VERTIV.

Vertiv™ Liebert®

SPM

20-400 kVA

Server Power Distribution System

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 faced by 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.

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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 PRESENCE

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**

HIGHLIGHTS

- **Reliable uninterrupted power** distribution for your IT infrastructure
- High power density
- **Flexible and scalable** distribution board accepts 1, 2, or 3 Poles branch circuit breakers, up to 42 Poles of available space
- **Hot-swappable distribution** replace or add a branch circuit in less than 20 seconds while other branches remain live
- Intelligent power monitoring at input and branch level
- Intuitive touch screen display
- Integrated k13 isolation transformer to derive computer grade grounding
- Supports both top and bottom cable entry
- Complies to IEC/EN 61439-1:2011 standards
- Seismic compliant
- Supports Modbus, SNMP, and dry contact for remote monitoring.

Vertiv™ Liebert® SPM, The Next Generation Server Power Distribution System is designed to meet the high density power needs with an advanced intelligent monitoring system.

Creating high quality power is a major step towards protecting the operation of a critical facility. Once you've created a better level of power don't stop there, you need to make sure that it can be distributed properly to each piece of critical equipment.

This can be done with, the Liebert® SPM which ensures continuous power to critical applications in a reliable and safe manner. The Liebert SPM offers the benefits of a custom- tailored power system, with the convenience and cost savings of a pre-packaged, factory-tested unit.

With advanced branch monitoring capabilites, data center and facility managers get complete overview of all circuits and consumptions, allowing users to capture, for example, Power Usage Effectiveness (PUE) values, optimise load distribution and ultimately, increase cost efficiency and energy efficiency within the data center. Available in 20-400kVA capacity systems for raised floor & non-raised applications, the Liebert SPM also offers flexible expansion capabilities to meet growing load demands of today's modern data center facility.

The Right Solution for Your Critical Power Distribution

The package system approach of the Vertiv™ Liebert® SPM is convenient and space-saving, reducing installation time and cost compared to a conventional approach using multiple interconnected components. The Liebert SPM is built on a proven system design used in hundreds of installations and unlike one-of-a-kind, built-up distribution constructed at the site, it undergoes thorough factory testing as a complete system to assure reliable and consistent performance.

With the integrated branch circuit monitoring system, you can easily monitor energy consumption at the IT branch level, and detect phase imbalances, as well as thresholds with visible and audible alarm notifications. To reduce maintenance and energy costs, we provide you with an optional hot-swappable busbar distribution system, using the touch-proof feature which enables maintenance work during operation to avoid downtime.

Computer Grade Grounding

The Liebert® SPM with an integrated k-rated isolation transformer efficiently handles the harmonic currents derives a computer grade grounding for the critical load. Computer grade grounding minimizes ground-loop currents and common mode noises thereby resulting high power quality performance.

Secure Distribution And Circuit Identification

Distribution panels are in the computer room which limits access to authorized personnel only. Each breaker has an adjacent identification tag for rapid circuit ID. Each output cable is labeled at each end with circuit number, length, type of receptacle, and circuit identification.

Compatible with Dual Source

Meeting the requirement of dual source servers while acquiring ZERO footprint requirement. Being placed and shielded separately thus increases the system reliability and decreases the space requirement.

A host of Optional Accessories

1. Transient voltage surge suppression is available for increased protection from damaging voltage surges. Very short interconnecting wiring provides superior surge clamping performance.

2. K13 transformer safely withstands high harmonic currents associated with electronic loads without derating.

3. Split type Current Transformers supports no branch circuit interruption for component replacement and provide quick installation.

Top/Bottom Cable Entry

Facilitate false flooring and ceiling applications in the data center without any additional accessories.

Phase Balancing

Thanks to Modular construction, facilitates phase balancing in a trouble-free fashion. Outgoing feeder can be moved among phases L1, L2, and L3 to distribute the loads equally.

User Interface and Advanced Diagnostic

Vertiv™ Liebert® SPM features a high resolution and high sensitivity touch screen display designed based on the Cortex A8 processor, allowing user friendly interaction. Menu-driven LCD allows the user to easily browse the input and output parameters, acquire current status and alarm messages, and perform corresponding parameter settings of the Liebert SPM. It can display the real-time power-flow diagram showing the system status and alarm messages. It can store up to 10000 historical events that can be easily retrieved to realize the root cause of faults.

Energy Management from Grid to Chip Level

Comprehensive energy management attributes a panoramic view of the entire power-flow from the main incomer to individual sub-feeders.

Power Monitoring of Sources

Power path status via animated single-line mimic display shows the current status of main source, source breaker, and distribution modules. The individual source information such as voltage, current, power, energy, and harmonics gives clear cut picture of the power distribution system.

Feeder Level Monitoring

Shows real time feeder information such as voltage, current, harmonics and power monitoring (kVA, kW, kVAR, & PF).

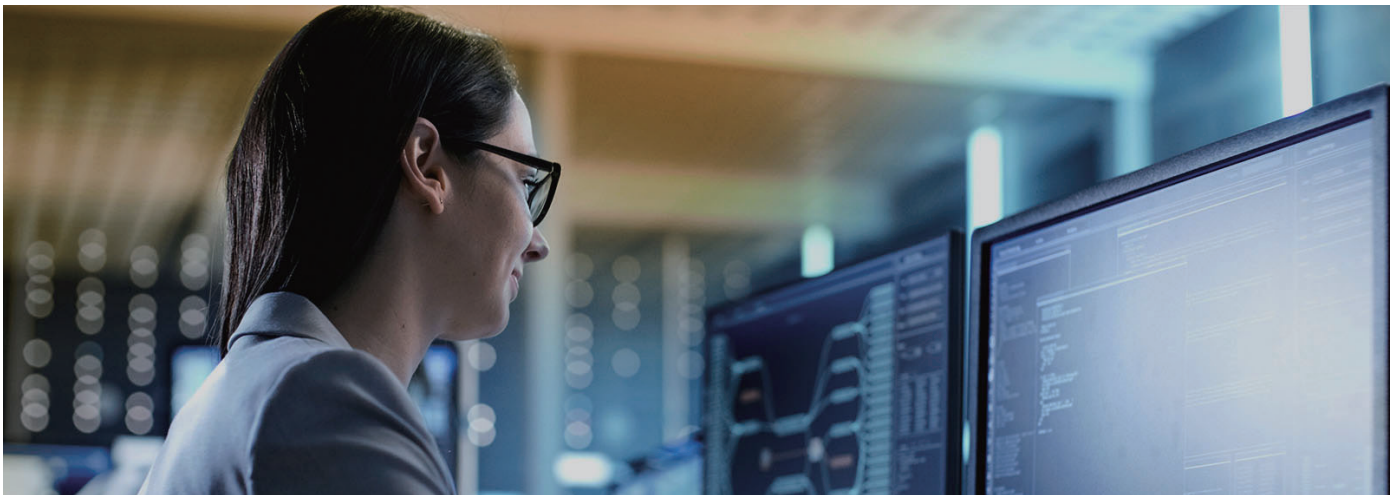
Power Trending

Displays the historical voltage, current, power, energy consumption, and environmental trending of each branch and feeder by a week, month & year. Also has the facility to generate a report for this.

Integrated Oscilloscope & Exhaustive Event Logger

Displays the real-time waveform & power quality information of each source that eliminates the need of external monitoring devices required during commissioning and life cycle phase. It can display up to 10000 comprehensive history of pre-outage alerts and the events.

Flexible Monitoring and Management Options



Hardware Connectivity

Liebert® SPM allows the monitoring and control of networked PDU through different protocol options.

The integration of PDU with network management systems, via SNMP protocol using SIC card, and building management systems, via MODBUS Protocol using integrated communication port. As an option, environmental sensors & leakage current detection can also be attached to the PDU via monitoring card.

Liebert SPM comes with nine input dry contact ports, six output dry contact ports, and EPO contact.

Designed for Easy Service and Maintenance

Designed for Easy Service

Vertiv™ Liebert® SPM is designed to allow access to incoming switches, outgoing switches, and communication ports from the front side for both installation and maintenance purposes.

Hot-swappable Design*

Hybrid Hot pluggable feeders that make the output replacement safe, fast, and easy reducing component downtime (MTTR).

*Optional feature

Technical Specifications

Rated Nominal Power (kVA)	20-40	60-80	100-120	160-200-250	300-400
Rated Current (A)	**36-63**	**100-130**	**160-200**	**250-320-400**	**500-630**
Main Parameters					
Rated Operating Voltage	3-phase, 3 wire plus ground 380, 400 or 415 VAC (Transformer less system requires 3-phase, 4W & G)				
Rated Insulation Voltage	690 VAC				
Nominal Input Frequency	50/60 Hz				
Overvoltage Level	II				
Protection Level	IP20				
Power Distribution	Individually protected panel boards with Miniature Circuit Breakers (MCB) only				
Transformer	Double-shielded, all copper windings Class H (220C) insulation with inrush current <330% of full load current				
Voltage Adjustments	-5% of nominal in 2½% increments				
Grounding	Single-point reference on separately derived systems				
Operating Temperature	-5 °C ~ 40 °C				
Relative Humidity	Not more than 50% RH at a temperature up to +40 °C. Higher RH is allowed at a lower temperature, for example, 90% RH at +20 °C				
Altitude	<=2000 m				
Panel Boards*					
Number of 42 pole Bolt-on Type*	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Monitoring					
Branch Circuit & On/off Status Monitoring, Available on Local Display and Modbus/SNMP	Yes, Available				
Dimensions and Weight					
Standard Height (mm)	2000, 2200				
Standard Width (mm)	600, 800, 1000, 1300				
Standard Depth (mm)	800, 1000, 1100, 1200				
Weight (kg)[1]	220	250	300	400	450

** The third panel provides 36-pole and total of the 120-pole maximum for SPM*

1. Without transformer

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Distribution-SPM 1.0 Plus-BR-V1 -1022-EN