Vertiv™ EnergyCore Battery System

Overview

Lithium-ion batteries have changed how we power the world—from mobile devices to electric vehicles. Now, that same proven technology is reshaping data centers handling AI compute loads.

The Vertiv™ EnergyCore Battery System brings efficient, space-saving, and long-lasting energy storage to UPS and critical infrastructure applications. With a focus on reliability and modernization, it helps organizations meet today's performance and sustainability goals.

Ideally Suited For

- New and retrofit data centers
- Cloud, colocation, and enterprise IT
- UPS energy storage systems
- Lead-acid battery replacements

Compliant

- UL 1973 – Battery Safety
- UL 9540A – Thermal propagation tested
- UL 9540

Qualified for most current and legacy three-phase Vertiv™ UPS systems.

EnergyCore Battery Cabinet

The Vertiv EnergyCore is the first lithium-ion battery cabinet engineered specifically for data center use. Its compact design, proven safety features, and factory-tested reliability make it a smarter choice for modern IT environments.

The cabinet has successfully passed UL 9540A thermal runaway testing. According to NFPA 855's ESS installation standards, when successfully completing a UL9540A test, the three feet (92cm) spacing requirement between racks can be waived by the Authorities having Jurisdiction (AHJ) and free up valuable white space in a data center.

Vertiv™ EnergyCore Battery Cabinet

Benefits:

- Purpose-built design optimized for 5-min and 7-min End of Life runtimes
- Accurate real-time State of Charge provides assurance with AI compute loads
- Predictive maintenance planning is enabled by State of Health tracking
- Reduced hits on battery from AI compute load steps exceeding 100%
- Integrated operation between batteries and power converter helps smooth input source current for AI compute load
- Built-in reverse polarity protection
- Visual monitoring of system and cabinet level status available with Touchscreen GHMI of primary cabinet

Health management with AI compute loads

Vertiv EnergyCore battery systems use advanced algorithms to accurately calculate SoC and SoH.

State of Charge (SoC)

The Vertiv EnergyCore BMS provides accurate, real-time SoC using blended sensors to maintain precision across dynamic loads

- Real-time charge tracking
- Improves runtime predictability
- Reduces risk of over/undercharging

State of Health (SoH)

Vertiv EnergyCore tracks battery health across all levels, enabling smarter maintenance and longer battery life.

- Predictive maintenance insights
- Real-time performance alerts
- Fewer replacements, stronger ROI

A New Standard in Energy

The Vertiv™ EnergyCore Battery System delivers powerful, space-efficient energy storage designed for modern data centers. With high-density lithium-ion battery modules and an integrated battery management system (BMS), Vertiv EnergyCore provides safe, reliable runtime while simplifying installation, service, and monitoring. The built-in GHMI display gives operators full visibility into battery performance and protection across all connected cabinets—delivering confidence from day one.

Control and Protection

Advanced BMS with real-time SoC monitoring and SoH tracking delivering safe, dependable operation.

Internal Power Supply

Powered internally from DC voltage—no additional wiring required—reducing install time and complexity.

Best in Class HMI Display

Easy-to-use control panel delivers key system information and status—integrated directly on the front door of each battery cabinet.

Powerful, Proven Batteries

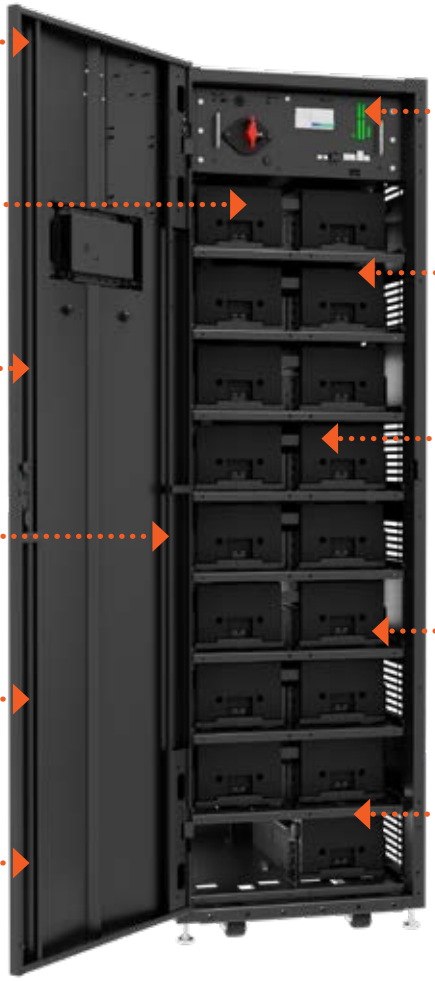
Uses safe, high-performance lithium-ion modules tested for demanding data center backup and AI compute workloads.

Small Footprint

Compact design saves valuable floor space and supports high-density and high-energy rack layouts.

Data Center Rack

Secure, clean-lined enclosure complements modern data center aesthetics.



Internal 2-Hole Lugs

Direct power cable landings with no need for an external connection box.

Built-in Redundancy

Redundant architecture in the BMS reduces risk by eliminating single points of failure.

Smart Communications

Supports MODBUS TCP/IP and SNMP for integration with building management and monitoring platforms.

Best-in-Class Serviceability

Front-facing, retractable shelf design enables fast, tool-free battery module replacement.

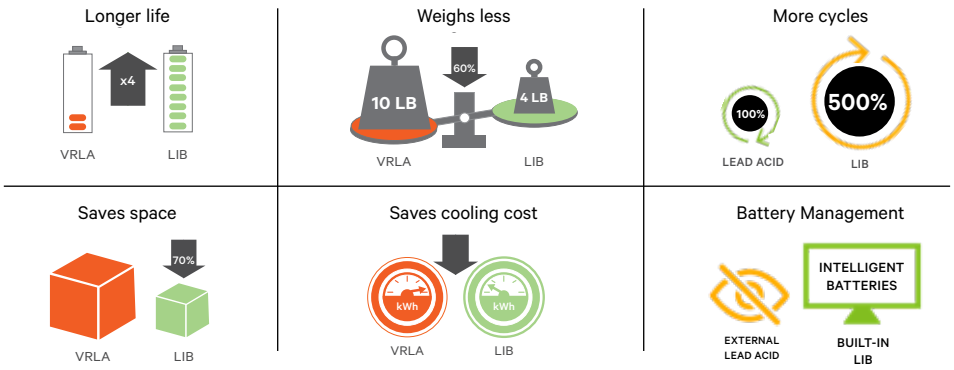
Pre-Assembled

Factory-built and tested for quick deployment, minimal install time, and high system integrity.

Why Choose Vertiv EnergyCore Over VRLA

Legacy VRLA batteries have long been used in critical backup systems, but they fall short in today's demanding IT environments. EnergyCore lithium-ion batteries deliver longer life, greater reliability, and smarter performance.

Benefits of Lithium-ion Batteries



Reduce Battery Replacement Cycles

VRLA → 3-5 years
LIB → 10-15 years

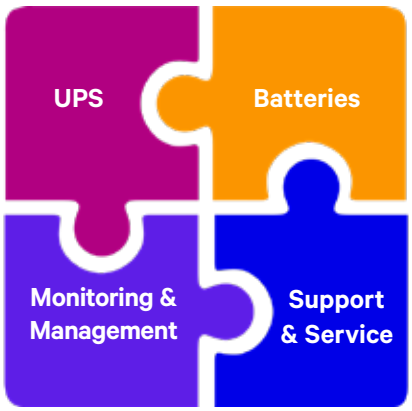
VRLA = valve regulated lead-acid
LIB= data center lithium-ion

Fewer Facility Disruptions
Lower Total Cost of Ownership

Vertiv Brings All the Pieces Together

Vertiv integrates UPS, batteries, monitoring, and services into one seamless energy storage solution. Built on decades of critical infrastructure experience, the Vertiv™ EnergyCore Battery System connects directly into your power chain. You get one trusted partner for everything from deployment to long-term support.

Our systems are designed to work together, simplifying installation, improving visibility, and delivering the performance and reliability your operations require.



Vertiv™ Liebert® EXL S1 with Vertiv™ EnergyCore Batteries

Management and Control

The Vertiv™ Battery Management System (BMS) provides secure, real-time visibility at every level including cell, module, cabinet, and facility. Whether you are monitoring on-site or remotely, you gain proactive insights into battery health, safety, and performance.

Compatible with:

- Vertiv™ Albér™ Battery Xplorer Enterprise
- Vertiv™ Liebert® Sitescan™
- Third-party systems via open protocols

Vertiv™ Albér™ Battery Xplorer Enterprise

Protect Your Assets Wherever They Are Located

Uptime depends on expert support. Vertiv offers both on-site and remote service from trained engineers who can monitor systems in real time or via shared files. Our team supports your infrastructure before, during, and after installation.

Scalable service plans help keep your critical infrastructure protected and performing at its best.

Support Services for Critical Facilities

Vertiv: Your Energy Storage Expert

Vertiv delivers more than just batteries. We provide a complete energy storage solution with proven technology and expert support. Whether you are upgrading old systems or building new, we can supply and support your next Vertiv EnergyCore deployment.

From maintenance to replacements, you can count on Vertiv to keep your energy storage working for you.

Vertiv™ EnergyCore Li5 Specifications

Vertiv™ Battery Module for 5 min EOL Runtime

Parameter	5 min EOL runtime		
	10 Module	16 Module	18 Module
Nominal Energy	17.3kWh	27.6kWh	31.1kWh
Nominal Voltage	288VDC	461VDC	518VDC
Nominal Capacity		60Ah	
Dimensions		600mm x 750mm x 2000mm	
Weight	400kg	543kg	590kg
Cell Type		Lithium-Iron Phosphate LFP Cylindrical Cell	
Battery Module		9S3P	
Battery Module Quantity	10	16	18
Recommended End of Discharge Voltage	250VDC	401VDC	451VDC
Float Charge Voltage	306VDC	495VDC	557VDC
Maximum Discharge Power	146kWb	234kWb	263kWb
Recommended Charge Current		20A	
Max Battery Cell Temperature		60°C	
Min Operating Battery Cell Temperature		10°C	
Maintenance Disconnect		1	
Fusing		500A/700VDC	
Charge Inhibit Circuit		Included	
DC Connections		Lugs to Terminals	
Network Interfaces		100MB Ethernet supports Modbus TCP or SNMP RS-485 supports Modbus RTU	
Service Interfaces		RS-232 Serial, USB 2.0	
Signaling		Isolated Discretes	
Front Panel		GHMI Touch Screen	
Recommended Operating Temperature		20°C to 30°C	
Storage Temperature Long Period		-20°C to 30°C	
Storage Temperature Less Than 2 Weeks		-20°C to 45°C	
Storage Temperature Less Than 1 Week		-30°C to 60°C	
Cooling		Convective	
Control Power		Internal	
Service Power		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	
Testing		UL9540A 4th Edition	
Altitude		Up to 3,000m	
Operating Humidity Range		5 to 95% Relative Humidity (Non-Condensing)	

Vertiv™ EnergyCore Li7 Specifications

Vertiv™ Battery Module (7 min EOL Runtime)

Parameter	7 min EOL runtime		
	10 Module	16 Module	17 Module
Nominal Energy	20.4kWh	32.6kWh	34.6kWh
Nominal Voltage	304.5VDC	486.4VDC	516.8VDC
Nominal Capacity		67Ah	
Dimensions		600mm x 750mm x 2000mm	
Weight	443kg	564kg	582kg
Cell Type		Lithium-Ion NMC/LMO Hybrid	
Battery Module		8S1P	
Battery Module Quantity	10	16	17
Recommended End of Discharge Voltage	256VDC	409.6VDC	435.2VDC
Float Charge Voltage	335.2VDC	536.3VDC	569.8VDC
Maximum Discharge Power	130.7kWb	208.3kWb	222.2kWb
Recommended Charge Current		22.3A	
Max Battery Cell Temperature		69°C	
Min Operating Battery Cell Temperature		18°C	
Maintenance Disconnect		1	
Fusing		500A/700VDC	
Charge Inhibit Circuit		Included	
DC Connections		Lugs to Terminals	
Network Interfaces		100MB Ethernet supports Modbus TCP or SNMP. RS-485 supports Modbus RTU	
Service Interfaces		RS-232 Serial, USB 2.0	
Signaling		Isolated Discretes	
Front Panel		GHMI Touch Screen	
Recommended Operating Temperature		18°C to 28°C	
Storage Temperature Long Period		-20°C to 30°C	
Storage Temperature Less Than 2 Weeks		-20°C to 45°C	
Storage Temperature Less Than 1 Week		-30°C to 60°C	
Cooling		Convective	
Control Power		Internal	
Service Power		24VDC	
Compliance		CSA mark (UL 1973 3rd edition), CE mark (IEC 62619:2022), ISO 13849:2015 Cat. 2 PLc, ISTA 3B, UNDOT 38.3, FCC 47 CFR 15B	
Testing		UL9540A 4th Edition	
Altitude		Up to 2,000m	
Operating Humidity Range		5 to 95% Relative Humidity (Non-Condensing)	

Vertiv.com | **Vertiv Headquarters,** 505 N Cleveland Ave, Westerville, OH 43082, USA

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