

# IT Infrastructure Portfolio

Complete range of power protection and thermal management solutions.



# IT infrastructure portfolio



## Power Solutions

We offer a complete range of efficient, reliable UPS systems that can be configured to meet the specific needs of your critical application.

### Vertiv™ Edge VRLA

500VA - 3kVA

*Superior power protection for edge applications.*

#### Features:

- High output PF=0.9 to maximise available power and protect more equipment.
- High efficiency, up to 98% in line mode, to deliver energy savings.
- 1U, 2U, 3U, tower, rack/tower form factors, with power ratings from 500VA to 3000VA, to address a broad range of power requirements.
- Advanced AVR protection with 2x boost and 1x buck tap to protect the battery by smoothing out spikes, sags and brownouts.
- Color graphic LCD display.
- Add up to 6 extended run battery cabinets to increase runtime.
- External battery cabinets with auto-detection.
- Rack/tower 3kVA model with short depth for flexible installation.
- "Green mode" operation: in battery mode with small loads, the UPS will automatically shut down to protect batteries, optimise energy savings.
- Programmable outlets to disable non-critical loads, optimise battery runtime.
- Input breaker device for additional protection to the load in worst case failures.
- Smart fan speed control for lower audible noise.
- Remote connectivity via network interface or serial connection to monitor power consumption and configure user-defined alert notifications to prevent downtime.
- Extend battery life with deep discharge protection.
- RoHS and REACH compliant.



### Vertiv™ Liebert® GXT5 VRLA

750VA - 20kVA

*Intelligent and efficient UPS protection for your mission critical applications.*

#### Features:

- The power range of this spans from 750VA to 20kVA, offering versatile options for different power needs.
- Designed as a top-level on-line double conversion UPS, it stands out as an ideal choice for mission-critical applications, ensuring reliable power supply.
- The inclusion of a unity output power factor enhances its capacity to deliver power efficiently.
- Featuring a user-friendly LCD multi-language color display with gravity sensing, providing an intuitive interface for ease of operation.
- In on-line (VFI) mode, the UPS achieves an impressive efficiency of up to 95.9% at full load, ensuring optimal performance.
- With an active eco mode, the efficiency reaches up to 99%, promoting energy savings and environmental sustainability.
- Recognised with Energy Star 2.0 certification, showcasing its commitment to energy efficiency and environmental standards.
- The controllable and programmable output sockets offer flexibility in managing power distribution based on specific needs.
- It presents an integrated solution, seamlessly combining batteries and electronics in a single unit for a streamlined setup.
- The UPS is equipped with the capability to automatically detect external battery cabinets, enhancing its adaptability for extended run-times.
- Operating at full power up to 40°C, and even up to 50°C with derating, it ensures reliable performance in various environmental conditions.
- Intelligent communication readiness enhances connectivity, enabling effective communication with other systems and devices.
- Approved under safety agency category B IEC 61000-4-5, it demonstrates robust protection against surges and lightning, ensuring the safety of connected equipment.



### Vertiv™ Edge LIB

1.5k - 3kVA LIB

*High performance line interactive power protection for servers and networking equipment.*

#### Features:

- 0.9 output power factor delivers more usable power, savings space and cost.
- High efficiency, up to 98% in line mode, to deliver energy savings.
- Color graphic LCD display.
- Flexible 2U rack/tower form factor.
- Up to seven battery-backed outlets.
- Programmable outlets to optimise battery runtime.
- Hot-swappable user-replaceable internal batteries.
- Input breaker device for additional protection to the load in worst case failures.
- Remote emergency shut down capability via EPO port.
- USB communications for UPS status monitoring and management.
- Optional IntelliSlot™ IS-UNITY communications card for remote monitoring and control.
- RoHS and REACH compliant.



## Vertiv™ Liebert® GXT5 LIB

1000 VA - 3000 VA

*Intelligent and efficient double conversion online UPS offers the highest level of power protection.*



### Features:

- Lowest total cost of ownership; lithium-ion batteries last up to 3 times longer as VRLA batteries, resulting in fewer battery replacements saving time and money.
- 5-years standard warranty on the UPS and batteries.
- Longer battery runtime and quicker battery recharge times to ensure availability of your critical applications.
- 0.9 (or better) output power factor delivers more usable power, saving space and cost.
- High efficiency, up to 92% in double-conversion online mode to deliver energy savings.
- Advanced user-friendly color graphic LCD with gravity sensing orientation for simple local UPS configuration and management.
- Flexible 2U rack/tower convertible form factor.
- Up to seven battery-backed outlets ensuring your critical equipment is protected.
- (4) Individually Programmable outlets to optimise battery runtime for critical loads.
- Hot-swappable, user-replaceable internal batteries enable battery replacement without disrupting the power to connected equipment.
- Input circuit breaker for additional protection of the equipment in the event of a worst-case failure.
- Remote Emergency Power Off (EPO) to turn off the UPS in the event of an emergency.
- USB communications for local UPS monitoring and management using free power assist software.
- Optional Vertiv™ Liebert® IntelliSlot RDU101 network communications card for remote monitoring, control and management of the UPS.
- Environmentally friendly; RoHS and REACH compliant.

## Vertiv™ Liebert® MTP

10k-200kVA

*Reliable and compact monolithic tower UPS*

### Features:

- Compact footprint with internal runtime configuration (applicable for up to 40 kVA). No need to install external batteries.
- Unity output power factor for additional power availability.
- Up to 95.5% efficiency in double conversion mode.
- Up to 98.5% efficiency in eco mode.
- Powerful charging capability in minimum battery recharging time.
- Wide input voltage range, reducing battery operation and extending battery lifetime.
- 0.99 input power factor avoid the over sizing of the supply system.
- Integrated switch assembly.
- High overload capability.
- Scalable up to 4 units with common battery bank.
- Integrated communication port for remote monitoring.
- 7-inch touch screen LCD display (1).
- Voice warning (2) alarm code notification.



## Vertiv™ Liebert® EXL S1

300-1250 kVA

*Enhanced design and improved efficiency.*

### Features:

- Extraordinary double conversion efficiency up to 97%.
- Intelligent eco mode efficiency above 99%.
- Intelligent paralleling feature optimises efficiency at partial load.
- Maximsed active power at unity power factor.
- Compact footprint for optimum space utilisation.
- Backward compatibility with previous 80-NET generation.
- Under the enhanced capital allowance (ECA) scheme, ETL listed products can claim back 100% first year capital allowance.



## Vertiv™ Liebert® ITA2 VRLA and LIB

5-40kVA (VRLA) and 5-30kVA (LIB)

*Flexible power protection for rack or tower installation.*

### Features:

- Robust structure with cutting edge channelled airflow design.
- Wide input voltage range, making it immune to grid interference.
- Rack-tower design for installation flexibility.
- Able to deliver both three-phase and single phase output.
- 0.99 input power factor for better grid or generator compatibility.
- Powerful charging capability for minimum battery recharging time.
- Programmable output outlets/terminals with cascade protection to protect key devices during heavy load.
- Integrated communication port for remote monitoring.
- Easy to install, repair, and maintain.
- Compliance with seismic conduction and vehicle carrying test.
- Gravity sense LCD display.



## Vertiv™ Liebert® APS

5kVA-20kVA

*Flexible, efficient modular UPS for row-based application*

### Features:

- Industry-leading efficiency:
  - 91.5-92% efficiency: 200-240V in/out transformer-free systems.
  - 88.5-89.9% efficiency: transformer-based systems.
- Scalability that allows you to cost-effectively add power capacity or battery modules as needed.
- Modular batteries, controls and power components to help reduce maintenance costs with user replacement.
- Two year hassle-free factory warranty program for repair or replacement of the unit.
- Module-level redundancy eliminates the expense of purchasing and planning for any additional cabinets.
- Reduced installation time and cost: units are shipped preconfigured and factory tested, no need for on-site assembly.
- Everything you need for efficiency and availability in one box: power modules, batteries, maintenance bypass, and distribution in a single, small footprint cabinet.
- Integral battery monitoring with temperature compensated charging to prolong battery life and help reduce replacement costs.



## Vertiv™ Liebert® EXM2

100k-250 kVA

*Highly reliable and efficient UPS designed to provide industry-leading performance.*

### Features:

- Guarantees maximum energy savings: up to 97% and 99.2% efficiency in double conversion and eco mode respectively.
- Further maximises energy savings: up to 98.8% efficiency in third mode of operation (dynamic online mode) and intelligent parallel function.
- Compact footprint: saves space up to 15% over legacy system.
- Increases flexibility: seamlessly fits in multiple application scenarios.
- Guarantees faster battery recharging: powerful battery charger.
- Guarantees wider battery selection and lowers installation costs: 2-wire DC bus and compatibility with lithium-ion batteries.
- Increases adaptability and lowers cooling costs: seamlessly operates up to 50°C.
- Fully compatible with critical IT and non-IT loads: 0.5 lagging to 0.5 leading loads without derating.
- Guarantees more user friendly HMI and leaner spare parts management: integrated user-friendly touch screen display consistent with existing Vertiv™ offering.
- Fault tolerant design: use of modular blocks allows safe, easy and fast installation and service, reducing mean time to repair (MTTR) and maximising availability.





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## Vertiv™ Liebert® EXS

10k-80kVA

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

### Features:

- Output power factor up to 1.
- Double conversion efficiency up to 96.2%.
- Eco mode efficiency up to 99.3%.
- Compact footprint with multiple internal runtime configurations.
- Available in 3/3 and 3/1 versions (10-20kVA).
- Integrated maintenance bypass.
- Integrated input and output breakers/switches.
- Parallel capability for capacity and redundancy.
- Lithium-ion battery compatible.



## Vertiv™ Liebert® APM2

30-600kVA

*Efficient, scalable, technology driven power solution for critical facilities.*

### Features:

- Remarkable double conversion efficiency up to 97.5% with Unity output power factor (1.0).
- High-density yet compact, modular, and scalable design with hot-swappable modules - power, bypass, and communication.
- Internal VRLA or LIB options available, up to 120kVA.
- Lithium-ion battery compatible with flexible battery blocks.
- Large, intuitive 9-inch full-color touch screen HMI with real-time waveform monitoring and predictive maintenance notifications.
- Seamlessly operates up to 50°C with auto-derating above 40°C.
- Intelligent paralleling capability.
- Optimised MTTR < 0.5h.
- Supports self-capacity test.
- Top ventilation option available.



## Vertiv™ Liebert® APM Plus

50-500kVA

*The next generation versatile and modular UPS fit for row and room applications efficiency.*

### Features:

- Remarkable double conversion efficiency up to 97%.
- Eco mode efficiency >99%.
- Flat efficiency curve.
- High power density.
- Fit for the row or room applications.
- Modular and scalable.
- Hot-swappable power modules and bypass module.
- Distributed module control system.
- Unitary output power factor and symmetrical power factor diagram.
- Reliability boosters; Robust air channels, PCBs embedded with conformal coating.
- Integrated parallel and load bus synchronisation.
- Intelligent paralleling function.
- User-friendly 9-inch LCD touch screen display.
- Supports UPS self-capacity test without load banks.
- Tolerates higher ambient temperatures up to 50°C with auto-derating.
- Top ventilation option available, up to 250kVA.



## Vertiv™ Liebert® PowerUPS 9000

750-1250 kW

*Efficient and scalable high-power solution for critical facilities.*

### Features:

- 2 cabinet frame models available (with or without switches).
- Modular and scalable.
- Hot-swappable power modules.
- Centralised hot-swappable static bypass module.
- Distributed intelligence with redundant control logic power supplies.
- Unitary output power factor.
- High density design and compact footprint.
- Double conversion efficiency up to 97.5%.
- Eco mode efficiency up to 99%.
- Dynamic online mode efficiency up to 98.8%.
- Load compatibility from 0.5 lag to 0.5 lead.
- Flexible battery configuration 30-50 blocks (2-wires).
- Seamlessly operate up to 50°C with auto-derating above 40°C.
- Large, intuitive 9-inch full color touchscreen HMI (hot swappable).
- Monitors real-time waveform from HMI and fault event waveform records.
- LIB compatible.



## Vertiv™ Liebert® Trinergy

1500kVA, 2000kVA or 2500kVA

*A next generation UPS empowering tomorrow's applications.*

### Features:

- Modular design with configurable building blocks (500kVA power cores) with independent static switch, AC I/O box and DC I/O cabinet.
- Fault-tolerant architecture with self-isolating power cores and distributed battery configurations.
- Peak VFI efficiency >97%.
- Dynamic online mode efficiency ≥ 98%.
- Operating temperature: 0°C to 40°C continuously.
- Flexible power connection options (top and bottom cable entry, flanges, clouse-coupled with switchgear with no I/O box, and dual input/single input)
- 3 or 4-wire compatible for easier installation and retrofit of legacy equipment. Allows higher system flexibility.
- Space Saving: increased power density.



## Vertiv™ Liebert® Trinergy Cube

200 kW-3.4 MW

*Beyond the power revolution.*

### Features:

- Adoption of a three-level NPC2 topology for both rectifier and inverter.
- Predictive maintenance.
- Event analysis, waveform capturing and harmonic spectrum analyses
- Data logging.
- Vertiv™ LIFE™ services remote diagnostic and preventive monitoring embedded in the UPS.
- Configurable in various layouts.
- Simplified cable routing with unlimited input/output power connection availability
- Increased energy density.
- Single unit configuration up to 3.4 MW.
- I/O box and cores rated to operate continuously up to 55°C and capable of providing increased performance down to 20°C.
- Maximum input current of the UPS adjustable to meet specific protection rating requirements.
- Safe capacity test capability.







## Thermal Management Solutions

Intelligent, comprehensive approach to managing and controlling heat across your mission-critical facilities.

### Vertiv™ Liebert® SRC-G

3kW to 11kW\*

*Thermal management solution for small equipment rooms.*

#### Features:

Vertiv™ Liebert® SRC-G comes with intelligent controller.

The micro-processing controller has the following features:

- This advanced system is not only capable of monitoring but also displaying the operational status of the Vertiv™ Liebert® SRC unit, ensuring that the environmental conditions consistently align with the specified setpoints.
- Featuring a cutting-edge 128×64 dot graphics color screen with a white back-light, the interface is designed to be user-friendly, providing an intuitive experience for users.
- To enhance security, the system incorporates a two-level password protection mechanism, effectively preventing unauthorised access and ensuring that only authorised personnel can operate it.
- The multifunctionality of the system extends to providing critical features such as self-recovery upon power failure, high and low voltage protection, phase loss protection, and safeguarding against phase-reversal, reinforcing its reliability in diverse operational scenarios.
- Through convenient menu operations, the system offers precise and accurate recording of the run-time of essential components, contributing to effective maintenance and performance tracking.
- An extensive storage capacity allows the system to retain up to 99 historical alarm records, facilitating comprehensive analysis and troubleshooting for improved system reliability.
- With a sophisticated RS485 configuration and utilising the MODBUS-RTU communication protocol, the system ensures seamless communication, enabling efficient data exchange and integration into broader monitoring and control systems.



### Vertiv™ Liebert® DM

12kW to 66kW\*

*High performance thermal management solution for small technological rooms.*

#### Features:

- 24/7 operation capable.
- Ultra wide input voltage range: multiple power protection functions.
- Environment adaptability: adaption to outdoor temperature while meeting cooling requirements.
- Adaptive to heat dissipation of the main equipment.
- 7-inch HMI colour screen and easy to use interface.
- 3-level password protection to prevent unauthorised operation.
- Graphical representation of return air temperature and relative humidity display in real time.
- Email and SMS notification (through Vertiv™ Liebert® RDU™) for remote monitoring functions.
- Store up to 999 alarm history.



### Vertiv™ Liebert® LPC

15kW\*

*Nurturing every breath of today's precision equipment.*

#### Features:

- The brushless DC motor surpasses AC motors in inherent efficiency and is specifically designed for adaptable speed modulation.
- Liebert® LPC ensures precise temperature and humidity control through constant modulation based on sensible load. It achieves temperature precision up to  $\pm 0.5^{\circ}\text{C}$  and humidity precision up to  $\pm 2\%\text{RH}$ .
- With advanced control features, including power failure auto-restoration and high/low voltage protection, the Liebert.LPC enhances system reliability.
- The system is equipped to control up to 3-5 remote sensors, extending its monitoring capabilities for a comprehensive overview.
- Variable capacity control is a crucial element for integrated and optimal operation, maintaining constant superheat and providing additional assistance in dehumidification.
- EC fans, known for their high efficiency, maintenance-free nature, and automatic speed control, modulate in sync with the compressor, ensuring greater overall efficiency and control flexibility.



### Vertiv™ Liebert® CRV4

7kW to 27kW\*

*4th generation row-cooling with elevated performance.*

#### Features:

- **Evaporator coil design:**
  - The finned tube evaporator with high heat dissipation efficiency is used. R&D has produced evaporator designed with increased in efficiency by ensuring that the refrigerant is distributed evenly in each loop.
- **Variable capacity brushless DC inverter compressor:**
  - DC inverter compressor technology provides infinite variable capacity modulation between 30% and 100% to ensure precise repose to dynamic changing cooling demand.
  - Improved reliability by reducing compressor cycling and component wear.
  - Environment-friendly R410A refrigerant.
- **Flexible fan operation:**
  - The EC fan speed is automatically regulated by the CRV4 smart controller.
  - High efficiency EC fans saves energy and hot swappable design allows replacement while the unit is running.
- **Electronic expansion valve (EEV):**
  - Allows for integrated and optimal variable capacity control.
  - Maintain constant superheat and dehumidification assistance.



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## Vertiv™ Liebert® HPS

4kW to 14kW\*

*High performance air conditioning.*

### Features:

- Displacement cooling stands out as a key feature, promoting efficient air distribution within the system. This innovative approach optimises the cooling process by strategically displacing air, enhancing overall comfort and ensuring a well-regulated environment. This not only contributes to improved working or living conditions but also aligns with sustainability goals by promoting energy-efficient practices.
- Energy and space savings are inherent benefits derived from the incorporation of highly efficient components and the utilisation of a compact free cooling version. The efficiency of the components not only leads to lower energy consumption but also contributes to a more eco-friendly operation. The compact free cooling version further adds to the system's sustainability by maximising the use of available space, making it a pragmatic choice for environments where spatial considerations are crucial.
- The system's flexibility emerges as a remarkable attribute, providing users with the versatility to select from various versions. This adaptability ensures that the system can be tailored to meet specific requirements, making it a customisable solution that can address diverse needs and preferences. Whether it's optimising for space constraints or aligning with specific operational demands, the range of versions available adds a layer of adaptability that enhances the system's overall utility and practicality.



## Vertiv™ Liebert® PEX 4

35kW to 120kW\*

*Unsurpassed thermal management solution with premium efficiency.*

### Features:

- The Smart controller ensures efficient PEX4 operation, maximising reliability.
- High-level monitoring enables units to work together, optimising room conditions.
- Optimised variable speed design enhances part load efficiency for various cooling needs.
- Expanded operating envelope emphasises premium efficiency and addresses interference.
- Intelligent oil circulation logic, R410A, and EEV ensure premium efficiency.
- The unit features a high-efficiency EC fan, saving 30% of energy consumption.
- Microchannel coils are 40% smaller, 40% more efficient, and use 50% less refrigerant.
- The flat tube design reduces air side pressure drop and power consumption.
- Cooling modules with a "V" shaped microchannel coil ensure optimal variable capacity control.
- Maintenance of constant superheat and dehumidification assistance enhance performance.



## Vertiv™ Liebert® HPW

5kW to 15kW\*

*High performance wall-mounted air conditioning.*

### Features:

- Direct expansion having the highest efficiency in a wide range of external environmental conditions as a result of the generous heat exchanger surface design.
- Free cooling with the highest energy saving, combining the advanced circular damper system with the downflow air distribution concept.
- Emergency free cooling with the most efficient 48 VDC plug type fan to reduce the impact on the site power consumption.



## Vertiv™ Liebert® PEX 3

30kW to 100kW\*

*Economical precision solution in compact footprint.*

### Features:

- **Evaporator coil - Microchannel:**
  - Microchannel coils are 40% smaller, 40% more efficient, and use 50% less refrigerant than standard tube and fin coils.
  - Multiple micro channels improve heat transfer.
  - Flat tube results in lesser air side pressure drop, less power consumption.
  - Compact design & less also resulting in reduced unit weight.
- **Electronic expansion valve:**
  - Necessary for integrated and optimal variable capacity control.
  - Maintain constant superheat.
  - EEV is standard feature in PEX3.
- **EC fan:**
  - The unit is equipped with high efficiency, single inlet, reserve curved, centrifugal plug type innovative EC fan(s).
  - The EC fan technology regulates airflow and reduces the fan input power. In-floor configuration further reduces energy consumption in downflow units.
  - Liebert EC 2.0 fan modulates the fan speed according to load density; saving nearly 30% of energy consumption.
- **Compact design:**
  - PEX3 has a footprint nearly 15-30% lower than other brands, available in 4 frame sizes.
- **Wide capacity range:**
  - PEX3 DX is available from 30kW up to 100kW both down flow and uplow configurations.
- **Precise temperature & RH control:**
  - PEX3 technology enables close monitoring and control of room temperature, the standard version includes advanced controller, heater, humidifier and other components.
- **Environment friendly option:**
  - The use of the eco-friendly refrigerant R410A (standard) is particularly advantageous. The best parameters in terms of heat exchange to improve greenhouse performance.



## Vertiv™ Liebert® HPM

5kW to 29kW\*

*Air conditioning units are designed for top level performance and reliability.*

### Features:

- **Cooling Versions:** Vertiv™ Liebert® HPM is available both in chilled water or direct expansion execution, in air cooled and water cooled versions to suit various site installation requirements.
- **Latest generation EC fans:** Powerful fans allow to increase cooling density with the same unit footprint.
- **Teamwork function:** The communication between the units optimises system working mode and improves efficiency.
- **Virtual display:** Through a web browser, all the functionalities of the standard display can be replicated.



## Vertiv™ Liebert® PDX

15kW to 150kW\*

*Vertiv™ Liebert® cooling systems are AHRI® certified.*

### Features:

- The Vertiv™ Liebert® PDX, meticulously designed to cater to diverse site installation requirements, offers versatility with both air-cooled and water-cooled versions. This adaptability ensures that the unit seamlessly integrates into various environments, meeting the specific needs of different installations. Moreover, its flexibility extends to multiple free cooling modes, including direct air, indirect water, chilled water on free cooling chiller, and the innovative Vertiv™ Liebert® EconoPhase™ pumped refrigerant economiser. This broad range of operational modes enhances its capability to adapt to the dynamic demands of various applications.
- Among its innovative features, the Vertiv™ Liebert® EconoPhase™ pumped refrigerant economiser stands out as a groundbreaking addition. Compatible with Vertiv™ Liebert® PDX and Vertiv™ Liebert® MC microchannel condenser, this technology significantly improves thermal management and control. Simultaneously, it achieves a remarkable reduction in energy costs and a lowered power Usage Effectiveness (pPUE), contributing to both environmental sustainability and economic efficiency.
- To further enhance precision in temperature control and reduce annual energy consumption, the unit can be configured with modulating capacity compressors. This configuration allows for fine-tuned adjustments, ensuring precise supply temperature control while optimising energy efficiency. Additionally, the incorporation of the fresh air economiser function, driven by the iCOM™ control system, ensures operational efficiency by leveraging outside air when its temperature is colder than the return temperature.
- The Vertiv™ Liebert® PDX achieves notable efficiency levels through a combination of advanced technologies. The utilisation of the environmentally friendly R410A refrigerant, electronic expansion valve (EEV), and the new generation Vertiv™ Liebert® EC fans 2.0 collectively contribute to elevated efficiency standards. This forward-looking approach not only aligns with sustainability goals but also positions the unit as a technologically advanced solution in the realm of precision air conditioning.



## Vertiv™ Liebert® PCW

25kW to 400kW\*

*Compact perimeter cooling solutions.*

### Features:

- Embracing the dynamic landscape of data centre market trends, the unit offers a selection of multiple enhanced coils. This diverse range ensures adaptability to the ever-evolving requirements, ultimately enhancing the overall performance of the system.
- The integration of the latest generation EC fans represents a leap forward in cooling technology. These powerful fans, carefully designed and incorporated into the unit, allow for an increased cooling density within the same compact footprint. This innovation not only enhances cooling efficiency but also optimises space utilisation.
- Underlining the commitment to performance and reliability, the unit holds Eurovent certification. This certification serves as a testament to the accurate delivery performance ratings, instilling confidence in the unit's ability to meet and exceed expectations in diverse operational scenarios.
- An essential component contributing to the system's energy efficiency is the pressure-independent control valve. This feature ensures a more efficient water distribution, further enhancing the overall performance and sustainability of the entire system.
- The introduction of the cooling override function is a noteworthy advancement. This function plays a crucial role in increasing unit reliability by strategically limiting cooling interruptions to IT equipment. Remarkably, it achieves this without relying on capacitors or battery backup, simplifying the system's design and operation.
- Promoting collaboration within the system, the teamwork function facilitates seamless communication between units. This optimisation of working modes enhances overall efficiency, ensuring that the system operates cohesively to meet the demands of the data centre environment.
- Enhancing user experience and accessibility, the virtual display feature allows users to replicate all the functionalities of the standard display through a web browser. This virtual option provides a convenient and efficient means of monitoring the unit, empowering users with real-time insights for effective management.



## Vertiv™ Liebert® DSE

50kW to 250kW\*

*Free cooling economisation without using water.*

### Features:

- Pumped refrigerant economiser.
- Advanced thermal controls.
- Microchannel condenser.
- Independent thermal system design.
- 50-265kW capacities.
- Downflow configurations (50 - 265 kW).
- Upflow configurations (80 - 85 kW).



## Vertiv™ Liebert® AHU

250kW to 500kW\*

*Air Handling Unit (AHU) more efficiency, more choices, more experience.*

### Features:

- Vertiv™ Liebert® Air Handling Unit (AHU) units prioritise modularity, offering ease of movement and swift installation tailored to diverse room spaces and transportation requirements.
- Operating with high efficiency, these units maintain a mechanical Power Usage Effectiveness (PUE) below 1.2 as part of a system. Employing EC fans reduces motor power usage, while self-optimising controls prevent over-cooling and under-cooling, ensuring uniform airflow and temperature distribution.
- Enhanced protection is achieved through advanced monitoring and event notifications, complemented by finely tuned controls that eliminate hot spots via rack inlet temperature sensors. Additionally, the feasibility of integration with Uninterruptible Power Supply (UPS) adds a layer of reliability to the system.
- Lowering both installation and maintenance costs, the units feature a modular design with multiple sections, minimising shipping costs and expediting installation. The streamlined structure reduces components to maintain and provides easy access for efficient service and maintenance.
- Providing actionable insights, these AHU units offer simplified access to real-time data and trending, facilitating quick diagnostics of potential critical events.
- Addressing cooling capacity needs, the units offer customised designs based on varying requirements, eliminating the need for on-site unit knockdown for transportation. This approach ensures better quality control and reduces the number of components requiring maintenance.
- Advanced controls play a pivotal role in efficiency and protection, as Vertiv™ Liebert® AHUs integrate seamlessly with intelligent controllers, wired or wireless rack sensors, and a central optimising system control. Intelligent algorithms process readings for optimal airflow and cooling capacity, ensuring system-wide optimisation within the chilled water system.



## Vertiv™ Liebert® EFC

100kW to 450kW\*

*The highly efficient indirect evaporative free cooling unit.*

### Features:

- Direct expansion system or integrated chilled water coil: These technologies ensure the unit's operation even in climates characterised by extreme humidity levels or severe temperature peaks.
- Advanced Vertiv™ Liebert® iCOM™ control: Ensures high level management of the units to work together as a single system, thus optimising room temperature and airflow. Furthermore, it features a new 10" touch screen display for quicker and easier data readability.
- Vertiv™ SmartAisle™ control and other embedded logics: Optimise internal air volumes and temperature according to specific server needs, ensuring that not a single watt is wasted.
- Patented, composite heat exchanger: minimises the aerodynamic impact of the internal parts ensuring a significant reduction of the pressure drop providing unsurpassed annual efficiency and higher maximum air flow versus previous configurations equipped with legacy HE.





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## Vertiv™ Liebert® AFC

500kW to 1700kW\*

*The adiabatic free cooling solution with top-tier availability.*

### Features:

- **Integrated adiabatic system:** Highly efficient adiabatic wet pads humidify air entering the freecooling and condensing coils, thus increasing the freecooling chiller system operation and mechanical efficiency.
- **Supersaver:** The Supersaver is the software logic embedded in the iCOM™ Control leveraging on the communication with floor mount units to maximize efficiency at system level.
- **Fast start ramp:** Fast recovery capacity: the unit ensures the re-establishment of the full cooling capacity in 70 seconds, following a power restart. The control remains operative without the need of an external single phase power supply.
- **New iCOM 7" touch display:** The iCOM control ensures the intelligent management of units within the dynamic data center environment, while the innovative 7" touch screen display presents advanced graphic functions.
- **New generation EC fans:** The new generation super silent EC fans dramatically reduce the noise levels and increase the overall unit efficiency.
- **Electronic expansion valve:** Minimizes condensing pressure to reduce compressors' power consumption thus achieving high efficiency levels.
- **Microchannel condensing coil:** The full aluminum fan coil ensures extreme efficiency levels during the mechanical cooling mode and minimizes the refrigerant charge.



## Vertiv™ Liebert® VIC

25kW to 240kW\*

*Innovative and highly efficient liquid immersion cooling solution for high-density infrastructure.*

### Features:

- **Vertiv™ Liebert® VIC Liquid Immersion Cooling**  
**Enables You to:**
  - Scale easily, cost-effectively and limitlessly.
  - Increase cooling capacity up to 100 kW with warm water at 35°C (95°F).
  - Achieve PUE approximately 1.05.
- **Vertiv™ Liebert® VIC solution delivers optimum results with the help of ElectroSafe Dielectric Liquid Coolants:**
  - An odorless, non-toxic, single phase coolant that is both electrically and chemically inert.
  - Does not need to be replaced over the life of the data centre.
  - National Fire Prevention Association (NFPA) 704 diamond rates electro safe as a 0-1-0 substance. This means that it poses no health hazard, has a high flash point, and is stable even under fire exposure conditions.



## Vertiv™ Liebert® DCD

35kW, 47kW and 50kW\*

*Water based cooling modules up to 50 kW.*

### Features:

- Pumping unit regulates water temperature and flow rate to prevent condensation, ensuring high cooling capacity and avoiding potential damage to IT equipment.
- High energy efficiency and low power consumption reduces operational costs.
- Ability to install in existing applications, allowing for scalability and future growth.
- Smart controls and monitoring capabilities gives users peace of mind through remote access to room conditions.



## Vertiv™ Liebert® XDU

453 kW to 1368 kW\*

*Next generation liquid cooling distribution technology.*

### Features:

- Compact footprint allows for in-row deployments.
- Top or bottom liquid supply & return connections.
- Integrated 50 micron filter.
- Large 7" responsive color touch screen display.
- Precise temperature control to eliminate thermal shock for server CPU and GPUs.
- Intelligent flow monitoring with alarm features.
- Closed-loop pipe design with integrated leak detection.
- Easily accessible fill port and drain locations.
- Innovative stainless-steel design and hygienic couplings help ensure secondary fluid network integrity.



\*May vary based on water and air ambient temperature.



## Integrated Solutions

Rapidly deploy and manage IT infrastructure in just weeks without building new data centre space. Our smart solutions products help you meet your IT needs with significant savings. With simplified, standardised designs, you can start small and expand over time.

### Vertiv™ SmartCabinet™ 2

Self-contained, pre-configured, pre-engineered and factory tested infrastructure solutions for data centre and telecom networks.



*Vertiv™ SmartCabinet™ 2 Eco with self-contained cooling*

#### Features:

- **Fully integrated** - Factory assembled and tested for power, thermal management, rack enclosure, power distribution, monitoring and management, and security for IT applications. No dedicated IT room is required.
- **Dust protection and noise insulation** - Fully closed operation, cold/hot air is circulated within the rack for better temperature and humidity control, expanding lifespan of IT equipment, low noise level. Highly suitable for office environment.
- **Highly efficient** - Enclosed environment with variable compressor for capacity modulation at part loads for energy savings.
- **User-friendly interface** - Large 9-inch LCD touch panel that allows for easy access to system status/alarms setting.
- **Fast deployment** - SmartCabinet provides faster deployment and is ready to use from day one, removing the need to build, construct and design computer rooms which dramatically reduces the required deployment period compared to a traditional IT facility build.
- **Central management** - optional feature of RDU-M that provides central management of multiple SmartCabinet sites.



*Vertiv™ SmartCabinet™ Premium with external condenser*



*800mm width with external condenser*



*600mm width with external condenser*



*Vertiv™ SmartCabinet™ 2*

### Vertiv™ SmartRow™ 2

Vertiv™ SmartRow™ 2 brings an innovative approach to efficiently integrate and manage distinct systems namely, power and distribution, thermal management, security, comprehensive interface, cable management, and other pertinent aspects. It takes over the previous generation of products' set-up, and maintains the micro-module application benchmark, to provide users more compact, more reliable, safer, more convenient; a technology room deployment experience. The solution comes with the fastest deployment rate, lowest operating cost and the lowest learning curve for operation.



#### Features:

- Power distribution system.
- Cable management.
- Modular construction.
- Remote monitoring.
- UPS system.
- Advanced touch screen display controller.
- Precision cooling units.
- Support utilities.

### Vertiv™ SmartAisle™

Liebert® SmartAisle™ the most advanced fully integrated data centre infrastructure solution with the futuristic capabilities embedded with sophisticated technology to make the data centre operations efficient, quickly deployable, and provide monitoring and control of the entire operations.



#### Features:

- Lowest total cost of ownership increase of 30+% cooling efficiency utilise SmartAisle™ logic ensures the most accurate cooling environment.
- An integrated design facilitates quick deployment in less than 2 weeks.
- Simple architecture, an integrated stand-alone build-to-install approach for the entire DC set-up in one go.
- A 15-inch large HMI control panel enables administrators and facility managers to visualise the entire system operation in real time.
- Uptime tier IV ready.



# IT infrastructure portfolio



## Rack Power Distribution Units

Vertiv™ Geist™ offers a wide range of monitored and switched rPDUs equipped with a network interface to allow for remote monitoring, management, and automated alerts. These units offer important insights on how to improve data centre energy efficiency while enabling you to prevent downtime, providing notifications when user specified thresholds for power and environmental conditions are breached.



### Vertiv™ Geist® rPDU Basic

#### Features:

- Available in vertical and horizontal rackmount form factors.
- Flexibility to meet a broad range of requirements, with a variety of electrical and receptacle configurations available.
- Simple and quick installation in all standard racks or cabinets with included mounting brackets.



### Vertiv™ Geist® rPDU Monitored/Switched

#### Features:

- Secure standard power cords and avoid accidental disconnections with U-Lock.
- Monitor power consumption at the outlet-level for a detailed view of power distributed to a specific equipment and outlet level control to turn on, off or reboot individual outlets.



### Vertiv™ Geist® UPDU

#### Features:

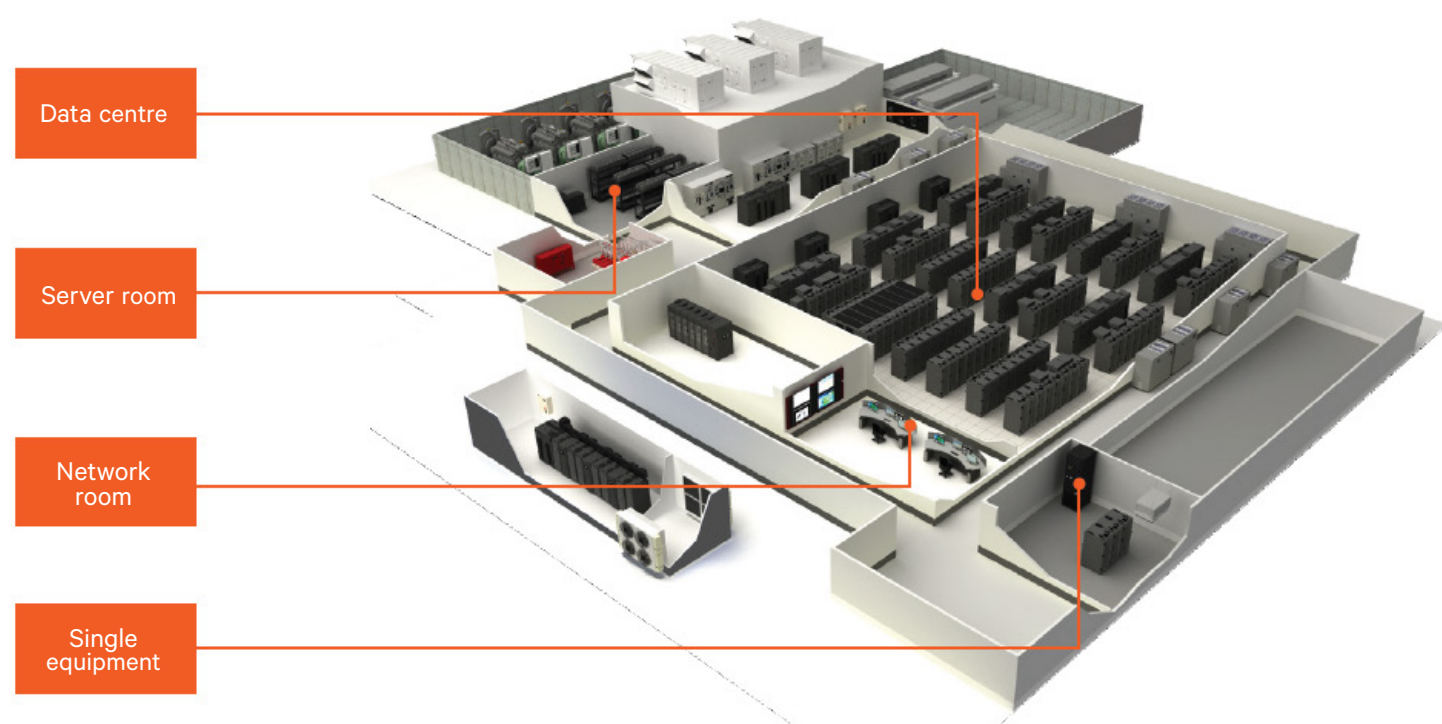
- No need to maintain multiple rPDUs with different power output configurations. The UPDU power configuration can easily be changed by using geographically specific facility side cables.
- Add flexible and easy to install in any location with vertical and horizontal rackmount form factors and pivoting connectors that adjusts from 0 to 90 degrees.
- Built for high temperature data centre environments of up to 60°C.





## Environmental Monitoring Solutions

The Liebert® RDU-A G2 is an infrastructure management solution from Vertiv™ that allows data centre administrators to manage environmental conditions i.e. temperature and humidity, leak, smoke, vibrations and digital inputs and outputs.



RDU-M



RDU-A G2



RDU-EX



RDU-SIC G2



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