



Liebert NXa UPS

Power Availability

## NEXT GENERATION UNINTERRUPTIBLE POWER SYSTEMS



*Liebert Nxa 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**



## Liebert NXa 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, system, networks and applications. The Digital Economy keeps giving birth to new needs. As the world moves forward, the dependence of your business 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 Nxa UPS comes in six popular ratings: 30,40,60,80,100&120 KVA (380/400/415, 50/60Hz).  
30-80 kVA Share the same dimension : 599mm(w) X 825mm(D) X 1600mm(H)  
while 100/120 kVA is 700mm(W) X 825mm(D) X 1800mm(H).

### Top 5 Applications of Liebert Nxa 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 60/80/100/120 kVA require optional external battery cabinets.*



# Liebert NXa 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 Nxa is the latest Liebert UPS platform, regarded by our engineers as the best in class UPS system for the digital economy. Liebert Nxa is the Next Generation, Hi-Availability, Digital Green UPS that meets your reliable power needs around the world.

### Digital UPS

Liebert NXa uses the most proven DSPs (Digital Signal Processors) to control the entire system. Firstly, 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. 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 NXa.

### Invisible Rectifier

Liebert NXa 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  $\geq 0.99$  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 NXa is an environment-friendly system employing this green invisible rectifier.

### Vector Controlled Inverter

Liebert NXa 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 NXa 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 NXa 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 Lieberts unmatched paralleling technique, Liebert NXa 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 NXa 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 9s) of quality power.

## Flexi Power Walk-In

Liebert NXa 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 NXa 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)



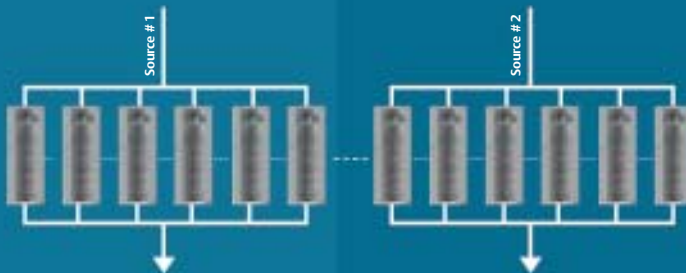
Hot Stand-by Configuration



1+1 Configuration



1+N Configuration



Dual Bus Configuration

# USER FRIENDLY DISPLAY AND COMMUNICATION MODULE

## Simultaneous Remote Communications

Liebert NXa has three (3) intellislots. Lieberts 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 NXa 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 NXa 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 Nxa is fully featured to meet all your needs:

Feature-Need Matrix		Input					Battery				Static Bypass		Output							
Need Catalogues	Features	Input THDI <3%	Input Power Factor >=0.99	Input Voltage Range (304-477V)	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 Retransferring 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
	Customer Needs																			
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																			



# Technical Data - [ Liebert NX ]

Models		Nxa 30	Nxa 40	Nxa 60	Nxa 80	Nxa 100	Nxa 120
Nominal Power Rating at 0.8 PF	kVA	30	40	60	80	100	120
<b>Input Parameters</b>							
Rectifier Type		IGBT-based Vector Controlled PFC (PF Corrected)					
Input Voltage to Rectifier	Vac	380 / 400 / 415 * (Nominal: 400V) 3-ph, 3-w					
Input Voltage to Bypass	Vac	380 / 400 / 415 * (Nominal: 400V) 3-ph, 4-w (Ph+N)					
Permissible Input Voltage Range	Vac	395-477					
Permissible Input Frequency Range	Hz	40-70					
Input Current THD at nominal voltage	%	< 3 without any filter					
Input Power Factor at nominal voltage		≥ 0.99 ** without any filter					
Real Power Walk-In	Seconds	5 to 30 (configurable)					
<b>Battery</b>							
Battery Type		VRLA (Value Regulated Lead Acid) / Wet-Flushed / NiCd					
Nominal Battery Bus	Vdc	480 (Float Voltage: 540)					
DC ripple Current in float mode	%	< 5					
DC ripple Voltage in float & Constant Ch mode	%	< 1					
Temperature Compensated Battery Charging		Standard (for in-built batteries for 30 & 40 kVA)			Optional (for all other battery configurations)		
Battery Block Start Facility		Optionally available without increasing footprint					
In-Built VRLA Battery Availability		Optionally applicable for 30 & 40 kVA					
<b>Output Parameters</b>							
Inverter Type		IGBT-based Vector, Repetitive & PI Controlled					
Output Power	kW	24	32	48	64	80	96
Output Voltage	Vac	380 / 400 / 415 * (Nominal: 400V) 3-ph, 4-w (Ph+N)					
Output Voltage Regulation	%	± 0.5					
Output Frequency	Hz	50 / 60					
Output Frequency Regulation	%	± 0.05					
Output Voltage THD at nominal voltage	%	1% (max)***					
Capability to handle High Crest Factor Load		3:1 (compliant with IEC 62040-3)					
Capability to handle Step Load	%	100					
Transient Recovery	ms	< 0.5 (recovery to 95% of the voltage level)					
Capability to handle Leading PF Load		Up to 0.9					
Voltage Displacement	°el	120° ± 1° el (with 100% unbalanced load)					
Compliance to EMC Class-A		Applicable for both Radiated & Conducted					
Overload Capability	% FL	110 for 60 minutes					
		125 for 10 minutes					
		150 for 1 minutes					
<b>Physical Parameters &amp; Standards</b>							
Dimension (WxDxH)	mm	600 × 825 × 1600				700 × 825 × 1800	
Weight (approx.) without battery	kg	312	341	401	445	540	540
Color		Silver Grey					
100% Fan Redundancy		Optional					
Degree of Protection for UPS Enclosure		IP 20 even with front door in opened condition					
Standards & Conformities		IEC 62040-3, IEC 62040-2, IEC 62040-1-1, IEC 80146-1-1, IEC 61000-4-2, 4.5, 6, 8, 11, EN 50091-1-1, EN 50091-					
<b>Environmental Parameters</b>							
Operating Temperature Range	°C	0 to 40 (UPS) & 25 ± 5 (Battery)					
Relative Humidity	%	0 to 95 (non-condensing)					
Maximum Altitude above MSL	m	1000 (as per IEC 62040-3)					

\* 5% more power output available for 415V Input & output

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## CITY OFFICES

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Pune : 020-25676975/0709  
Baroda : 0265-2314296/2330383  
Nagpur : 0712-2548551  
Indore : 0731-2203806

### North Zone

New Delhi : 011-25824206/08  
Chandigarh : 0172-5077531  
Lucknow : 0522-2237174

### South Zone

Bangalore : 080-51135670/770/870  
Secunderabad : 040-27806774/75  
Cochin : 0484-2341985/86  
Chennai : 044-28151063/28152596  
Vishakapatnam : 0891-2505540

### East Zone

Kolkata : 033-22890493/90  
Jamshepur : 0657-2227678  
Guwahati : 0361-2453270  
Bhubaneswar : 0674-2520778

## FROST & SULLIVAN

Voice of Customers UPS Awards 2004-05 for Product Line  
& Customer Service Awards in IT, Telecom,  
Large Enterprise & Hospitals and  
Customer Service Leadership Award in BFSI



Best IT Hardware Company  
Maharashtra IT Award 2004-05



2003  
**FORTUNE**  
WORLD'S MOST  
ADMIRABLE COMPANIES  
Emerson Among Top 50  
On Fortune Survey Of  
"World's Most Admired"  
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