



Product Brochure

# Vertiv™ PowerNexus Prefabricated Solutions

Integrated UPS and switchgear





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# About Vertiv

**Vertiv (NYSE: VRT)** brings together hardware, software, analytics and ongoing services to enable its customers' vital applications to 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 does business in more than 130 countries. For more information, and for the latest news and content from Vertiv, visit [Vertiv.com](https://www.vertiv.com).

**VRT**  
**LISTED**  
**NYSE**

## Vertiv™ Infrastructure Solutions-at-a Glance

Vertiv™ Infrastructure Solutions offers you comprehensive support for designing data centers, utilizing the entire Vertiv™ product lineup to deliver seamlessly integrated solutions. By combining our extensive portfolio and expertise, we create prefabricated and modular solutions tailored both for AI and traditional data centers. With a platform-based approach, we tackle the challenges of selecting individual products and managing on-site integration, enabling you to build an efficient, resilient, and future-ready data center infrastructure.



**Global presence** with localized volume manufacturing facilities



**Simplified and Scalable assembly** for straightforward on-site installation



**Full owners** of the process from design to onsite installation



**High quality Factory Integration** with schedule and cost certainty



**Energy Efficient Design** allows for lower site PUE and reduced environmental impact while controlling costs

**Vertiv Infrastructure Solutions** bring over two decades of experience in deploying prefabricated and modular solutions across the world to different industries and customer profiles.

Accelerating Deployment Cycles	<ul style="list-style-type: none"><li>Repeatable factory-integration to reduce deployment <b>up to 50% and 50% less on-site work (including commissioning)</b></li><li>Global supply-chain and service delivery footprint</li></ul>
Maximizing Building Blocks & Space Optimization	<ul style="list-style-type: none"><li>Modular and hybrid solutions in multi-MW sizes</li><li>Module design-practice <b>unlocks up to 30% space</b></li></ul>
Reduce Field Work and Improve Build Quality	<ul style="list-style-type: none"><li>Productizing non-repeatable field work in the factory, improving build-quality and <b>customer's total cost of ownership up to 25%</b></li></ul>

Scan QR code and visit **Vertiv Infrastructure Solution** page.



# Revolutionizing Data Center Power Distribution

**Vertiv™ PowerNexus** is an innovative integrated system that combines Switchboard and Vertiv™ Trinerger™ UPS (1.5 MW-2.5MW) into a single, efficient solution for data centers and critical applications. This revolutionary close-coupled system represents a new step in power distribution technology that delivers the performance you need today with the scalability for tomorrow's demands.

In today's rapidly evolving data center landscape, operators face a critical challenge: delivering more power while optimizing costs, space, and deployment time. With AI and HPC workloads driving unprecedented power demands, traditional solutions no longer suffice.

## Vertiv™ PowerNexus Benefits

- **Flexible Site Architecture:** All-in-one UPS and Power Distribution solution engineered for optimized power room design, with multiple configurations to meet demanding requirements
- **Faster Deployment:** Up to 70% reduction in installation time compared to traditional builds
- **Enhanced Reliability:** Minimized interconnections reduce fault risks and simplify maintenance
- **Simplified Installation:** Streamlined process reduces complexity and human error
- **Centralized Control:** Enhanced monitoring and control capabilities through a unified interface
- **Space Optimization:** Integrated design reduces footprint
- **Superior Efficiency:** Minimized power loss through direct bypass connection

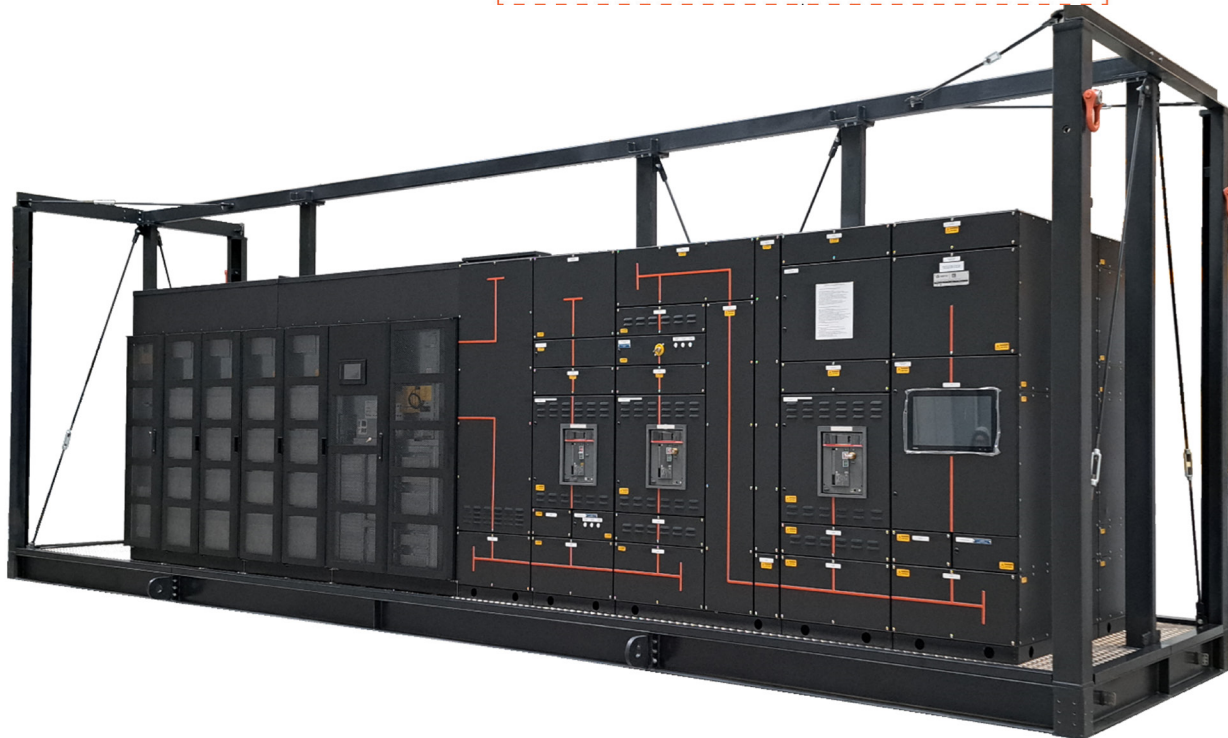
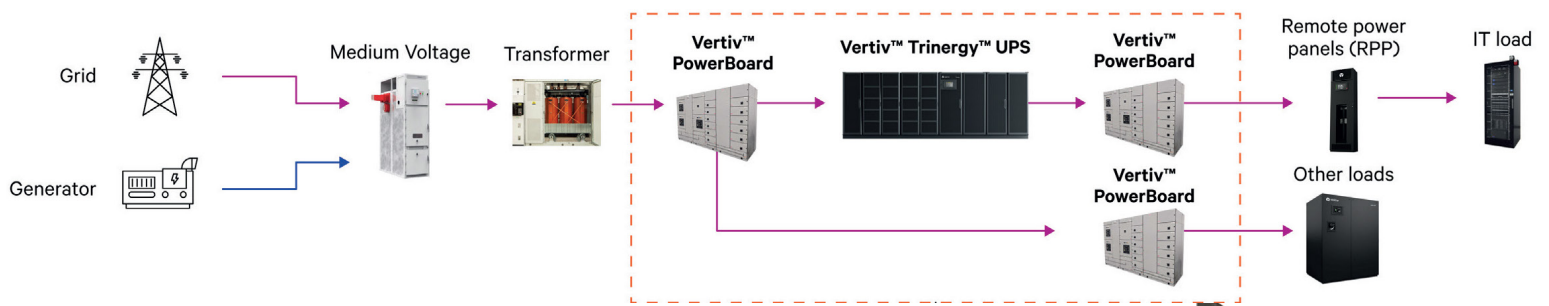


### Perfect for:

- Hyperscale data centers
- Colocation facilities
- AI infrastructure deployments
- High-performance computing environments

## Key Features of Vertiv™ PowerNexus

- Close-coupled UPS and Switchgear
- Robust, modular, and highly efficient UPS
- UPS power range: 1500, 2000, 2500 kVA
- Switchgear with up to 500A total load
- Dual-Power inputs for utility power redundancy
- Direct and UPS - protected outputs
- Safe and reliable power distribution technology
- Integrated EMPS (optional)
- Predictive maintenance and distributed energy resources ready



*Vertiv™ PowerNexus on skid*

Vertiv™ PowerNexus offers flexible delivery configurations to suit various installation needs:

**On-Site assembly:**

- Assembled directly inside the power room:
- Available in front-to-front or back-to-back arrangements.

**Prefabricated and assembled:**

- In Module: Delivered in a front-to-front arrangement.
- On Skid: Available in either front-to-front or back-to-back arrangements

Scan the QR code to learn more  
about Vertiv PowerNexus





# Vertiv™ PowerNexus Prefabricated Solutions

Integrating cutting-edge prefabrication methodology with the advanced capabilities of Vertiv™ PowerNexus, takes the flexibility and efficiency of Vertiv PowerNexus to the next level. The result? Innovative power infrastructure systems meticulously designed for rapid, seamless deployment.

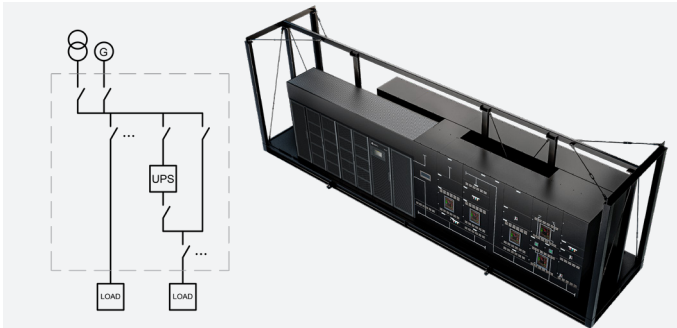
The classic close-coupled PowerNexus infrastructure is integrated with prefabricated, modular blocks that are easily expandable. This type of design empowers customers and designers to concentrate their attention on critical IT areas within the data center facility - those demanding the highest levels of focus and management.

Vertiv™ Power Nexus Prefabricated Solutions offer two versatile prefabricated integration types - Skid and Module. These options provide a flexible foundation, enabling the perfect fit for diverse deployment requirements while making sure the main goal that is the ease of scalability and efficiency.

## Vertiv™ PowerNexus on a Power Skid

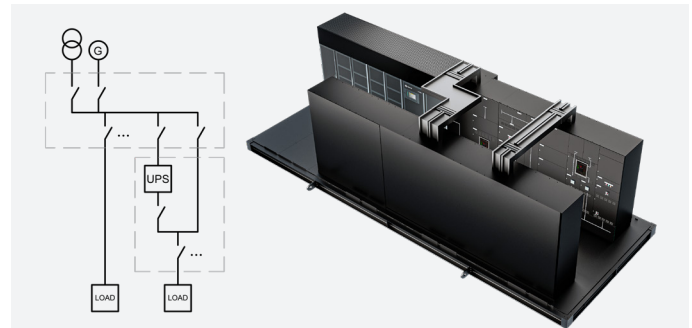
The Power Skid integration offers a compact and efficient solution, with the Vertiv PowerNexus essential components expertly mounted on a single skid frame, offering a streamlined design that is portable, easy to transport, and ideal for rapid deployment within existing buildings or data center spaces. With minimal on-site assembly required, this prefabricated solution saves time and on-site effort.

*To accommodate diverse site requirements, Vertiv PowerNexus on a Power Skid is available in two practical configurations:*



### Back-to-back arrangement

No external connections between UPS and Switchgear required, making this the most efficient PowerNexus arrangement.



### Front-to-front arrangement

Optimized Switchgear and UPS connections by busbar.

## Why Choose Vertiv™ PowerNexus Power Skid Prefabricated Solution?

Power skid solutions stand out for its definitive benefits, designed to meet the evolving demands of modern data center infrastructure:

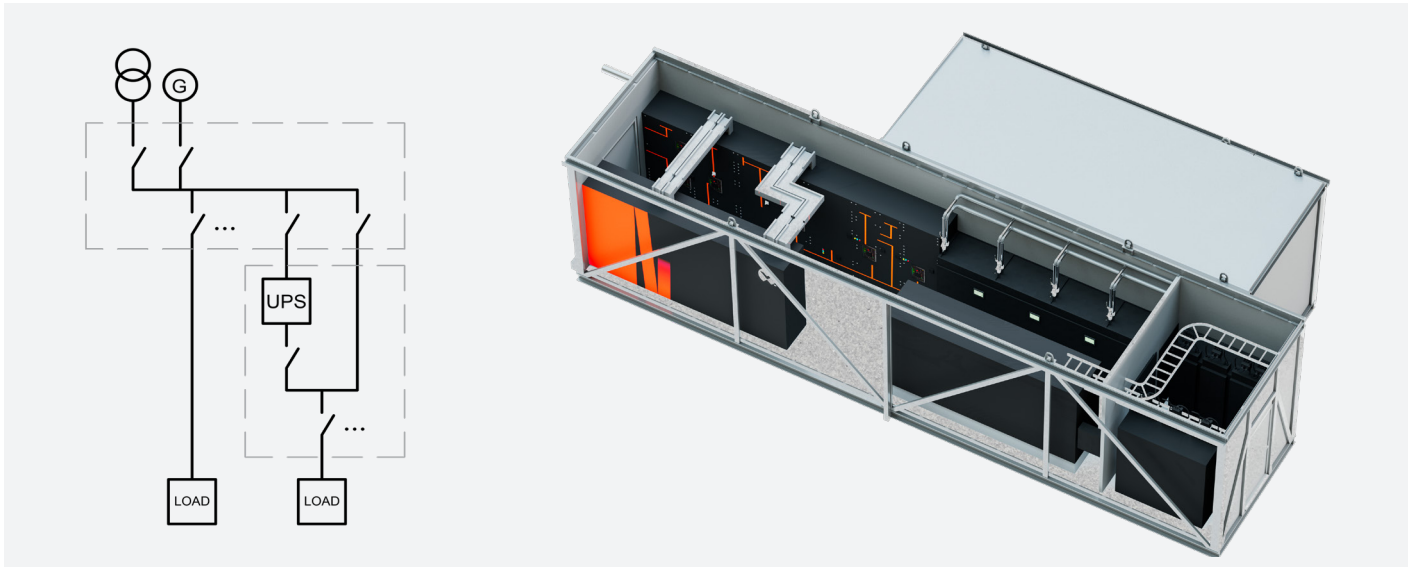
- **Rapid Deployment:** This fully prefabricated and preassembled solution simplifies the power room installation process, minimizing deployment times.
- **Easy Portability:** Designed for easy transport, these solutions adapt to changing project needs, offering maximum flexibility.
- **Maximized Space Efficiency:** With their compact, all-in-one design, Power Skids optimize the use of available space, making them ideal for environments with limited room for infrastructure.
- **Cost-Effective:** By minimizing on-site labor and construction efforts, Power Skids deliver substantial cost savings without compromising performance.
- **Reliable Performance:** Prefabrication in controlled settings enables consistent quality and thorough pre-delivery testing, providing dependable performance.

## Vertiv™ PowerNexus in a Power Module

Building on Vertiv™ PowerNexus, the Power Module design incorporates Vertiv™ Thermal Management, Battery, and Security technologies, offering a self-sustaining, resilient and streamlined solution that adapts to the growing needs of data centers.

All Power Module subsystems are factory installed into a secure, weatherproof, and transportable enclosure. This plug-and-play enclosure design significantly simplifies installation and startup processes, drastically reducing on-site time while minimizing risks, quality concerns, and potential scheduling delays.

Vertiv PowerNexus in a Power Module is available in Front-to-front arrangement:



### Front-to-front arrangement

Optimized Switchgear and UPS connections by busbar.

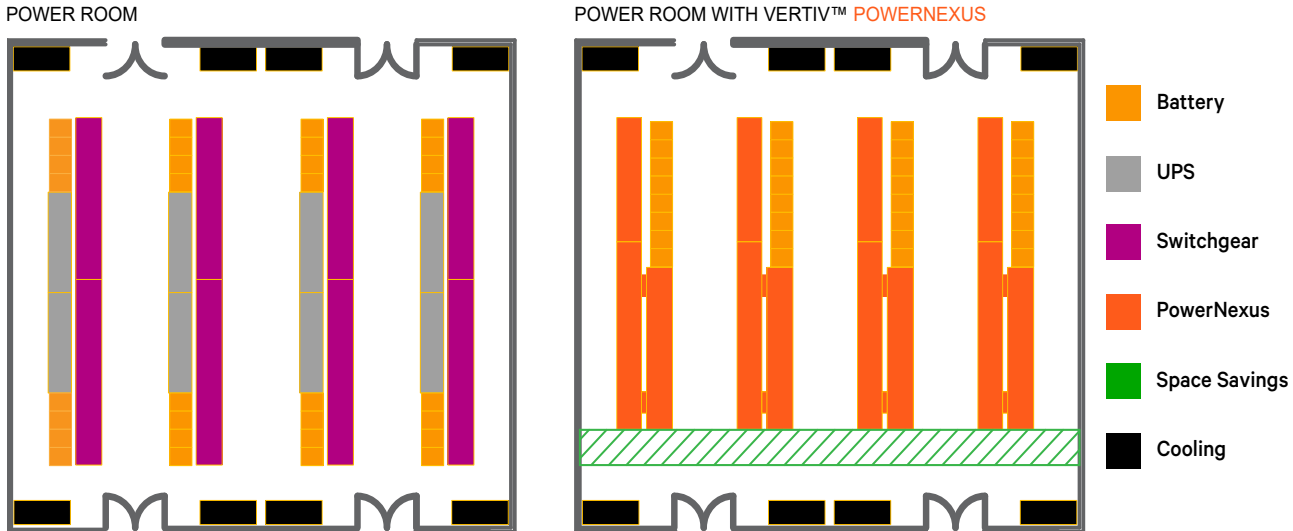
## Why Choose Vertiv™ PowerNexus Power Module Prefabricated Solution?

Power Module solutions are engineered to tackle the complexities of modern data center design, offering a range of innovative benefits:

- **Scalable Growth:** Modular designs allow for seamless expansion, enabling data centers to efficiently adapt to increasing capacity needs over time.
- **Plug-and-play Integration:** Pre-engineered for seamless connection to existing infrastructure, the platform offers a proper plug-and-play solution that simplifies installation and minimizes the need for complex on-site engineering adjustments.
- **Space-Saving Outdoor Design:** Compact, all-in-one modules free up valuable space within facilities, maximizing efficiency without compromising performance.
- **Unmatched Flexibility:** Easily transportable and adaptable, Power Modules are ideal for dynamic operational requirements and evolving project needs.
- **Accelerated Deployment:** Prefabricated and rigorously tested off-site, the Vertiv PowerNexus solution minimizes on-site setup time, ensuring faster readiness for operation.
- **Cost Efficiency:** By cutting down on on-site construction and labor efforts, Power Modules provide significant cost savings without compromising quality.
- **Proven Reliability:** Designed and tested in controlled environments, these modules enable dependable, high-performance operation, minimizing risks and downtime.

# Compact Solutions and Accelerated Installation

More room. More possibilities. Less time wasted.

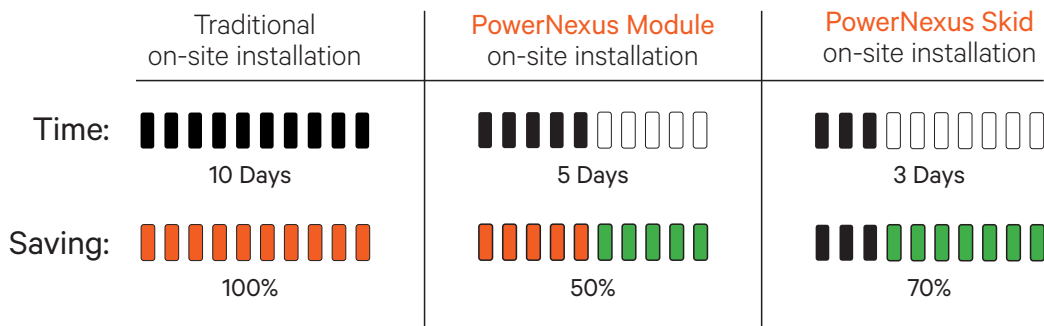


## Unlock more space with the innovative back-to-back Vertiv™ PowerNexus Skid-mounted solution!

Compared to traditional power room layouts in data centers, Vertiv™ PowerNexus maximizes your floorplan by providing a compact, space-efficient design. This strategic reduction frees up valuable space for other essential or non-essential data center facilities, allowing you to plan space smarter. With Vertiv™ PowerNexus, you're not just saving space, you're gaining flexibility for future growth while also making the most use of its superior ease of installation.

The amount of space saved depends on the specific configuration of the Vertiv PowerNexus solution.

Along with substantial space savings, Vertiv PowerNexus prefabricated solutions significantly cut installation time for data center power infrastructure, offering a faster and more efficient alternative to traditional, on-site, component-by-component assembly:



The Power Module solution achieves further time savings when deploying your data center since it features additional pre-installed systems, including battery cabinets, climate control units for UPS and switchgear, fire suppression systems, and more. This efficient all-in-one configuration enable rapid deployment and a seamless, hassle-free installation process.





# User Interface and Monitoring

Vertiv™ PowerNexus features Vertiv™ Unify Onboard intelligence solution that delivers advanced monitoring, control, and automation directly to Vertiv's PowerNexus. Vertiv™ Unify is an integrated platform that simplifies data center operations by consolidating power, thermal, and building management systems into a single, unified interface. Designed to reduce complexity and risk, Vertiv Unify enhances visibility and control across the entire critical infrastructure chain. It offers plug-and-play deployment, seamless integration with third-party systems through open industrial protocols, and real-time data insights to optimize uptime and performance. Whether on-site, hybrid, or cloud-based, Vertiv Unify scales effortlessly to support hyperscale and colocation data centers, delivering smarter, more reliable operations with confidence and control at every level.



*The platform is customizable with three scalable options to suit various operational needs.*

	Monitoring	Control	Redundancy
Essential	✓		
Advanced	✓	✓	
Premium	✓	✓	✓

For sites where Vertiv™ Unify is not deployed, Vertiv™ Unify Onboard enables interoperability by integrating with third-party systems through standard industrial interfaces, providing a vendor-agnostic approach to data center management. With standardized interfaces, intuitive controls, and flexible deployment options, Vertiv Unify Onboard simplifies operations, enhances efficiency, and accelerates the path to a fully unified digital infrastructure.

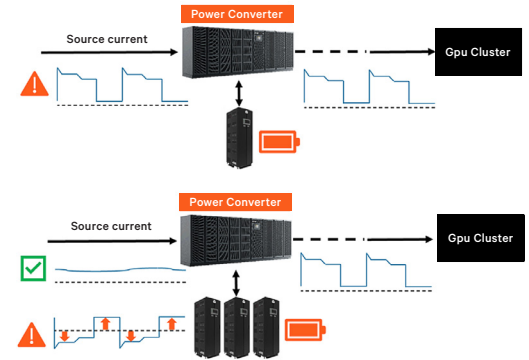
## Key benefits:

- **Reduced deployment time and risk:** Minimize risks and streamline deployment timelines with plug-and-play configurations, factory-tested equipment, and scalable implementation models.
- **Streamlined user Interface:** Operate critical infrastructure seamlessly through multiple user interfaces that simplify monitoring and control across power (EPMS), thermal (BMS) infrastructure, and building management systems.
- **Simplified energy usage reporting:** Easily track, report, and analyze energy consumption with advanced tools designed to meet both internal and regulatory energy transparency requirements.
- **Maximized uptime and reliability:** Enable uninterrupted operations with features like predictive maintenance, real-time monitoring, and condition-based services that reduce downtime.
- **Lifecycle management:** Extend the value of your infrastructure with comprehensive lifecycle support so that each component performs optimally from deployment to retirement. Global and site-specific scalability Scale effortlessly from localized data centers to global multi-site operations, accommodating growth and evolving infrastructure strategies.
- **Global and site-specific scalability:** Scale effortlessly from localized data centers to global multi-site operations, accommodating growth and evolving infrastructure strategies.
- **Standardization across sites:** Achieve consistency in infrastructure management with standardized processes and systems, enhancing operational efficiency at every level.
- **Future-readiness:** Stay ahead of technological advancements with a flexible platform designed to support emerging technologies and long-term adaptability.

# Vertiv™ AI Load Management Solutions for Data Centers

## Evolving Critical Power Needs

As artificial intelligence (AI) advances, it imposes new demands on critical power infrastructure. This shift requires innovative solutions to handle higher power density servers, spikey and dynamic AI power loads, and the integration of liquid cooling systems with very low thermal inertia. Traditional power sources are becoming constrained, necessitating the adoption of sustainable alternatives. Vertiv addresses these evolving needs with resilient solutions designed to minimize the impact of single-point failures and support distributed power protection.



## Impact of AI applications on critical infrastructure

With the forecast growth in rack densities for AI and high-performance computing (HPC) applications, Vertiv is developing solutions designed to withstand higher voltages, manage spikey AI loads and provide power protection for liquid cooling systems.

This includes increasing power converter block sizes and enhancing power distribution circuits to meet the demands of high-density racks.

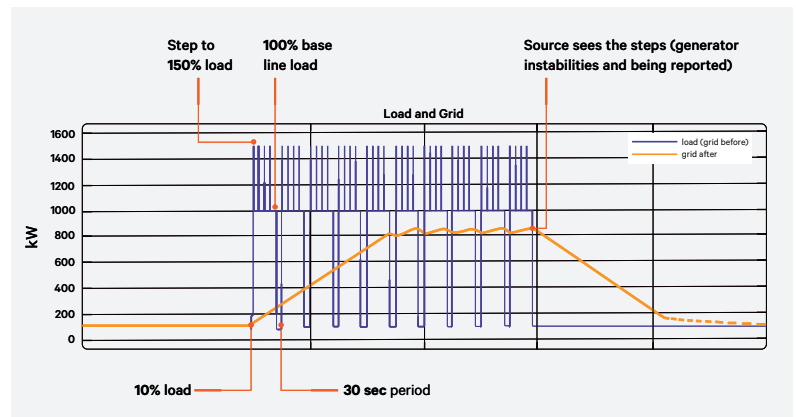
At UPS level, two scenarios should be considered:

### Minimizing impact on batteries

- UPS is configured to handle load steps >100%

### Minimizing impact on grid/generators

- UPS is configured to use Batteries for Power Smoothing (Input Load Averaging)



## AI Loads Challenges

### 1. Power Fluctuations

- Artificial intelligence (AI) has a unique load profile, characterized by rapidly fluctuating power demand and inturn Spikey/Fast dynamic loads. Power fluctuations may be reflected to the grid or to local generator leading to power quality and grid stability issues. Quick but repeated overloads as may cause voltage sags and equipment to switch to back up power.

### 2. Thermal Cycling

- Thermal cycling of UPS components may impact equipment life.

### 3. Coolant Distribution Units (CDUs)

- Liquid cooling for GPU has very low thermal inertia (1-10 secs).

### 4. Power Density Requirements

- Adopting higher voltage distribution to handle increasing power demands.

## AI-Ready UPS solutions

Vertiv™ Large UPS systems are designed to manage AI applications efficiently. They handle rapid load changes without any performance degradation, enabling continuous operation. Additionally, they protect the power source from sudden step loads and support increased rack power density by operating at higher voltages. This capability makes Vertiv™ Large UPS systems ideal for the demanding requirements of AI applications, providing reliable and stable power to maintain optimal performance.



## Future-Proofing Data Centers

Vertiv™ Large UPS systems are designed to manage AI applications efficiently. They handle rapid load changes without any performance degradation, enabling continuous operation. Additionally, they protect the power source from sudden step loads and support increased rack power density by operating at higher voltages. This capability makes Vertiv Large UPS systems ideal for the demanding requirements of AI applications, providing reliable and stable power to maintain optimal performance.

## Vertiv™ Services For Superior Critical Infrastructure Protection

Enables continuity to your business activities with a service partner who stands by you throughout your critical equipment lifecycle. From the project phase with start-up and testing, to lifecycle maintenance contracts and operational support, Vertiv ensures your solution performs optimally.

### Global Presence & Local Resources

#### Global Presence & Local Resources



With the broadest, most comprehensive service presence in the industry and more than 3,500 engineers dedicated to servicing the entire world, Vertiv ensures that your business is always protected, and that service is available whenever needed 24 hours a day.

#### Project Services



From project planning and design, through to equipment procurement, installation, and commissioning, our project team offers comprehensive capabilities, enabling speed of deployment and execution according to pre-defined and repeatable procedures.

#### Expertise & Training



All service engineers are regularly certified according to country-specific regulations as well as wider international regulations and standards.

Vertiv™ service engineers are trained, experienced professionals who undergo an average of one week of intensive training each quarter, totaling one month of full-time training per year. Training includes both technology and safety, to secure competent and safe field operations, reinforced by established procedures to follow and central technical support in case of need.

#### Premium Response



With Vertiv you can count on an extensive supply of critical parts plus crash-kits ready for deployment, and on service engineers that can respond to requests in record time. To do so, they can rely on a solid knowledge-base, and established escalation procedures valid across the regions. In addition, they can also benefit from advanced incident management, and widespread presence of Service Centers all enabling them to deliver premium restoration capabilities.

#### Supporting Your Business Around the Globe



Regular service of critical equipment supports maximum uptime and reduces total cost of ownership. A service program enables timely and proactive maintenance for avoiding unexpected, costly equipment downtime and enables optimal equipment operation. Vertiv™ service programs cover all technologies and can be tailored to suit individual business needs.



Vertiv deep infrastructure expertise is amplified by field data and analytics, enabling data-based services such as Advanced Incident Management and Condition Based Maintenance. These services complement our portfolio providing additional insight into operating trends allowing informed decision and minimizing operational.

## Design Specifications

## Unit

## Vertiv™ PowerNexus Infrastructure Solutions

General				
Voltage	(V)	380, 400, 415 or 480		
Operating temperature	(°C)	Up to 35°C @ 100% load		
Relative humidity @ 20 °C (non condensing)	(%)	Up to 95		
Integration	Pre-Assembled in-Factory (Skid or Module)			
Electrical				
Rating	(kVA)	1500	2000	2500 (UL only)
Nominal power consumption	(kVA)	2500	3150	4000
Switchboard				
Inputs	2 inputs (grid and/or generator)			
Input breaker	(A)	up to 4000	up to 5000	up to 5000
Short circuit rating	(kAIC)	100		
UPS				
UPS Rating	(kVA)	1500	2000	2500
Core rating	(kVA)	500		
Inverter Overload Capacity	110% continuous, 125% for 10 mins, 150% for 1 min			
Input factor	≥0.99			
UPS modes	Online (VFI), Dynamic Online (VI), ECO Mode (VFD)			
UPS efficiency @ VFI mode	(%)	≥97		
UPS efficiency @ VFD mode	(%)	≥99		
Frequency range	(Hz)	40 - 70		
UPS serviceability	External Bypass Available			
Battery voltage range	(V)	397 - 700		
Monitoring				
Essential	Monitoring			
Advanced	Monitoring and Control			
Premium	Monitoring, Control, Redundancy and Service Cloud Integration			
Structural / Mechanical				
Skid				
Skid Length	Up to 14 m / 46' (site specific)			
Skid Width	Back-to-Back up to 2.6 m / 8.5' or Front-to-Front up to 3.6 m / 12'			
Skid Height	From 2.9 m / 9.5' to 3.6 m / 12'			
Module				
Module Length	Up to 17 m / 52'			
Module Width	From 3.4m / 11' to 4 m / 13'			
Module Height	4 m / 13'			
Module Type	Steel Frame and Walls or TimberMod			
Additional Features				
Skid				
HVAC	Optional; Chilled Water or Direct Expansion Cooling			
Battery	Optional; Li-ion, Ni-Zn or VRLA			
Module				
HVAC	Chilled Water or Direct Expansion Cooling			
Battery	Li-ion, Ni-Zn or VRLA			
Fire Detection System	Optical detection			
Fire Suppression System	FK 5-1-12 or other on request			
Early Smoke Detection System	Optional			
Security System	Optional; Video Surveillance, Access Control, Intrusion Detection			
Additional Rooms	Optional; Battery room, MV room			

