

Vertiv™ EnergyCore Battery System



Overview

Lithium-ion battery, as one of the most influential technical breakthroughs in the last decade, has transformed our lifestyle and reshapes the world by powering from our cell phones and notepads to our new e-cars and renewable power plants. It will be the next generation batteries to power our UPS and datacenters.

Vertiv's innovative mindset and early experience with lithium-ion batteries has helped many organizations achieve their infrastructure goals.

Ideally Suited For

- New data centers
- Cloud, colo, hosting facilities
- Enterprise data centers
- UPS energy storage
- Replacements to lead-acid batteries

Compliant

- UL 1973
- UL 9540A Tested
- UL 9540

Qualified for immediate use with most current and legacy three phase Vertiv™ Liebert® UPS systems.



EnergyCore Battery Cabinet

The Vertiv™ EnergyCore is the first optimized battery cabinet designed by datacenter experts for data center users. The Vertiv EnergyCore system has successfully completed a UL 9540A fire test. According to NFPA 855's ESS installation standards, when successfully completing a UL9540A test, three feet (92cm) spacing requirements between racks can be waived by the Authorities Having Jurisdiction (AHJ).



Vertiv™ EnergyCore Battery Cabinet

The Vertiv EnergyCore is engineered to provide safe, reliable, and cost effective energy that improves critical infrastructure performance over traditional valve-regulated lead-acid systems.

Not only do users enjoy the longer life, more cycles and fewer replacements of this system, they also benefit from its compact, smaller size and lower weight. These advantages directly impact an impressive total cost of ownership experience.

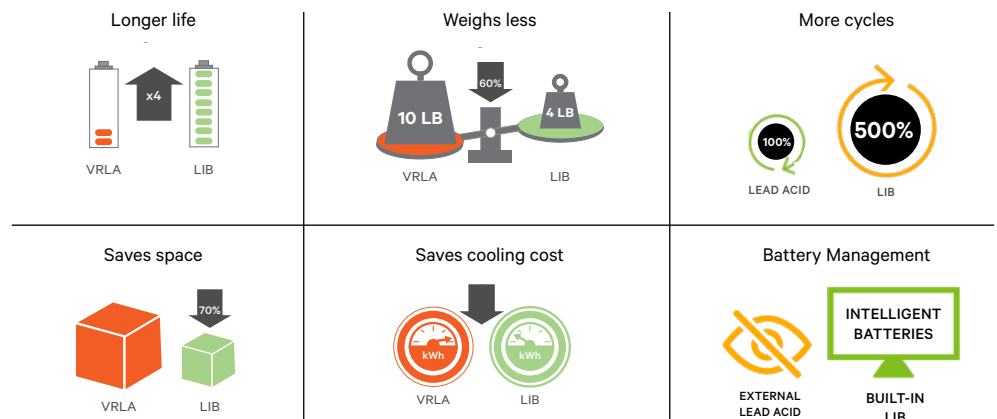
Reduce Battery Replacement Cycles

VRLA → 3-5 years
LIB → 10-15 years

VRLA = valve regulated lead-acid
LIB = data center lithium-ion

**Fewer Facility Disruptions
Lower Total Cost of Ownership**

Benefits of Lithium-ion Batteries



Vertiv™ EnergyCore Battery System

A New Standard in Energy

The Vertiv™ EnergyCore offers a powerful and energy dense battery solution providing an effective, safe energy storage system. It delivers optimized energy storage solutions that modern data centers and customers demand.

Control and Protection

The Vertiv™ battery management system monitors battery performance and performs SoH calculations to provide safe, reliable protection.

Internal Power Supply

The control power is internally sourced from DC voltage. No onsite wiring, saves installation time and costs.

Best in Class HMI Display

Easy to see, easy to use front control panel delivers key status and information located on the front door.

Powerful, Proven Batteries

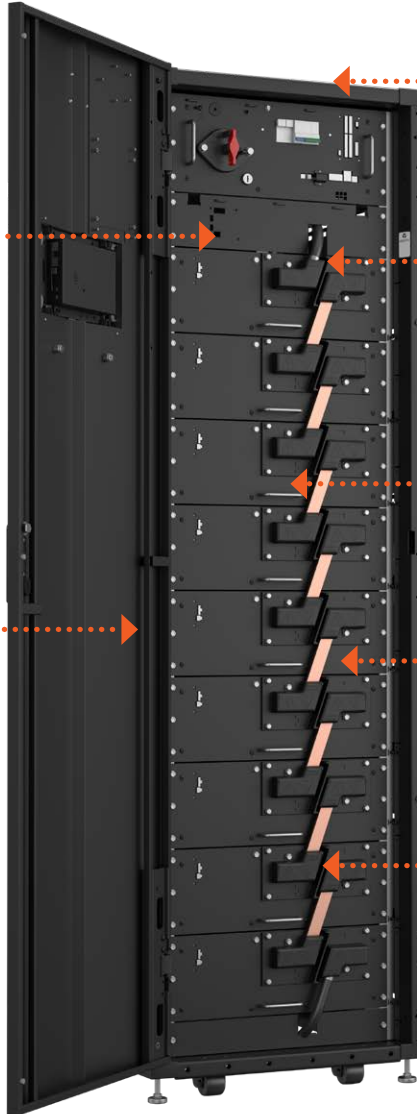
Vertiv EnergyCore uses safe, proven, high power battery modules.

Small Footprint

The compact battery cabinet design will save valuable space.

Data Center Rack

The standardized design provides a safe, secure, and sturdy enclosure that matches the look and feel in modern data centers.



Internal 2-Hole Lugs

Power cable landing capability for 2-Hole Lugs eliminating a need for a connection box in most cases.

Built-in Redundancy

Redundancy built-in within the battery management system design improves reliability by eliminating single points of failure.

Smart Communications

Provides MODBUS/IP protocol for communicating with building management systems.

Best-in-Class Serviceability

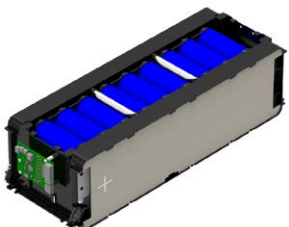
Front-access design saves space required for service. The sturdy, retractable shelves enable fast module replacement, if needed.

Pre-Assembled

Vertiv EnergyCore is shipped pre-assembled and factory-tested to minimize site installation time and cost, and improves the integrity of the system on site.

The Right Battery for the High Performer

If the UPS is only as good as the battery, it's important to select the right one for the application. There are a variety of batteries on the market, each with varying behaviors. Vertiv has options to deliver exactly what is needed



Vertiv™ EnergyCore Li 5 Battery Module

Operate at
Higher
Temperatures

Save on
Cooling Costs



Guaranteed
Performance

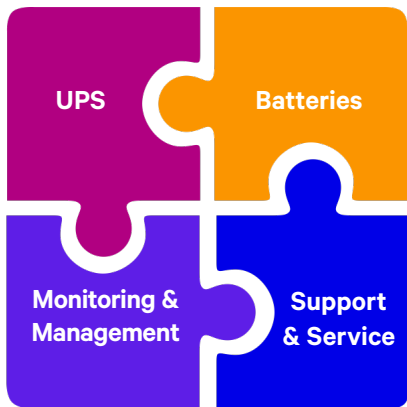
10 Year
Warranty

Confidence in Performance

Vertiv understands performance is what matters. We provide predictable performance through the life of the battery.

Vertiv Brings All the Pieces Together

Vertiv leverages its DNA in critical systems to deliver a battery system that is integrated seamlessly into the power chain. Our capabilities and processes come together to ensure the UPS, batteries, monitoring, management, service and support offerings are orchestrated for delivering on our customer expectations.

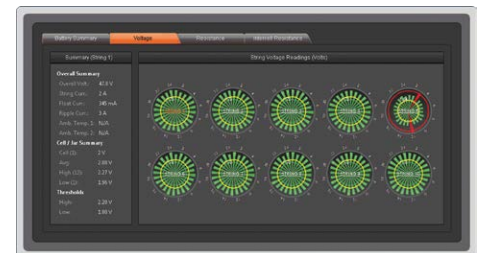


Vertiv™ Liebert® EXL S1 with Vertiv™ EnergyCore Batteries

Management and Control

The Battery Management System within the Vertiv EnergyCore ensures secured communications with the right level of visibility. Whether for local or remote monitoring, customers can receive a proactive flow of battery information at the cell, module, system and facility level.

- Vertiv™ Albér™ Battery Xplorer Enterprise
- Vertiv™ Liebert® Sitescan™, Vertiv™ Environet™
- 3rd party systems



Vertiv™ Albér™ Battery Xplorer Enterprise

Protect Your Assets – Wherever They are Located

Critical systems demand proper attention. Vertiv Services can provide highly trained local engineers and remote experts for monitoring your systems live or via shared files. Our service team is prepared to support all or a portion of the data center's infrastructure, before and after the installation.

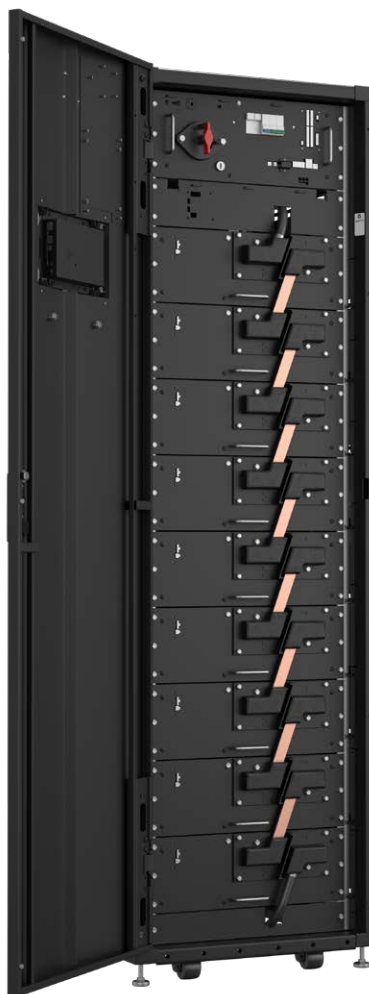
Vertiv, Your Energy Storage Expert

We have the experience and solutions you need to ensure effective energy storage for all your critical operations. Our capabilities can provide you with a supply of Vertiv EnergyCore cabinets for your next battery deployment.

Whether you need solutions that involve batteries, battery maintenance or replacements, you can put your trust in Vertiv.



Support Services for Critical Facilities



Vertiv™ EnergyCore
Battery Cabinet

Specifications

| Parameter | EnergyCore Li 5 | |
|--------------------------------------|---|---|
| | 16 Module | 18 Module |
| Nominal Energy | 27.6kWh | 31.1kWh |
| Nominal Voltage | 461VDC | 518VDC |
| Nominal Capacity | 60Ah | 60Ah |
| Dimensions | 600mm x 750mm x 2000mm | 600mm x 750mm x 2000mm |
| Weight | 543kg | 590kg |
| Cell Type | Lithium-Iron Phosphate LFP Cylindrical Cell | Lithium-Iron Phosphate LFP Cylindrical Cell |
| Battery Module | 9S3P | 9S3P |
| Battery Module Quantity | 16 | 18 |
| Recommended End of Discharge Voltage | 401VDC | 451VDC |
| Float Charge Voltage | 495VDC | 557VDC |
| Maximum Discharge Power | 234kW | 263kW |

Specifications

| Parameter | EnergyCore Li 5 | |
|--|--|--|
| | 16 Module | 18 Module |
| Recommended Charge Current | 20A | 20A |
| Max Battery Cell Temperature | 60°C | 60°C |
| Min Operating Battery Cell Temperature | 10°C | 10°C |
| Maintenance Disconnect | 1 | 1 |
| Fusing | 500A/700VDC | 500A/700VDC |
| Charge Inhibit Circuit | Included | Included |
| DC Connections | Lugs to Terminals | Lugs to Terminals |
| Network Interfaces | 100BT Ethernet supports Modbus TCP or SNMP. RS-485 supports Modbus RTU. | 100BT Ethernet supports Modbus TCP or SNMP. RS-485 supports Modbus RTU. |
| Service Interfaces | RS-232 Serial, USB 2.0 | RS-232 Serial, USB 2.0 |
| Signaling | Isolated Discretes | Isolated Discretes |
| Front Panel | GHMI Touch Screen | GHMI Touch Screen |
| Pushbuttons | Enable/Stop | Enable/Stop |
| Interlocks | Service Switch | Service Switch |
| Recommended Operating Temperature | 20°C to 30°C | 20°C to 30°C |
| Storage Temperature Long Period | -20°C to 30°C | -20°C to 30°C |
| Storage Temperature Less Than 2 Weeks | -20°C to 45°C | -20°C to 45°C |
| Storage Temperature Less Than 1 Week | -30°C to 60°C | -30°C to 60°C |
| Cooling | Convective | Convective |
| Control Power | Internal | Internal |
| Service Power | 24VDC | 24VDC |
| Compliance | CSA mark (UL 1973 3rd edition), CE mark (IEC 62619:2022), ISO 13849:2015 Cat. 2 PLa, ISTA 3B, UNDOT 38.3, FCC 47 CFR 15B | CSA mark (UL 1973 3rd edition), CE mark (IEC 62619:2022), ISO 13849:2015 Cat. 2 PLa, ISTA 3B, UNDOT 38.3, FCC 47 CFR 15B |
| Testing | UL9540A 4th Edition | UL9540A 4th Edition |
| Altitude | Up to 3,000m | Up to 3,000m |
| Operating Humidity Range | 5 to 95% Relative Humidity (Non-Condensing) | 5 to 95% Relative Humidity (Non-Condensing) |

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