Liebert

Liebert NX UPS

Power Availability

NEXT GENERATION UNINTERRUPTIBLE POWER SYSTEMS

Liebert NX UPS, with next generation features and digital control technology, is ideally suited for critical networks that require protection against the full spectrum of input and output power disturbances.

The Liebert NX gives you :

Xtreme

Availability
Performance
Serviceability
Cost Effectiveness
Compactness

EMERSON
Network Power

Liebert NX Uninterruptible Power System

NEXT GENERATION MEDIUM SIZE DIGITAL UPS. THE EXTREME POWER SYSTEM FOR MEETING YOUR SCALABLE BUSINESS NEEDS.

The constant endeavor and natural phenomenon in B2B (Business to Business) and B2C (Business to Consumer) business environments is to pursue hi-tech and more sophisticated IT devices, systems, networks and applications. The Digital Economy keeps giving birth to new needs. As the world moves forward, the dependence of your businesses or processes on hi-tech wireless or web-enabled applications grow dramatically. Maintaining the "Continuity" of these applications has become pivotal to the success of your business. One of the key contributors of this "Continuity" is the "Hi-Availability Quality Power".

Liebert NX – the next generation, true on-line, double conversion digital UPS – is designed to appropriately address this "Hi-Availability Quality Power" need of B2B and B2C businesses . Innovation, simplicity and low cost of ownership have been delicately converged in Liebert NX to offer you the highest capital investment return. With the Liebert NX, you can rest assured that you have high nines quality power for your critical business applications.

Liebert NX UPS comes in four popular ratings: 30, 40, 60 & 80 kVA (380/400/415V, 50/60 Hz). All are in the same dimensions 599 mm (W) x 800 mm (D) x 1600 mm (H)**.

Top 5 Applications of Liebert NX are:

- Server Rooms and Mid-sized Data Centers
- Telecommunication (Fixed, WiLL & Mobile) Billing & Reporting Systems
- Networks (LAN, MAN & WAN), InfoCom and WiFi Hot Spots
- Industrial Process & Motion Automation for Mid-sized plants
- Medical Diagnostic / Imaging Equipment

** Liebert NX 30 & 40 kVA are designed to house battery banks within the UPS cabinet for a specified run time. Optional external battery cabinets are also available to address your needs for longer power backup. Liebert NX 60 & 80 kVA require optional external battery cabinets.

Liebert NX UPS: Xtreme Customer Value

- **Hi-Availability of Quality Power**
  - In-built reliability with redundant auxiliary power supply card, redundant cooling fans and stratified cooling of critical components.
  - Wider input voltage and frequency tolerances aiding hi-availability.
  - Digital controls for enhanced reliability, accuracy, efficiency and reduced hardware count.
  - Dual bus compatibility and system redundancy.
- **Reduced Cost of Ownership**
  - Improved input power factor to reduce your electricity bill.
  - Compact gross footprint to reduce active and passive occupied space.
  - Joint mode operation enables UPS to work with smaller generator.
- **Upstream Green Power**
  - Lowest level of input current THD.
  - Highest possible input power factor.
- **Ease & Simplicity in Scalability & Redundancy**
  - Up to 6 modules can be paralleled without using any centralized controller or centralized static switch.
  - Compatible with Liebert's unique Dual Bus Synchronisation (DBS) approach.
- **Investment Protection**
  - For upstream semi-critical loads, UPS, battery and downstream critical loads.
  - Wider input voltage and frequency tolerances minimize events of battery discharging.
  - Temperature-compensated battery charging extends life.
  - Short-circuit-proof and vector controlled inverter provides highest output power quality.

More intelligent, more user benefits.....

- Built-In redundancies for power supply and cooling fans.
- Stratified cooling techniques.
- Versatile and simultaneous communication facilities.
- Compact active and passive footprints.
- Capability to handle 0.9 leading power factor loads.
- Capability to handle 100% non-linear loads with 3:1 crest factor.
- Capability to handle 100% unbalanced loading.
- Backfeed protection.
- User flexibility in selecting effective configuration for the application.
- Large and user-friendly LCD display in twelve different languages.
- Compatibility to VRLA (SMF), LATB, Nickel Cadmium batteries.
- Black start facility.

Strong, Silent, Intelligent, Expandable

GLOBAL LEADER :
GLOBAL DESIGN, DEVELOPMENT AND APPLICATION

The Liebert Global Product Development Team thoroughly studied and analyzed global customer needs and has developed the next generation power solution that provides significant value to you. Liebert NX is the latest Liebert UPS platform, regarded by our engineers as the best in class UPS system for the digital economy. Liebert NX is the Next Generation, Hi-Availability, Digital Green UPS that meets your reliable power needs around the world.

Digital UPS

Liebert NX uses the most proven DSP's (Digital Signal Processors) to control the entire system. Firstly, these high-speed DSP's 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. Secondly, the usage of a digital controller drastically reduces the discrete hardware count, leading to higher reliability to your advantage. Thirdly, traditional analog electronic components tend to drift over a period of time. Digital controller provides a drift-proof solution to offer you an ageless Liebert NX.

Invisible Rectifier

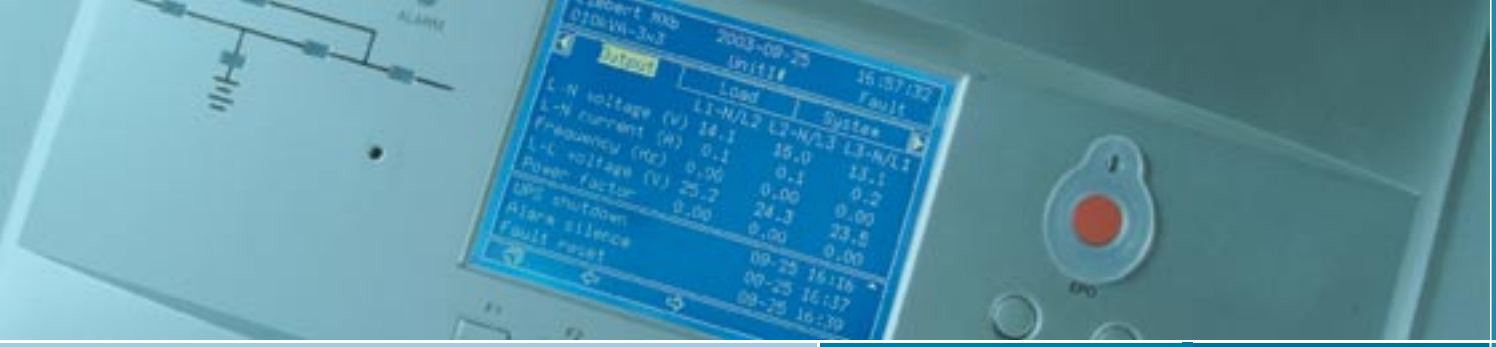
Liebert NX uses an IGBT based PFC (Power Factor Corrected) Rectifier to achieve two improved parameters of high value. One is "<3% input current THD (Total Harmonic Distortion)" and the other is ">= 0.99 input PF (Power Factor)". The former ensures that almost clean power flows upstream, avoiding pollution and thus damage to the other semi critical loads connected to the upstream power distribution bus. The latter ensures maximization of active power leading to electricity savings and lower cost of ownership. It also helps reduce investment towards motor generator set by way of minimizing its sizing. Overall, Liebert NX is an environment-friendly system employing this green invisible rectifier.

Vector Controlled Inverter

Liebert NX employs advanced vector control technique for its inverter. This ensures very low output THD and better-than-traditional sinusoidal waveform to protect the health of your critical applications in the long term. An important investment-protection for you.

Wider Input Voltage and Frequency Tolerances

Liebert NX can operate with a wider input voltage window and frequency tolerances of 304V to 477V and 40Hz to 72Hz respectively. This gives you very high availability of quality power even when the input power quality is far below the acceptable limit of any power quality sensitive device / system. It also protects the investment by way of reducing the charging-and-discharging cycles of the battery bank.



Scalability & Redundancy

Liebert NX is designed to parallel up to six (6) UPS modules to achieve either capacity or redundancy. The system can grow (through scalability) as your business grows or it can provide you with higher availability as your business demands it. Achieving parallelability up to six modules does not necessitate any need for centralized static switch or centralized controller. Thanks to Liebert's unmatched paralleling technique, Liebert NX provides you with two distinct values: reliability due to reduced hardware and lower cost of ownership due to compact system footprint.

Dual Bus Compatibility

Liebert NX has the unique feature of achieving dual bus configurations by just connecting two units (under two different buses) by an optional signal cable. Both the buses are now synchronized. The optional static transfer switches (STS) will allow you to automatically transfer power from one bus to the other, whenever the need arises. This gives you next generation values to ensure high availability (Hi 9's) of quality power.

Flexi Power Walk-In

Liebert NX is designed to have flexible power walk-in (another unique feature) by way of adjusting the power walk-in from 5 seconds to 30 seconds. This reduces investment by optimizing motor generator sizing. It also helps you in parallel UPS configurations.

Improved Battery Management

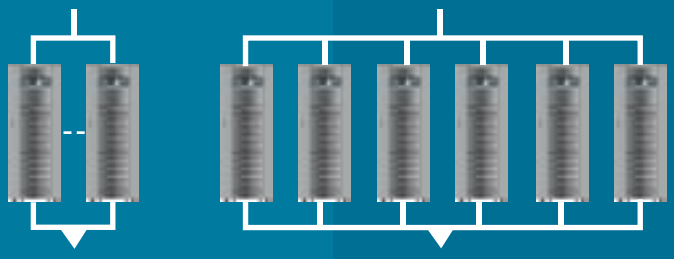
Liebert NX gives you the feature of temperature compensated battery charging to protect your battery investment. Our intelligent battery management algorithm helps you monitor the battery to detect any premature battery failure. We have also reduced the DC ripple current to <5% level to protect your battery life.

Configurations for Xtreme availability

Liebert NX is designed for many optional configurations to meet your power backup needs:

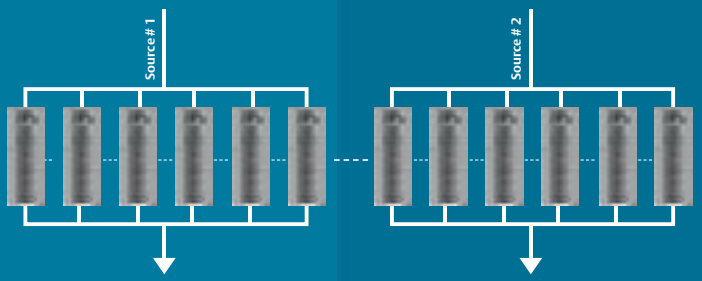
1. Hot Stand-by (to provide you redundancy)
2. 1 + 1 (to provide you 100% scalability or redundancy)
3. 1 + N (to provide you desired scalability or redundancy)
4. Dual Bus (to provide you with high availability)

Hot Stand-by Configuration



1+1 Configuration

1+N Configuration



Dual Bus Configuration

USER FRIENDLY DISPLAY AND COMMUNICATION MODULE

Simultaneous Remote Communications

Liebert NX has three (3) intellislots. Liebert's intelligent slots are designed to house multiple cards for a variety of monitoring and communication applications. These optional cards include:

- Relay Card (to address the basic need of users / maintenance persons)
- SNMP Web Card (to address the needs of network managers)
- ModBus / Jbus Card (to address the needs of facility managers)

Liebert NX allows simultaneous communication, achieved through data de-bottle-necking technique and multi channel data highway. Traditional UPS systems do not offer this feature.

Other Remote Communications

Liebert NX also provides other communications alternatives through RS-232 and RS-485 ports. Other than utilizing RS-232 port for remote communication, it can also be used for local downloading of data for the service engineers, while the RS-485 port can be utilized to have remote communications in myriad applications. Our proprietary system protocols provide you with the opportunity to integrate the UPS communication system with Liebert High Precision Air Conditioning (HPAC) systems and other Emerson Network Power devices.

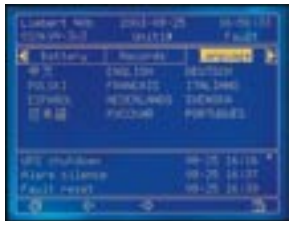
Liebert NX is fully featured to meet all your needs

Feature-Need Matrix		Input						Battery					Static Bypass			Output				
Need Catalogues	Features / Customer Needs	Input THDi <3%	Input Power Factor >=0.99	Input Voltage Range (304-477 V)	Input Frequency Range (40-72 Hz)	Input Frequency 50 or 60 Hz	Adjustable Power Walk-In	DC Ripple Current <5%	DC Ripple Voltage < 1%	Battery Black Start	Battery Temperature Compensated Charging	Flexibility to use VRLA or wet or NiCd Battery	Overloading Condition of 1000% for 10 msecs	Frequency Adjustment Range	Auto Retransfering Facility	Output THDv < 0.7%	Output Power Factor 0.7 (lag) to 0.9 (lead)	Output Voltage Regulation < 1%	Output Frequency Regulation < 0.1%	Output Frequency 50 or 60 Hz
Financial Needs	Reduced Investment		■				■													
	Lower Cost of Ownership		■																	
	Investment Protection	■		■	■			■	■		■					■	■	■	■	■
Application & Business Needs	Reliability																			
	Hi-Availability			■	■					■			■		■					
	Scalability																			
	Redundancy																			
	Maintainability																			
Application & Business Needs	Safety																			
	Input Quality Power	■	■																	
	Output Quality Power															■	■	■	■	■
	User Friendliness																			
	User Flexibility					■	■							■						
	Power Communication																			
	Compactness																			
	Serviceability																			
Intangible & Latent Needs	Decision Making Flexibility										■									
	Customer Confidence																			
	Simplicity & Aesthetics																			

Local Communications

Liebert NX provides excellent local communications through its Human-Machine Interface (HMI). The HMI of Liebert NX uses some important push buttons including “Emergency Power Off” (EPO), LED-based MIMIC diagram and a big graphic LCD. While the MIMIC shows you the live power path, the back-lit contrast-adjusting LCD provides you with detailed primary and derived parameters of the unit and the system in twelve different languages through a user-friendly menu.

Control Panel with Human-Machine Interface (HMI)



Large LCD in 12 different languages

Value-added Power Options

Liebert NX also offers you an array of value-added power options:

• Internal

- Paralleling Kit (for 1+2 to 1+5 configurations)
- Battery Black Start Kit
- Battery Temperature Monitoring Probe (for 60 & 80 kVA)
- 100% Redundant Fan Kit (for Power Module Cooling)
- TVSS (Transient Voltage Surge Suppressor)
- Battery Ground Fault Protection Kit

• External

- Battery Cabinet
- Wrap-Around Maintenance Bypass Cabinet

Liebert NX with External Battery Cabinet

Unit						Built-in Redundancy			Protection			System						Communications						
Small Gross Footprint	Stratified Cooling	Top Vending (out) Fans	Front Access	IR-20 With Door-Opened Conditions	Aesthetics	100% Redundant Power Supply Card	100% Redundant Power Module Fans (Optional)	N + 1 Redundant Magnetic Cooling Fans	Back-Feed Protection	DC Ground Fault Protection	Short Circuit Protected Inverter	Digital Controlled UPS	6-IGBT PFC Rectifier	6-IGBT Vector Controlled Inverter	Hot Standby Configuration	Parallelable up to 6 (Six) UPS Units	Dual Bus Compatibility	Big Backlit Graphic LCD Screen	12-Language LCD	Detailed Parametric Data Reporting	SNMP Web Card	ModBus / JBus Card	Relay Card	Emerson Monitoring
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Liebert NX UPS

Power Availability

Models	NXa 30	NXa 40	NXa 60	NXa 80
Nominal Power Rating	30 kVA	40 kVA	60 kVA	80 kVA
Input Parameters				
Rectifier Type	IGBT-based PFC (Power Factor Corrected)			
Input Voltage	380 / 400 / 415 Vac* (400V : Nominal) 3-ph, 4-w			
Permissible Input Voltage Range	304 - 477 Vac			
Input Frequency	50 or 60 Hz			
Permissible Input Frequency Range	40 - 72 Hz			
Input THDi at Nominal Voltage	<3% without any additional hardware			
Input Power Factor at Nominal Voltage	>=0.99* without any additional hardware			
Flexi Power Walk-In	5 - 30 seconds			
Battery				
Battery Type	VRLA (Valve Regulated Lead Acid) or Wet or NiCd			
Nominal Battery Bus	480 Vdc			
End-Cell Voltage	Selectable from 1.67 to 1.80 Vdc/Cell (for VRLA)			
DC Ripple Current	<5%			
DC Ripple Voltage	<1%			
In-Built VRLA Battery	Optionally applicable for 30 & 40 kVA			
Output Parameters				
Inverter Type	IGBT-based Vector & Repetitive Control			
Output Power (at 0.8 PF)	24 kW	32 kW	48 kW	64 kW
Output Voltage	380 / 400 / 415 Vac* (400V : Nominal) 3-ph, 4-w			
Output Voltage Regulation	+/- 0.5%			
Output Frequency	50 or 60 Hz			
Output Frequency Regulation	+/- 0.05%			
Output THDv at Nominal Voltage	1% (max)			
Capability to handle High Crest Factor Load	3:1			
Capability to handle Step Load	100%			
Capability to handle Leading PF Load	Up to 0.9			
Voltage Displacement with 100% Unbalanced Load	120° +/- 1° el			
Overload Conditions	110% for 60 minutes 125% for 10 minutes 150% for 1 minute			
Physical Parameters				
Width	599 mm			
Depth	800 mm			
Height	1600 mm			
Weight without Battery	312 kgs	341 kgs	401 kgs	445 kgs
Colour	Pantone 877			
Degree of Protection for UPS Enclosure	IP 20 even with front door in open condition			
Environmental Parameters				
UPS Storage Temperature Range	-20 to 70°C			
UPS Operating Temperature Range	0 to 40°C			
Relative Humidity	0 to 95% (non-condensing)			
Maximum Altitude above MSL	1000m (as per IEC 62040/3)			

* 5% more power output for 415V input & output

Emerson Network Power

Representing Liebert, Emerson Energy Systems and Asco Power Technologies, Emerson Network Power is uniquely positioned to provide you end-to-end system solutions with the Widest Scale, Size, Breadth, Technology & Geographic Presence.

AP03POW60HKR1

Liebert®
Keeping Business in Business

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