



VERTIV™

Liebert® SX™

60kVA to 200kVA UPS
Three Phase Input,
Three Phase Output



Enabling Tomorrow's
**CRITICAL EDGE
INFRASTRUCTURE**



We helped some of the largest names in the industry bring new capacity online faster and at a lower cost when search and social media increased demand for storage and computing.



We were the first to introduce an integrated enclosure system to distributed networks.



Our portfolio spans power, thermal and infrastructure management products, software and solutions.

Protecting your critical technologies takes more than just great software and equipment. It takes a level of experience that only comes from years of finding solutions when the industry needed them most. We were the first to protect mainframes with precision cooling systems.



And now as challenges and demands grow, we continue to find better ways to help you strengthen your most vital applications. Formerly the Network Power business of Vertiv, we've brought together the most trusted and experienced names in critical infrastructure.



Complemented by a network of nearly 250 service centers worldwide. It's a combination of experience and resources that allow us to better adapt to what's needed, anticipate what's next and continue to find solutions in ways other companies simply can't.



Liebert® SX™ features a full IGBT double conversion technology allowing it to provide extraordinary savings on installation and running costs, while at the same time providing first class load protection.

Maximized Active power, high efficiency and complete compatibility for modern mission critical IT and industrial loads



Liebert® SX™ incorporates a full IGBT rectifier allowing for reductions in the size of gensets, circuit protection, cabling and transformer.

Flexibility and Compatibility

Liebert® SX™ can be fully adapted to meet diverse requirements in terms of battery backup time, power redundancy and configuration.

Maximum flexibility is also ensured from:

- Output Power Factor 1
- Output Power Factor diagram symmetrical respect to zero
- Permanent 100% kVA - no derating with any load (lagging or leading)
- Optimum space/power ratio
- Full compatibility with static transfer switches
- Wide range of standard options including: Isolation transformer (integrated in UPS cabinet), System Bypass Switch and Synchronization Module (MBSM)

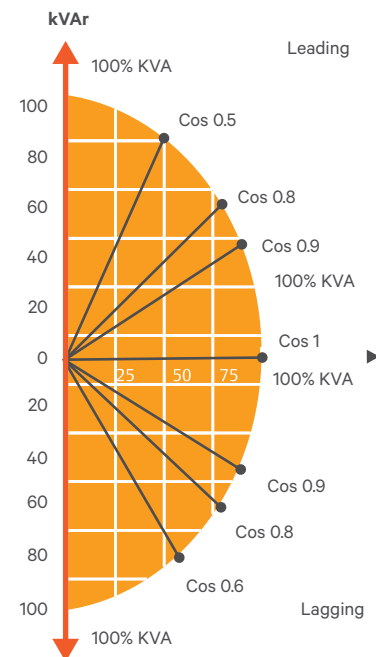


Sustainability

Advanced digital technology and maximum energy savings for increased performance and optimized TCO.

Liebert® SX™ control platform incorporates double DSP, allowing it to provide the most powerful control in the UPS industry. Together with the patented Vector Control technology it enables an increased performance of power converters and real time control of output power quality. This combination of technology provides the following benefits:

- Zero impact on upstream equipment
- Perfect compatibility with generators
- Enhanced performance for specific unbalanced load conditions
- Perfect load sharing for parallel configurations
- Enhanced fault clearing capacity (up to 300% of the inverter nominal current)
- Intelligent double conversion for maximum reliability and highest energy savings.



Full Galvanic Isolation

Integrated full galvanic isolation, meaning that UPS cabinet has a built-in isolation transformer. This greatly reduces the footprint thus providing space saving advantages. In addition, the transformer can be connected to the input or to the output of the UPS, providing:

- Installation with two independent input sources (with different neutrals)
- Installation in distribution without neutral

Energy Saving

Maximum Energy Savings

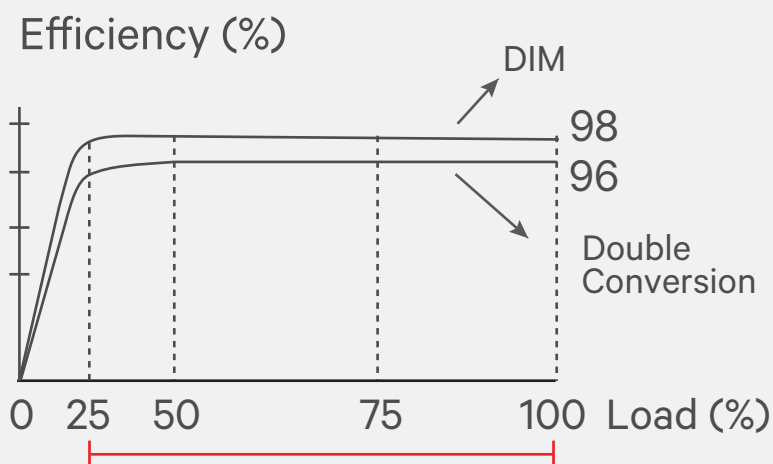
As a result of intelligent double conversion technology, Liebert® SX™ can achieve optimum efficiency values in all operating conditions, making it capable of reducing running costs also at partial load. This architecture also allows for reduced energy dissipation (kW) thus significantly minimizing the consumption of the cooling System.

Digital Interactive Mode (DIM)

If priority has been set to digital interactive mode, intelligent double conversion technology will allow Liebert® SX™ to continuously monitor the condition of the input supply, including its failure rate, to ensure maximum reliability for critical users. On the basis of the analysis performed, it will decide whether to supply the load through the direct line or the conditioned line. This operational mode, which allows significant energy savings by increasing the overall AC to AC efficiency up to 98%.



- Upto 96% energy efficiency in dual conversion mode
- Upto 98% energy efficiency in Digital Interactive mode



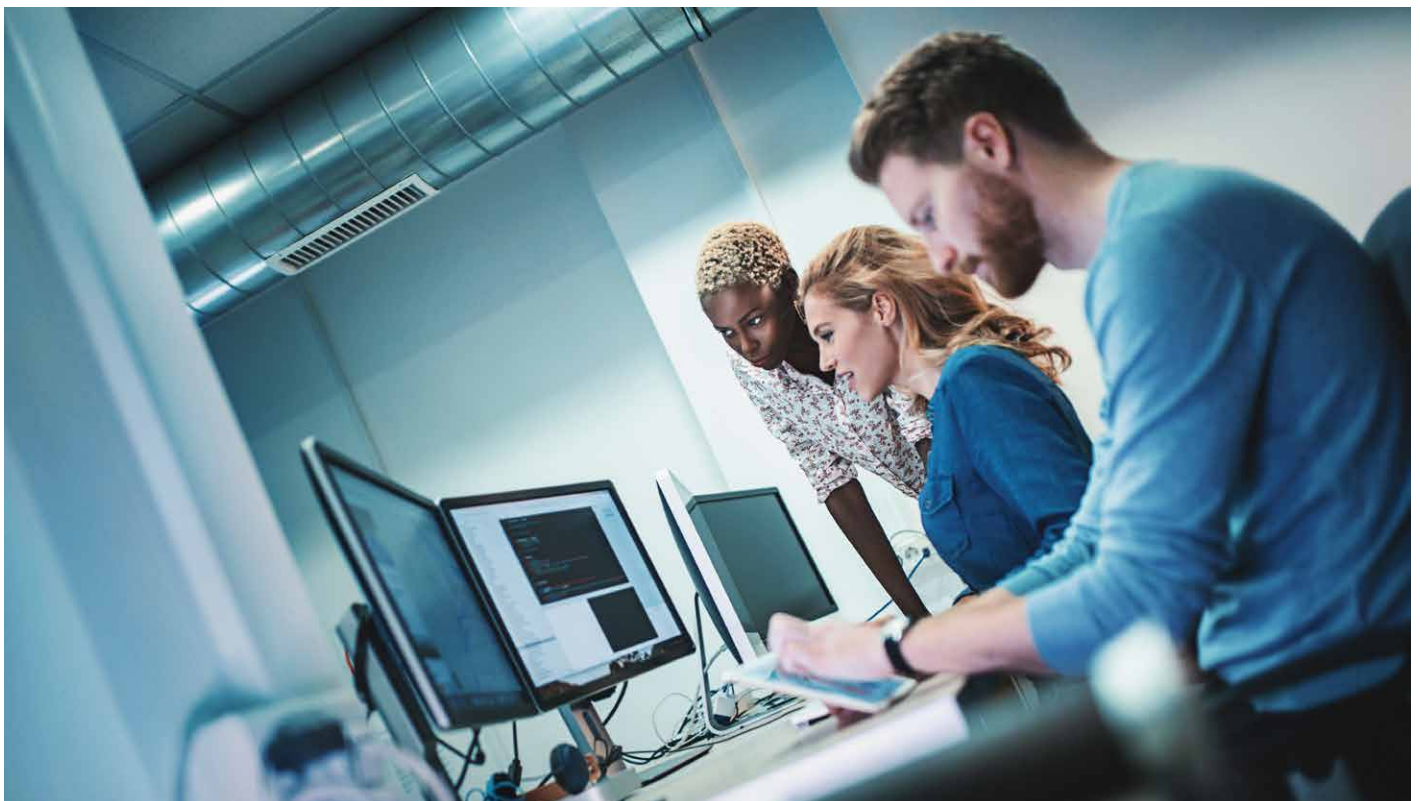
Commercial Tariff: Cost is based on Rs. 5 per kWh*

Rating	Traditional UPS (=92%) Energy Charges(in INR) (A)	Liebert SX UPS (=96%) Energy Charges (in INR) (B)	Annual Energy Cost-Saving (in INR) (C=A-B)	Annual Aircon Saving (in INR) (D)	Total Annual Saving (in INR) (E=C+D)	Saving @ 10 Years (in INR)
60	2,856,522	2,737,500	119,022	56,110	175,132	1,751,317
80	3,808,696	3,650,000	158,696	74,814	233,510	2,335,097
100	4,760,870	4,562,500	198,370	93,517	291,887	2,918,866
120	5,713,043	5,475,000	238,043	112,220	350,263	3,502,635
160	7,617,391	7,300,000	317,391	149,627	467,018	4,670,183
200	9,521,739	9,125,000	396,739	187,034	583,773	5,837,731

Commercial Tariff: Cost is based on Rs. 7 per kWh*

Rating	Traditional UPS (=92%) Energy Charges(in INR) (A)	Liebert SX UPS (=96%) Energy Charges (in INR) (B)	Annual Energy Cost-Saving (in INR) (C=A-B)	Annual Aircon Saving (in INR) (D)	Total Annual Saving (in INR) (E=C+D)	Saving @ 10 Years (in INR)
60	3,999,130	3,832,500	166,630	78,554	245,184	2,451,844
80	5,332,174	5,110,000	222,174	104,739	326,913	3,269,129
100	6,665,217	6,387,500	277,717	130,924	408,641	4,086,414
120	7,998,261	7,665,000	333,261	157,109	490,370	4,903,699
160	10,664,348	10,220,000	444,348	209,478	653,826	6,538,258
200	13,330,435	12,775,000	555,435	261,848	817,283	8,172,828

* Energy tariff assumed are the average electricity tariff in India



Respecting the environment

Environmental respect

Liebert® SX™ meets our objective to acknowledge its duty toward providing the highest level of environmental standards and encouraging environmental awareness, as a result of the following features:

- Premium energy savings
- Maximized battery life with Advanced Battery Care (ABC)

Advanced battery care

Using advanced battery care(ABC), the Liebert® SX™ maximizes the running time of the battery.

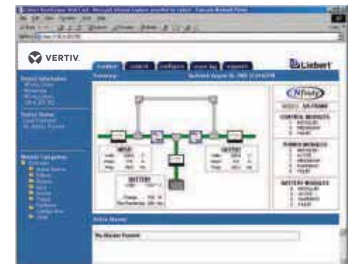
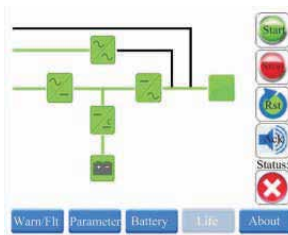
Features

- Ambient temperature compensated battery charger
- Automatic battery test (can be set by user at selectable intervals)
- Time compensated end of discharge voltage
- Exact determination of remaining battery life

Serviceability and Security

It has front access design. This architecture considerably minimizes the time needed for repairs and optimizes installation and serviceability.

Each UPS will be equipped with ID card, including all UPS working parameters. This card, uniquely related to UPS, shortens UPS "off time" in case where the control board needs to be replaced.



Touch Screen Display

The control panel includes a touch screen display for complete UPS monitoring and control. The main page of the touch screen displays a single-line diagram of the UPS along with the several menu items which have detailed subsequent sections. The display language is English only.

Communication ports

- Voltage-free contact ports
- Digital inputs and outputs
- Two serial ports and LAN connection
- Two internal slots for LIFE.Net and connectivity options.

Hardware Connectivity

Manage UPS NET ensures the monitoring and control of the networked UPS, through the TCP/IP protocol. Two different options permit:

- The integration UPS with Building Monitoring and Automation Systems via MODBUS RTU, MOD BUS/TCP or JBUS protocols
- The monitoring of environmental conditions where the UPS systems are installed.

Software Connectivity

Multilink Professional provides the safe shutdown of operating system in the event of an interruption to the load. This includes event logging and gives notification via e-mail.

Nform software provides a central management system for critical power infrastructures distributed within a building, campus or wide area network environment.

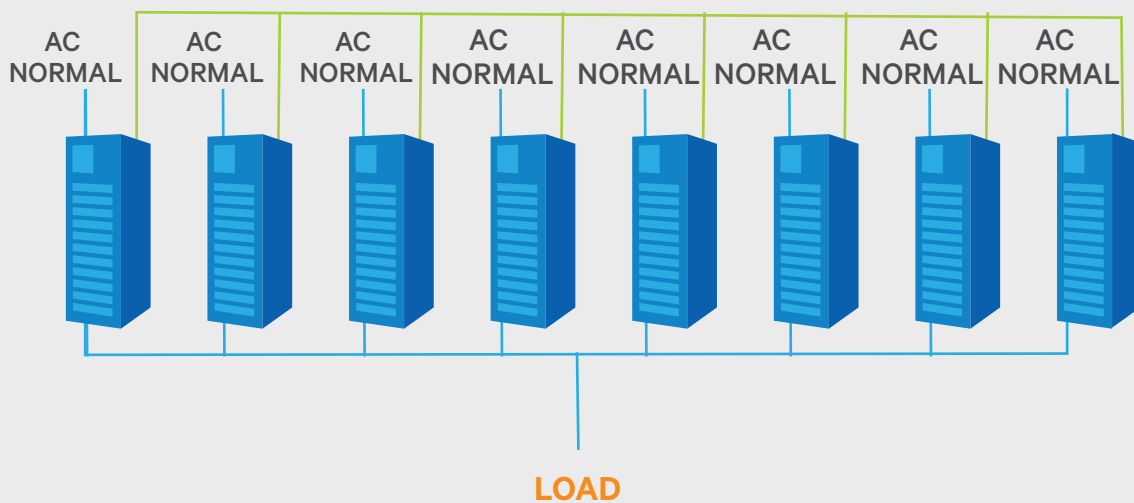
Parallel Ready

Liebert® SX™ can be connected up to eight units in parallel. A single Liebert® SX™ unit can be upgraded to parallel via easy to modify software settings that allow the system to be customized for the requested configuration.

Liebert® SX™ self configuring, hot plug parallel features means that the system automatically selects when new units have been added without the need for stopping the system. This simplified parallel process provides maximum flexibility in terms of scalability for capacity and redundancy.



AUTOMATIC AC BY-PASS



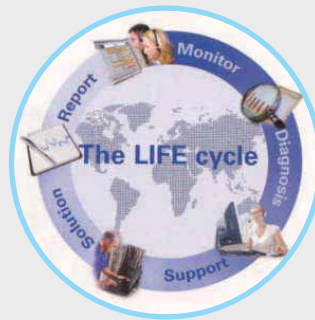
Serviceability

LIFE.net 24x7 Remote Diagnostic System LIFE.net ensures that your critical power protection system is maintained in an optimum state of readiness at all times.

LIFE.net maintenance program provides remote diagnosis, monitoring and management of the operational status of UPS and power distribution system, LIFE.net provides early warning of any alarm condition or out of tolerance status, allowing effective proactive maintenance and fast incident response, for complete security and peace of mind.



Maximise
Availability
Pre-emptive
maintenance



Reduce
operating costs
superior asset
management



Minimise
downtime
immediate
identification
of problem



Railway Application

Liebert® SX™ UPS is also available for Railway Application in special ratings. This specially designed UPS has flexibility of DC Bus and with higher charger current. Signalling system, emergency lighting, ventilation systems, Signalling system, emergency lighting, ventilation systems, communication systems, control infrastructure, ticketing or passenger information systems and traffic management all need continuous high quality electrical energy.

Specifications

System Rating(kVA)	60	80	100	120	160	200
Output Active Power(kW)	60	80	100	120	160	200
Apparent Nominal Output Power(kVA)	60	80	100	120	160	200
Input						
Nominal Input Voltage (V) ⁽¹⁾	400 (3 ph + N ⁽¹⁾)					
Nominal Bypass Voltage ⁽¹⁾ (V)	400 (380/415 Selectable, 3Ph+N)					
Bypass Voltage Range (%)	±10(5 to 15 Selectable)					
Nominal Input Frequency/Frequency Tolerance(Hz)	50 (60 Selectable)/±10 (Selectable)					
Input Current distortion ⁽²⁾⁽³⁾ (%)	≤3					
Input Power factor ⁽²⁾	≥0.98					
Walk in Soft Start(Seconds)	10 (1 to 90 Selectable)					
Rectifier Hold OFF(Seconds)	10 (1 to 180 Selectable)					
DC Parameter						
Battery Compatibility	VRLA/Wet Acid/Ni-Cd					
Flexibility in battery blocks	40-50 12V Monoblocks(240 Cells to 300 Cells) - 2V					
Output						
Nominal Output Voltage(V)	400 (380/415 Selectable, 3ph+N)					
Output Voltage Stability by load variation 0-100% (%)						
- Static	±1%					
- Dynamic	Complies with IEC/EN 62040-3, Class 1*					
Nominal Output Frequency (Hz)	50 (60 Selectable)					
Output Frequency variation (%)						
- with mains synchronization	±1 (2, 3, 4 Selectable)					
- with internal reference	±0.1					
Inverter Overload Capacity	125% for 10 min and 150% for 1min					
Compatibility with loads	Any power factor (leading or lagging) up to 1 Without output derating:crest factor up to 3:1"					
General						
Classification according to IEC/EN 62040-3	VFI SS 111					
Storage	From 0 to +70° C					
Operating Temperature(°C)	0-40					
Relative humidity(without condensation at 20°C(%))	< 95%					
Protection Level	IP20					
Frame Colour	RAL 7021					
Overall Efficiency(for tolerance see IEC 60146-1-1)(%)	Up to 96% in Double Conversion Mode Up to 98% in Digital Interactive Mode"					
Dimensions and Weight						
Height(mm)	1900					
Width(mm)	1000	1200	1400			
Depth(mm)	900					
UPS weight(kg) Approx. (without Transformer option)	400	530	530	650	700	
Noise level	66 dBA	66 dBA	68 dBA	68 dBA	75 dBA	74.5 dBA

- In case of a split bypass configuration primary input and bypass mains must have a common earth. The Neutral conductor could be part of the bypass or primary mains but it must be present.
- At nominal voltage, nominal frequency.
- With input voltage at nominal value and with THDV $\leq 1\%$.

* Declared Power @ 25°C

* Specification subject to change without prior notice

* Please note, All data shown may not be applicable simultaneous. Please contact Vertiv application engineer for details.

