the Liebert NXr highlights reliability with low mean time to repair (MTTR).



The Liebert NXr

Extreme Performance

- Up to 96% Efficiency
- Greater than 99% Input Power Factor
- Less than 3% input THDi

Space Savings

- 160kVA UPS in less than 0.5m²

Truly Adaptive and Flexible

- Top and bottom cable entry
- Less than 300 kg for a 160kVA UPS
- Flexible battery configuration: 12Vx 30/32/34/36/40 cell design

Unparalleled Efficiency
Low Footprint
Truly Adaptive and Flexible



Liebert NXr

Efficient and Adaptive Power For Your Critical Applications

The Liebert NXr from Emerson Network Power presents an efficient, space saving and flexible solution for your network. With an above industry standard efficiency rate of up to 96% in a compact, low footprint UPS, Liebert NXr keeps your network protected while saving on cost and data center space.

With best in class true online double conversion technology, redundancy options and flexible battery configurations, trust the Liebert NXr to provide the same level of reliability you have come to expect from the Liebert NX UPS series.

Features and Benefits

- High efficiency rating of up to 96% on true online double conversion mode
- High power density with 160kVA load in <0.5m² footprint
- Advanced digital signal processor (DSP) and digital control technology to ensure higher system reliability
- Parallel technology allowing four (4) parallel units, without the need for centralized bypass cabinet and additional external modules
- Digital current sharing technology for extremely small circulating current and high parallel reliability
- Wide input voltage and frequency range against harsh utility environment
- Powerful output overload and short circuit capacity enhancing system stability and system safety under extreme conditions
- Intelligent battery management for automatic battery maintenance and prolonged battery life
- 6-inch LCD display available in 12 different languages
- Layered independent sealed duct and redundant fan design, circuit board painting protection and dust filter, offering outstanding protection from harsh environment
- Advanced monitoring and communication capabilities for improved visibility and control
- Lower mean time to repair (MTTR) with front access for maintenance
- Flexible UPS system configuration that works in different modes of operation

Efficiency Savings

Ratings (kVA)	Traditional UPS (92%)	Liebert NXr (96%)	Annual Saving	Saving @10 Years
30	\$28,565	\$27,375	\$1,190	\$11,902
60	\$57,130	\$54,750	\$2,380	\$23,804
90	\$85,696	\$82,125	\$3,571	\$35,707
120	\$114,261	\$109,500	\$4,761	\$47,609
150	\$142,826	\$136,875	\$5,951	\$59,511

Note: Cost is based on \$0.10 kWh.

Why choose a Double-Conversion UPS?

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, great stability of output voltage and frequency 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.

DSP Control

Full digital control technology provides a highly accurate and drift-proof control compared to traditional analog electronics. These features enable the UPS to provide accurate and reliable power protection under a wide range of conditions.



Extended Load Ranges

Modern Data Centers, Blade Servers, and IT applications in general, need more active power. Moreover; In some instances, new Data Centers have capacitive or leading features while traditional systems had inductive power factors, also known as lagging.

Leading Power Factor

This exists when capacitive circuits prevail over inductive circuits. In this case, current is said to be "leading", because its curve on a 2D chart is phase-shifted ahead of the voltage curve. A UPS must be able to work according to real load requirements. While in the past, 0.7-0.8 Power Factor was common for IT applications, today's computers PF is getting closer to 1.



The best investment you can make in a UPS system: Efficiency, Reliability and Value in a compact package.

How can I get the most out of my investment?

- Liebert NXr, with its unity power factor (kVA=kW), offers more real power to support customer's mission critical loads.
- With up to 96% online double conversion efficiency, Liebert NXr saves you operating cost compared to most traditional UPS in the market.

How can I get optimum protection for my network with Liebert NXr?

- The double conversion technology of Liebert NXr allows it to have an above average industry standard of up to 96% efficiency, giving your network and data center equipment full protection at the most efficient rate.

How can I save floorspace with Liebert NXr?

- Liebert NXr is a compact UPS with low footprint.
- A 160kVA Liebert NXr UPS can be installed in less than 0.5m² space.

How can I get the highest levels of Protection and Availability?

- Liebert NXr gives you built-in reliability with its stratified cooling technology allowing cooling of critical components and redundant cooling fan option.
- 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 a power.
- High overload protection handles 110% overload for 60 minutes, 125% for 10 minutes, and 150% for 1 minute.

How can I save on my electricity bill and investment costs?

- The improved input power factor of the Liebert NXr 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 NXr 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 floor space, leaving you with more room for other equipment.
- Liebert NXr has built in Parallel and Load Bus Synchronization (LBS) boards. No extra hardware is needed, it may be easily connected just with control cables.

How can I satisfy the requirements of the latest servers?

- Liebert NXr is capable of driving wide ranges of loads, from 0.5 lagging to 0.9 leading. This makes the UPS follow the latest IT industry trends, with more active power available for all kinds of loads.

How can I also protect also my upstream-connected devices?

- The Liebert NXr provides the cleanest level of upstream power with the lowest level of input current THDi in the industry.
- This ensures that clean power flows upstream, avoiding damage to other loads connected to the upstream power distribution bus.

How can I extend the system when I need more power?

- Liebert NXr features easy and simple scalability and redundancy. In fact, up to four Liebert NXr modules may be paralleled in a redundant configuration for added reliability and serviceability.
- The Liebert NXr is compatible with Liebert's unique LBS.

How can I ensure the UPS will work under the most severe conditions?

- The wide input voltage window of 305V-477V and a frequency tolerance of 40Hz to 70Hz provide high quality power, even when input parameters are below standard. This helps minimize transfer to battery, reducing the charging and discharging cycles.
- Back-feed protection sensing ensures system integrity.
- Short-circuit-proof, DSP controlled inverter provides highest output power quality.



How can I easily maintain my UPS?

- Liebert NXr includes a built-in maintenance bypass, with IP 20 UPS enclosure protection - even with the front doors open.
- 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.

How can I monitor and communicate with my UPS?

- To meet a variety of needs, the Liebert NXr offers communications through web or management systems through MODbus and SNMP communication protocol.

How can I check the status of my UPS?

- The Liebert NXr features easy access for service. Thanks to front accessibility of critical components, self-diagnostics and various monitoring options.
- Large and user-friendly LCD display provides operating information in twelve different languages.

How can I satisfy my particular installation needs?

- 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 55dBA allows greater latitude in where to place the unit.
- 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.
- Emerson Network Power is recognized to be a great solution provider. Please contact your local Emerson Network Power office or Liebert representative to receive special solution consultancy.

How can I protect and extend the life of my batteries?

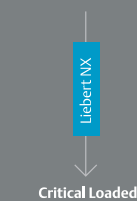
- Liebert NXr minimizes transfers to batteries with its wide input voltage tolerance down to 305V.
- Temperature-compensated battery charging extends battery life.

Configurations: A Full Range Of Features To Meet All Your Power Availability Needs

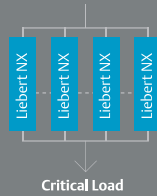
Single Or Dual Input Operation

Your Liebert NX power system can be utilized with either single or dual power inputs. The dual power feature allows you to take advantage of a secondary power source. An optional wrap-around maintenance bypass is also offered for the single input configuration.

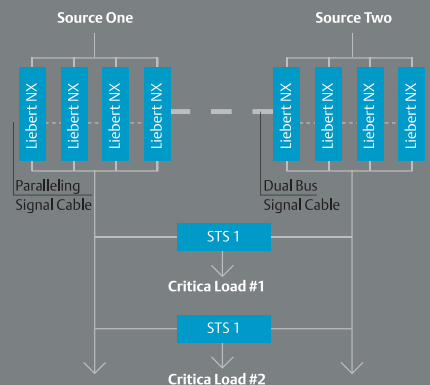
Stand Alone



1+N Configuration



Dual Bus Configuration



Liebert NXr Battery Configuration

NXr	15 MINUTES BACK-UP			30 MINUTES BACK-UP		
	Battery	Strings	# of Blocks/string	Battery	Strings	# of Blocks/string
30	45AH	1	40	75AH	1	40
60	90AH	1	40	150AH	1	40
90	134AH	1	40	230AH	1	40
120	175AH	1	40	150AH	2	40
150	230AH	1	40	175AH	2	40

NOTE: 1. EOD for 15min back-up is 1.67V
2. EOD for 30min back-up is 1.75V

Advanced Monitoring and Communications Capabilities Keep You in Control

Power Communication Options

When choosing the best system to protect your mission critical applications, an important consideration would be the software and communication options. As part of our commitment to provide the best solution for you, we offer a wide range of sophisticated software and communication options for Liebert NXr.

The most extensive list of optional communication solutions for Liebert NXr UPS Systems

Control through Building Management Systems via Modbus and Jbus protocols

- Web-enabled Monitoring and Management through SNMP protocols
- Network Management Systems ready
- Software Solutions
 - Site Monitor Software
 - Facility wide monitoring
 - Shutdown software for your computer equipment
- Simultaneous monitoring via different protocols



Emerson Network Power Service

Emerson Network Power Service offers a wide variety of services and maintenance programs designed to keep your mission critical equipment operating continuously and smoothly. Our aim is to design and offer an overall service package to meet customer's needs from a technical and commercial point of view.

More and more organizations around the world trust Emerson Network Power Service to minimize critical systems emergencies and interruptions. We are backed by

the largest technical support and customer response organization in the industry with factory trained customer engineers and service professionals in more than 100 service centers ready to assist in maintaining your uptime, 24 hours a day, every day of the year.

Emerson Network Power Service can provide service capability for your entire business critical infrastructure: from AC and DC power systems, to battery systems, commutation systems and environmental and site monitoring services.



Technical Specifications

Model	NXr						
Power	30 kVA	60 kVA	90 kVA	100 kVA*	120 kVA	150 kVA	160 kVA*
	30 kW	60 kW	90 kW	90 kW*	120 kW	150 kW	144 kW*
System efficiency							
AC-AC online double conversion	up to 96%						
Input Parameters							
Rated input voltage	380/400/415VAC, three-phase four-wire						
Rated operating frequency	50/60 Hz						
Input voltage range	305V - 477V at full load -25% to -40% with linear load derating						
Input frequency range	40Hz - 70Hz						
Input power factor	>0.99 at full load, >0.98 at half load						
Input THDI	<3%						
Input walk-in function	Available, 5 - 30s (settable)						
DC Parameter							
Battery Type	VRLA						
Battery Compensation	Yes						
Charger output voltage regulation accuracy	1%						
DC ripple low voltage	≤1%						
Output Parameter							
Inverter output voltage	380/400/415VAC, three-phase four-wire						
Inverter output frequency	50/60 Hz						
Output frequency stability	50Hz/60Hz±0.02%						
Load power factor handling capability (without capacity derating)	0.9 leading - 0.9 lagging						
Voltage stability							
Steady state	< ±1%, typical						
Transient state	+/-5%, typical						
Transient state response time	<20ms						
Inverter overload capacity	1 hour for 110%, 10mins for 125%, 1 min for 150%, 200ms for >150%						
Phase Shift							
with 100% balanced load	<1° el						
with 100% unbalanced load	<1° el						
THDv							
100% linear load	<1%						
100% non-linear load	<4%						
Bypass Parameter							
Bypass input voltage	380/400/415VAC, three-phase four-wire						
Bypass voltage range	Default: -20% to +15%, other values, such as -40%, -30%, -10% to +10%, +15% settable through software						
Bypass overload capacity	135% long term 170% for 1 hour 1000% for 100ms						
Environmental Conditions							
Operating temperature range	0 - 40°C *						
Storage temperature	-25 - 70°C						
Maximum operating altitude	≤1000m, When operating at 1000>2000m, derated by 1% for every 100m increase of altitude						
Relative Humidity	≤95%						
Noise (1m)	55-62dB, adjusted according to load rate						
IP Class	IP20						
Standards	Safety: IEC60950-1; IEC62040-1-1/AS62040-1-1 EMC: IEC62040-2/AS62040-2/EN50091-2 CLASS A Design and test: IEC62040-3/AS62040-3						
Physical Parameters							
Dimension, w x h x d (mm)	600 x 1400 x 794mm						
Weight (kg)	155	190	225	225	225	295	295

* conditions apply

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Japan	
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Korea	
T: 82-2-34831502	F: 82-2-5927883
Malaysia	
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New Zealand	
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Emerson Network Power.

The global leader in enabling business-critical continuity.

■ AC Power Systems
■ Connectivity
■ DC Power Systems

■ Embedded Power
■ Rack Solutions
■ Outside Plant

■ Power Switching and Control
■ Precision Cooling
■ Site Monitoring

■ Surge Protection
■ Embedded Computing
■ Services

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