Vertiv™ EnergyCore Battery System

PRELIMINARY

VERTIV.

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

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

READY FOR LIB Lithium-ion Batteries

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

PRELIMINARY

A New Standard in Energy

The Vertiv™ EnergyCore offers powerful and energy dense battery solution providing an effective, safe energy storage system. It delivers runtime optimized energy storage solutions that modern data centers and customers demand. The Vertiv battery management system (BMS) with the GHMI display delivers comprehensive performance and protection status information for all connected cabinets.

Control and Protection

The Vertiv™ battery management systemmonitors 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 for all connected battery cabinets.

Powerful, Proven Batteries

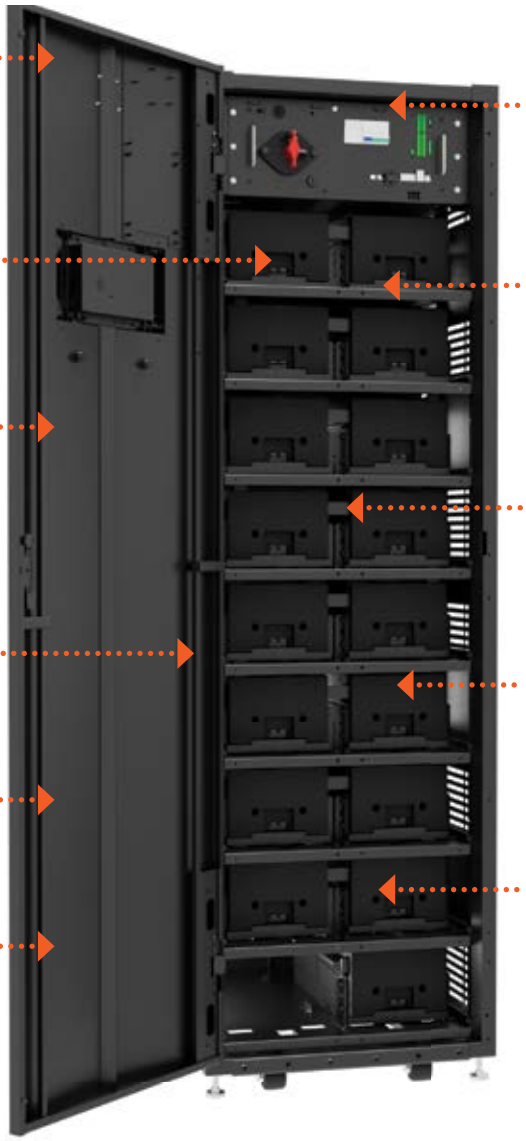
Vertiv EnergyCore uses safe, proven, high power battery modules.

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

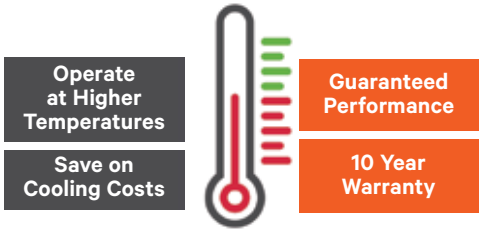
Vertiv EnergyCore is shipped pre-assembled and factory-tested to minimize site installation time and cost, and improves the integrity of the system on site.

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™ Battery Module for 5 min EOL Runtime

Vertiv™ Battery Module for 7 min EOL Runtime

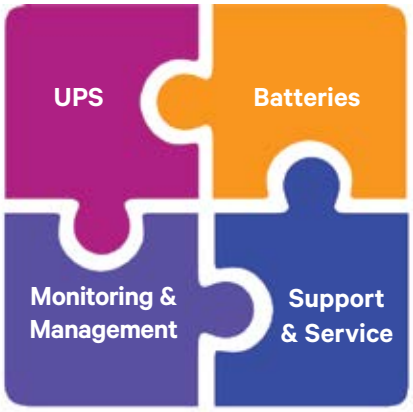


Confidence in Performance

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.

Support Services for Critical Facilities

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.

Specifications

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	100BT 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		
Pushbuttons	Enable/Stop		
Interlocks	Service Switch		
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)		

PRELIMINARY

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	240VDC	396.8VDC	408VDC
Float Charge Voltage	336VDC	537.6VDC	571.2VDC
Maximum Discharge Power	130.7kWb	208.3kWb	222.2kWb
Recommended Charge Current		22.3A	
Max Battery Cell Temperature		60°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		100BT 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	
Pushbuttons		Enable/Stop	
Interlocks		Service Switch	
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)	

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