Vertiv™ Liebert® EXS from 10 to 80 kVA

Optimized and integrated three-phase UPS solution with high efficiency power protection.

About Vertiv™

Vertiv brings together hardware, software, analytics and ongoing services to ensure its customers' vital applications run continuously, perform optimally and grow with their business needs. Vertiv solves the most important challenges facing today's data centers, communication networks and commercial and industrial facilities with a portfolio of power, cooling and IT infrastructure solutions and services that extends from the cloud to the edge of the network. Headquartered in Columbus, Ohio, USA, Vertiv employs around 20,000 people and does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit Vertiv.com.

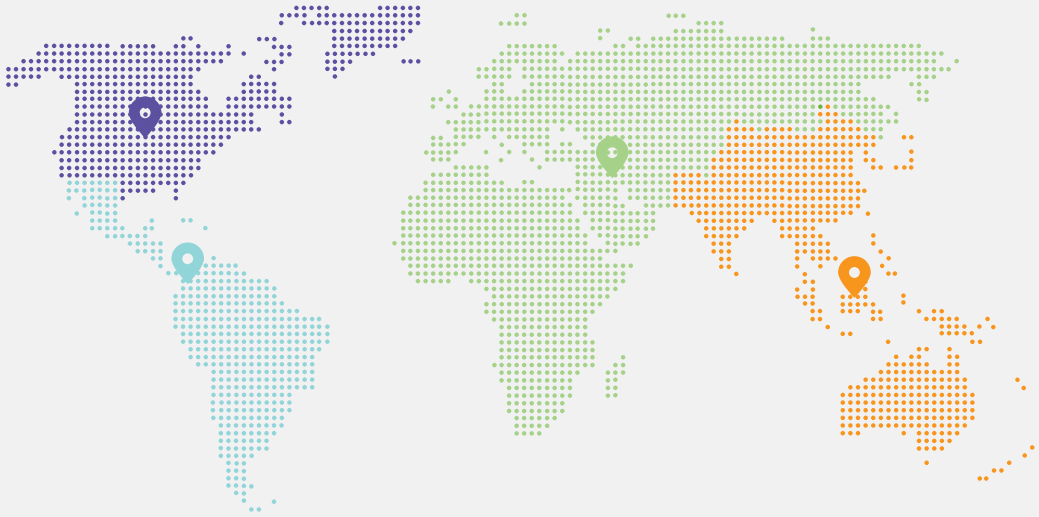
Vertiv.com

OUR PURPOSE

We believe there is a better way to meet the world's accelerating demand for data - one driven by passion and innovation.

OUR GLOBAL PRESENCE

Manuf. and Assembly Locations **19**
Service Centers **270+**
Service Field Engineers **2,700+**
Technical Support/Response **330+**
Customer Experience Centers/Labs **17**



US AND CANADA

Manuf. and Assembly Locations **7**
Service Centers **120+**
Service Field Engineers **850+**
Technical Support/Response **120+**
Customer Experience Centers/Labs **4**

LATIN AMERICA

Manuf. and Assembly Locations **1**
Service Centers **20+**
Service Field Engineers **300+**
Technical Support/Response **25+**
Customer Experience Centers/Labs **2**

EUROPE, MIDDLE EAST AND AFRICA

Manuf. and Assembly Locations **5**
Service Centers **70+**
Service Field Engineers **600+**
Technical Support/Response **95+**
Customer Experience Centers/Labs **6**

ASIA PACIFIC

Manuf. and Assembly Locations **6**
Service Centers **60+**
Service Field Engineers **950+**
Technical Support/Response **90+**
Customer Experience Centers/Labs **5**

Business Description

Liebert® EXS from 10 to 80 kVA

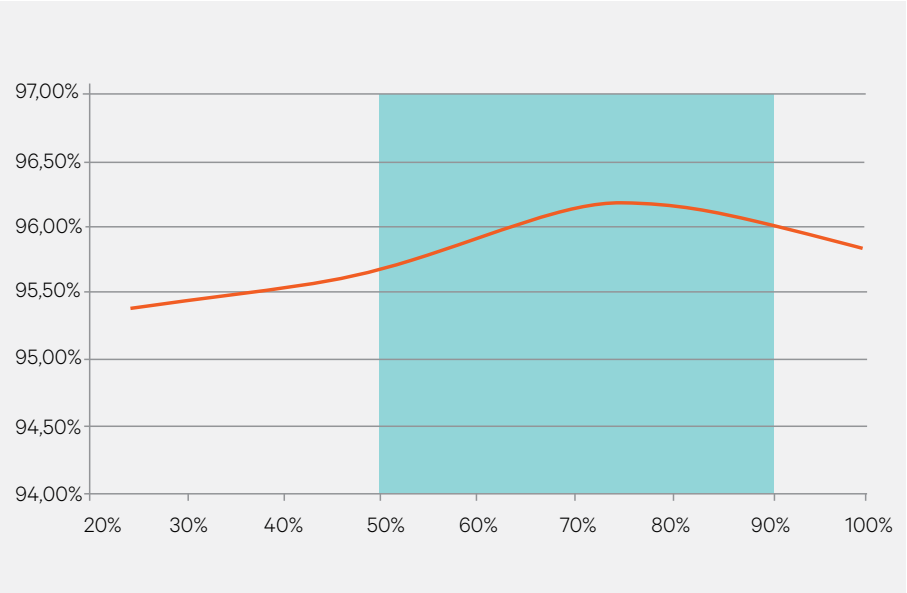
Compact design and improved performances

The new Liebert® EXS is a transformer-free UPS that offers exceptional features for mission-critical applications. With an extraordinary double conversion efficiency of up to 96.2%, the Liebert EXS ensures **remarkable operational cost savings**, reducing both the Total Cost of Ownership (TCO) and environmental impact. With less energy wasted as heat, you can be confident you're getting the most out of your power source, reducing environmental impact and saving money on energy bills.

Furthermore, the Liebert EXS has a unity output power factor and high power density, which provides the **highest possible active power** in a **compact design** and standalone unit. This means that you can get reliable and powerful protection for your critical devices without sacrificing valuable space, making it perfect for installations where space is limited.

Thanks to its **optimized internal runtime**, the Liebert EXS delivers continuous power protection, ensuring that your devices remain powered even in the event of an outage, preventing any loss of data or productivity.

These benefits make the Liebert EXS ideal for a wide range of **mission-critical applications**, including IT installations, transportation, emergency lighting, healthcare, retail, and government facilities.



Liebert EXS 10-20 kVA efficiency curve

Features and Performances

- Output power factor up to 1
- Double conversion efficiency up to 96.2%
- ECO mode efficiency up to 99%
- Compact footprint with multiple internal runtime configurations (10-60 kVA)
- Available in 3/3 and 3/1 versions (10-20 kVA)
- Integrated maintenance bypass
- Integrated input and output breakers/switches
- Parallel capability for capacity and redundancy

Central Power Supply System (CPSS)

Liebert EXS can be used for **CPSS applications*** as defined in the **EN 50171** standard, and is hence capable of supplying the necessary **emergency power to essential safety equipment**. In fact, the unit can be used to power emergency escape lighting in case of normal supply failure and may also be suitable for powering other safety systems such as automatic fire extinguishing installations, signaling safety installations and smoke extraction equipment.

* Subject to additional prescriptions

Railways Applications

Liebert EXS can be used for **railways applications** as defined in the **EN 50121** standard, and it's hence capable of supplying power to specific systems in urban stations and ensure high reliability to critical buildings.
In fact, the unit can be used to power on passenger information panels, safety signaling equipment, ticket machines as well as IT rooms and administration and control offices.

Flexibility

To ensure superior protection for critical loads, the Liebert® EXS range has been designed to optimize specific rating requirements, thus **enhancing flexibility** and installation space needs.

Liebert EXS's flexibility is further enhanced through:

- Single and three phase output configurations up to 20 kVA
- Integrated parallel capability up to 4 units
- Common or distributed battery bank
- Internal and external battery configurations for optimized back up time management
- Casters for easy UPS repositioning

Output Configuration

Liebert EXS models up to 20 kVA can be configured on-site to deliver three (3/3) or single (3/1) phase output giving it the **flexibility to adapt** to changes in installation environments.

Integrated Autonomy (10-60 kVA)

Liebert EXS provides an optimized **integrated autonomy** which results in back up times in a **compact footprint**. Its internal architecture is able to house up to four battery strings, further optimizing integrated autonomy and delivering the added advantage of virtually eliminating the need for an external battery cabinet.

This furthermore **reduces installation costs** and minimizes the demand on physical space. In addition, Liebert EXS's powerful battery charger ensures **rapid recharge**, increasing its ability to manage longer back up times.

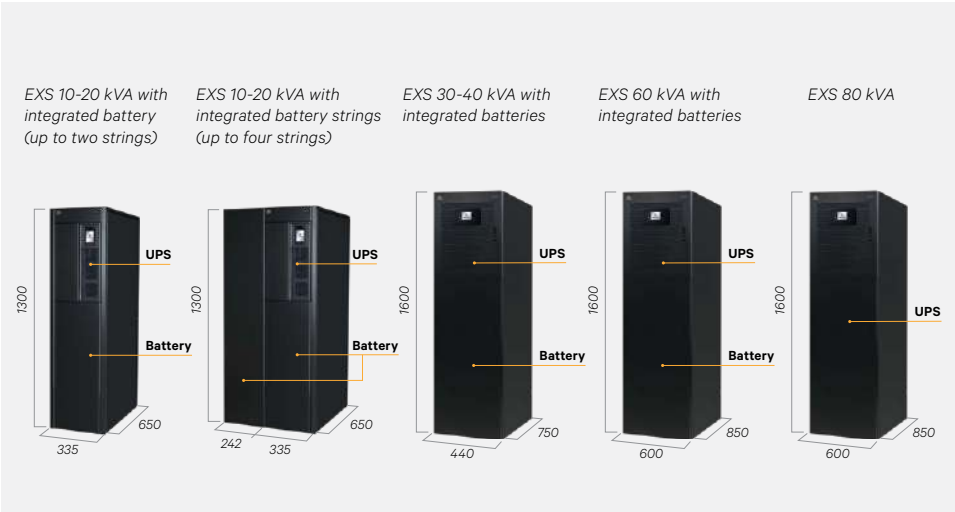
Lithium batteries compatible

Liebert EXS (30-80 kVA) can operate with both standard VRLA and new Li-ion batteries thus adapting to all possible requirements in terms of runtime, life expectancy and TCO, and showing extreme flexibility.

Full Galvanic Isolation

Liebert EXS offers integrated full galvanic isolation, meaning that an isolation transformer may be housed inside the UPS cabinet. This greatly reduces the system footprint, thus providing space saving advantages. The transformer may be connected to the input or to the output of the UPS, providing:

- Full galvanic isolation for medical and other critical applications
- Installation with two independent input sources (with different neutrals)
- Installation in distribution without neutral.



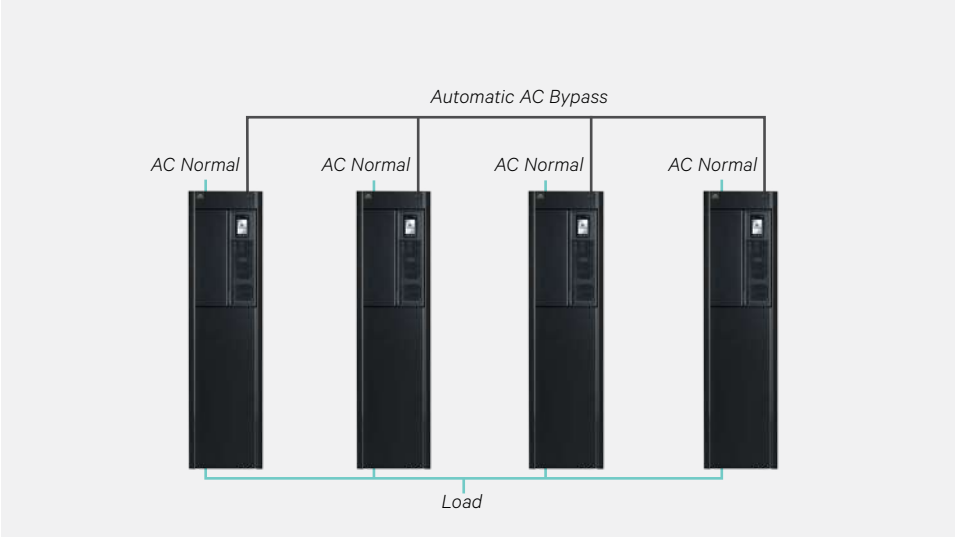
Liebert EXS architecture

In The Field

Parallel Ready

Liebert EXS can be connected with **up to four units in parallel**. A single unit can be upgraded to parallel operation via easy to modify software settings, allowing the system to be customized for the requested configuration.

The loop parallel connection used in paralleling the system **delivers ultimate reliability** and eliminates the possibility of a single point of failure, ensuring perfect load sharing and fast detection of any variation in the system status.



Liebert EXS - Parallel configuration

Communication

Liebert® EXS features a multi-lingual LCD user interface allowing close control and monitoring of system status and performance. The UPS offers the following communication features:

- Voltage-free contacts
- Intellislot for SNMP BacNet, and Modbus

These communication capabilities make Liebert EXS compatible with any building management system.

Software

Vertiv connects and protects your network with core-to-edge solutions and unmatched expertise. For maximum visibility and effective monitoring in one view, pair your Vertiv™ UPS with a software solution.

Vertiv™ Environet™ Alert

Vertiv Environet Alert provides an easy-to-use monitoring software solution that helps ensure the continuous power of your critical infrastructure, and is affordable and easy to use. Get superior monitoring, alerting and trending at a price that's right for your business.

Vertiv™ Power Insight

Vertiv Power Insight is a complementary software used to gracefully shutdown computers when the UPS battery backup experiences a threatening condition. The software notifies users of an event, displays key metrics and logs historical data.

Comprehensive Service Support for Critical Systems

Vertiv™ offers a complete range of services specifically designed for three-phase UPS systems. The portfolio includes various options guaranteeing up to 5-year coverage to meet any possible customer need.

Preferred Warranty 1 year & 2 years and Premier Warranty 1 year

With this Service Program the coverage of the standard warranty is expanded to include Preventive Maintenance and Response Time. With the Premier version, in addition to these, there will also be the benefit of remote diagnostic and preventive monitoring with and Vertiv™ Life™ Services. All these programs can be purchased within two months from the Equipment purchase date. The programs include:

- One annual visit to ensure continuous and optimal equipment performance is included
- Response within 8 working hours from the incident ticket acknowledgment with the on-site intervention of a certified Vertiv technician*
- 24x7 Professional helpline
- Vertiv™ Life™ Services remote diagnostics and preventive monitoring (Premier Warranty)

Important note: These Service Programs do not cover internal or external batteries, or other accessories.

Integrated Warranty Extension +1 & Integrated Warranty Extension Premier +1

With these Service Programs the coverage of the standard warranty is expanded to include Preventive Maintenance and Response Time. With the Premier version, in addition to these, there will also be the benefit of remote diagnostic and preventive monitoring with Vertiv™ Life™ Services. All can be purchased within six months from the Equipment purchase date. The programs include:

- Parts, labour and travel are covered if the repair of a faulty unit is necessary
- Response within 8 working hours from the incident ticket acknowledgment with the on-site intervention of a certified Vertiv technician*
- 24x7 Professional helpline
- One annual preventive maintenance performed by a certified Vertiv technician*
- Vertiv™ Life™ Services remote diagnostics and preventive monitoring (Premier version)

**During normal working hours, excluding public holidays, Saturdays and Sundays. Ticket acknowledgement will communicate the course of action within next business day from customer's claim.*

Important note: all these Service Programs do not cover internal or external batteries, or other accessories.

Start-Up Visit

This Service Program includes the visit of a Vertiv technician for equipment Start-up, to be purchased within six months from the Equipment purchase date.

Available with 8x5* or 24x7 (excluding public holidays) scheduling options, this offer is not intended to be used as a repair service in case of equipment failure.

Liebert® EXS Specifications

Technical Characteristics

Ratings (kVA)	10	15	20	30	40	60	80
Input							
Nominal input voltage (V)	380/400/415 (three-phase + N + PE)						
Input voltage range without battery discharge (V)	173 to 498*			228 to 475*			
Nominal frequency (Hz)	50/60						
Input frequency range (Hz)	40 to 70						
Input power factor at full load (kW/kVA)	0.99						
Current THD at full linear load (THDI%)	≤ 3%*						
Bypass voltage tolerance (%)	selectable from +20 to -40						
Bypass frequency tolerance (%)	±20 (±10 selectable)						
Battery							
Battery blocks per string	24-40*			24-40*			
Voltage temperature compensation (mV/°C/Cell)	-3.0						
Battery charger max. current (A)	13			12.5		25	
Output							
Nominal output voltage (V)	380/400/415 (three-phase + N + PE) or 220/230/240 (single-phase + N + PE)			380/400/415 (three-phase + N + PE)			
Nominal output frequency (Hz)	50/60						
Maximum active power (kW)	10	15	20	30	40	60	80
THDv at full linear load (%)	2						
Inverter overload capacity	105% for 60 min; 125% for 5 min; 150% for 1 min; >150% for 200ms			105% for 60 min; 125% for 10 min; 150% for 1 min; >150% for 200ms			
Double conversion efficiency	Up to 96.2%						
ECO mode efficiency (%)	Up to 99%						
Dimensions and weight							
Dimensions (W x D x H) mm	335 x 650 x 1300 (standard version) 577 x 650 x 1300 (extended version)			440 x 750 x 1600		600 x 850 x 1600	600 x 850 x 1600
Net/Shipping weight (excluding battery) kg	85/115 (standard version)			200/250		215/265	230/270
Net/Shipping weight (including 2*32 batteries) kg	285/315 (standard version)			600/650		700/750	NA
General							
Noise at 1 m (dBA)	≤58					<60	<60
Maximum altitude	1500 m without derating (max. 3000 m)						
Operating Temperature (°C)	up to 50*			up to 40			
Protection level IEC (60529)	IP20						
General and safety requirements for UPS	EN/IEC/AS 62040-1						
EMC requirements for UPS	EN/IEC/AS 62040-2						
UPS classification according to CEI EN 62040-3	VFI-SS-111						
Central Power Supply Systems (CPSS) applications*	EN 50171						
Rail applications*	EN 50121-1 EN 50121-5						

* Conditions apply

Customer Experience Center

Vertiv™ state-of-the-art Customer Experience Center located in Castel Guelfo (Bologna - Italy), enables our customers to experience first-hand a wide variety of data center technologies, supported by constant consultation from R&D and engineering specialists.

Customers visiting the center will be able to witness pre-installation demonstrations, covering the technical performance, interoperability and efficiency of Vertiv UPS systems under real field conditions. These processes can be experienced from the facility's control room, where real-time performance measurements and reporting will be available while providing full visibility of the demonstration area. The center can host simultaneous tests at full load of up to 4000 A.

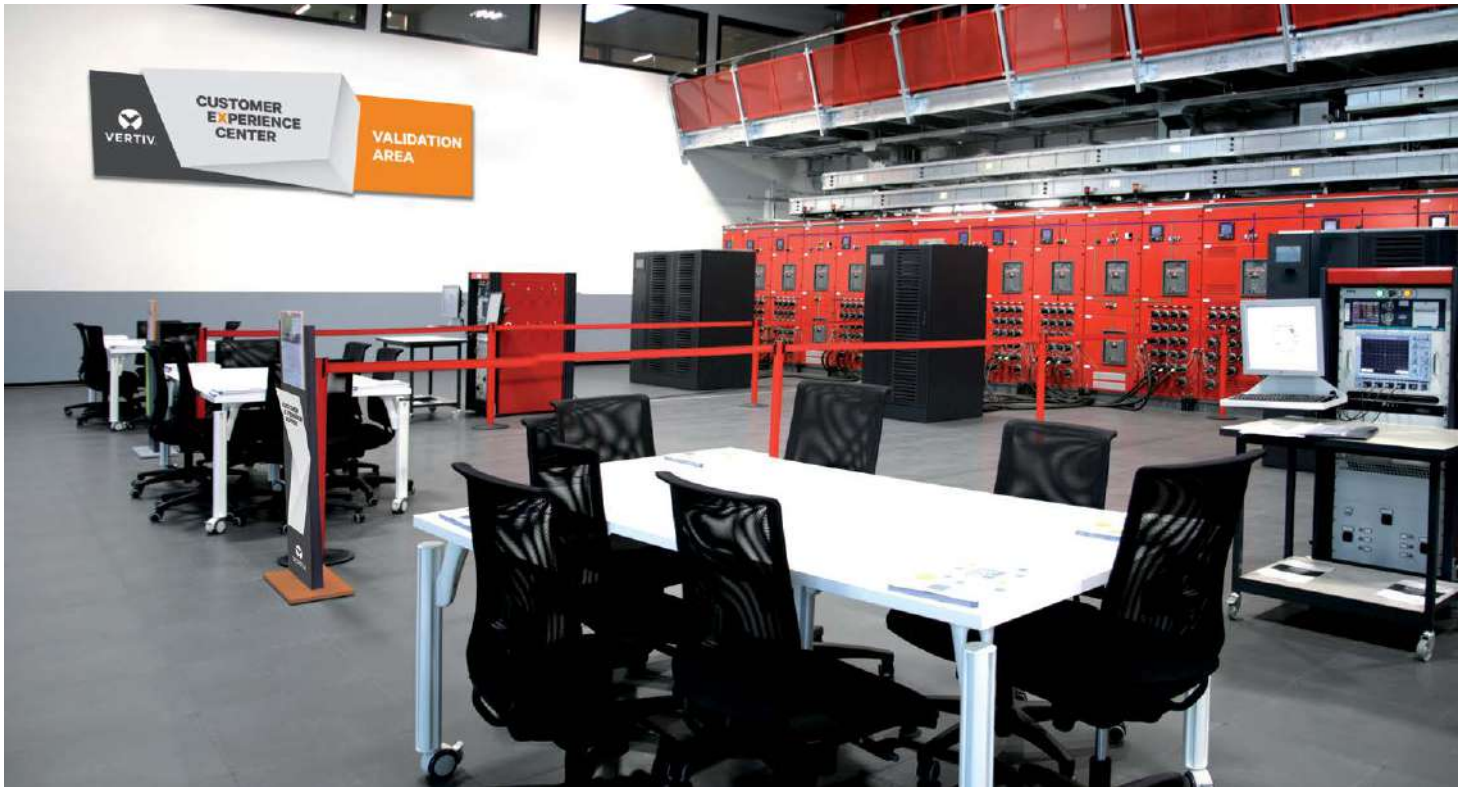
The customer validation area specifically dedicated to UPS consists of four testing stations, each one providing up to 1.2 MVA of capacity.

Testing includes individual modules, as well as complete power systems, with the added possibility of the customer's switchgear support systems being connected, thus guaranteeing smooth, rapid installation and commissioning of large power systems.

Testing is also customized based on the complexity, size and number of UPS components in the configuration.

Our Customer Experience Center offers three validation experiences:

- Demo - carried out on new products to demonstrate UPS performance
- Standard - validation test showing UPS standard technical performances in compliance with UPS catalogue and IEC 62040-3 standards
- Customized - session tailored to validating customer's specific technical performance needs.



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