

BlueRack™ 250

480 VDC Industrial Power Battery Cabinet

Safe, Reliable, High-Power on Demand

Scalable Power Platform From kW to multi MW

- Breakthrough sodium-ion cells based on Prussian blue electrodes
- UL9540A 'Champion' rated nonflammable with no thermal runaway under any condition
- No thermal settling or waiting required after recharge
- No active cooling or fans necessary
- 50,000-100,000 discharge cycles
- Wide temperature operating range
- System controller is AC and/or DC powered
- Round-trip efficiency >97%
- No conflict materials
- Designed for behind-the-meter applications, peak shaving, load balancing and bridge power systems

Features



Rapid Cycle-Rate

100-0-100% SOC repeatedly with no wait, settling, or rest periods



Industry leading power capacity & performance

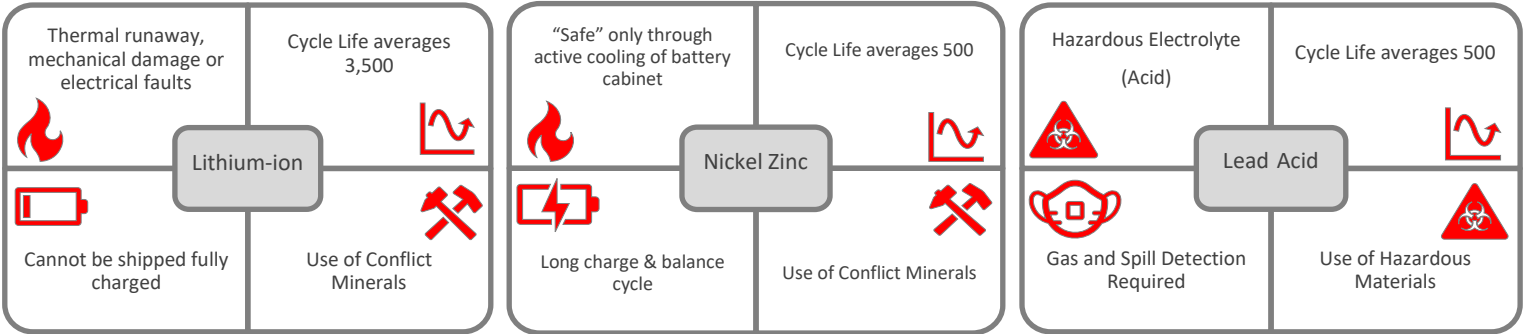


Nonflammable Chemistry & Construction

Industry leading system-level availability



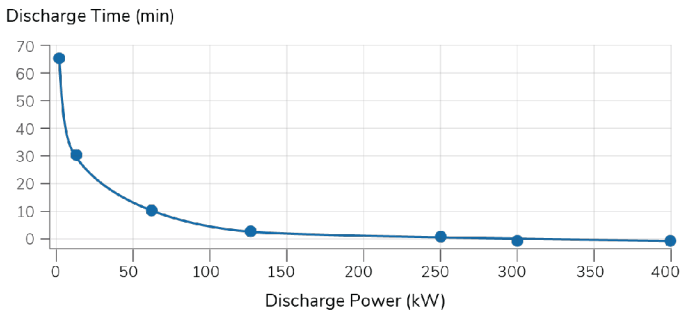
Introducing the Industry's Highest Power, Highest Cycle Life, Safest Battery*



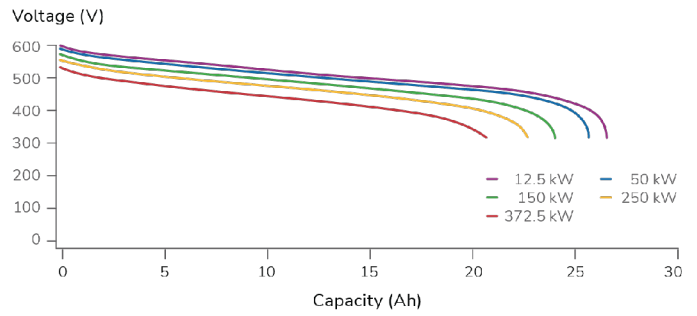
High Power

Over 250 kW sustained discharge

Power vs. Run Time



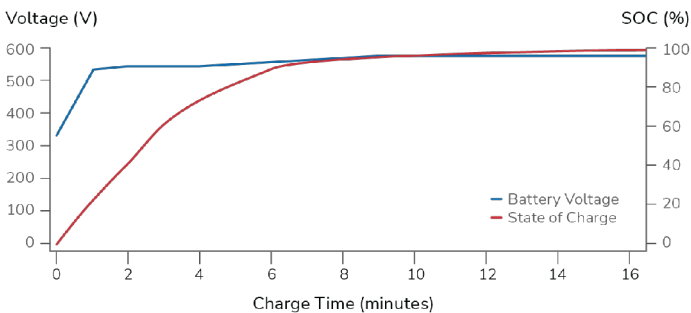
Discharge Performance



Fast Recharge

Full 0 to >99% recharge in just 15 minutes

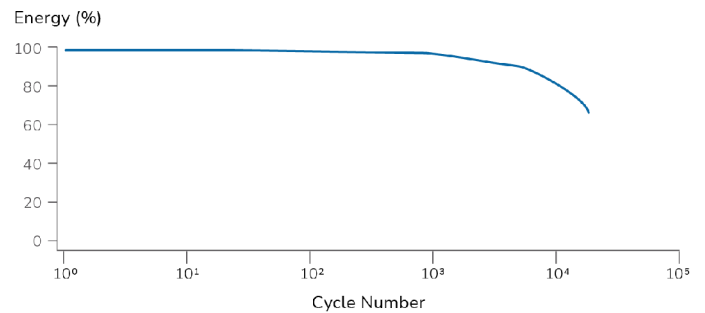
Fast Charge Performance (16C, CC - CV)



Long Life Cycle

Best-in-class cycle life: over 10 k cycles at >90% energy utilization

Cycle Life >90% Energy Utilization

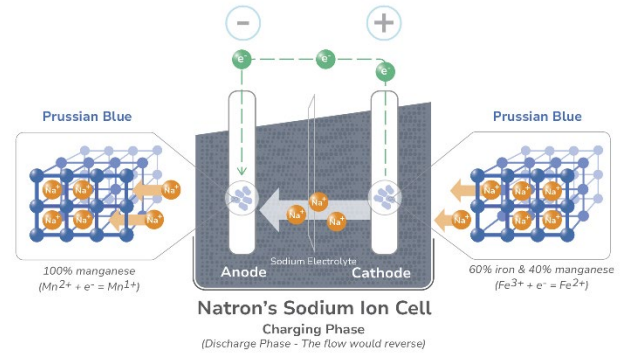


Preliminary specification subject to final product release.

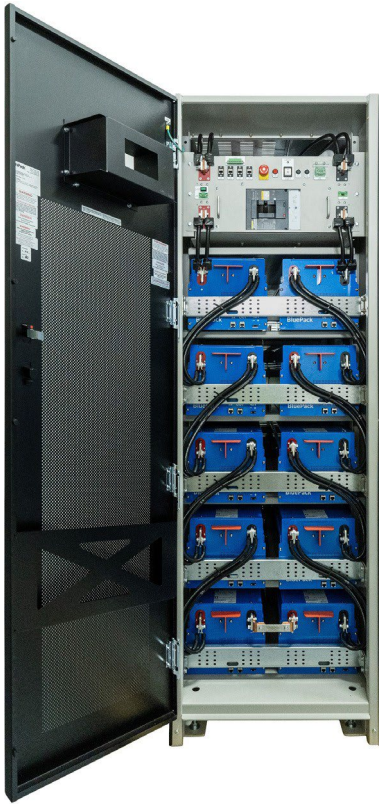
* Battle Hardened – Battery Packs and Cells survive ballistic penetration test with no fire, acid, or dangerous chemical exposure

Our Sodium-ion Chemistry Is Inherently Safe and Fault Tolerant

- Nonflammable during and after nail penetration or flame test.
- No damage or loss in performance from short circuit or overcharge to 35% overvoltage.
- No Battery Management System necessary



250 kW Cabinet – 10 BluePacks™ in Series



Cabinet Size: 1980mm x 630mm x 1080mm
78" H x 24.9" W x 42.4" D

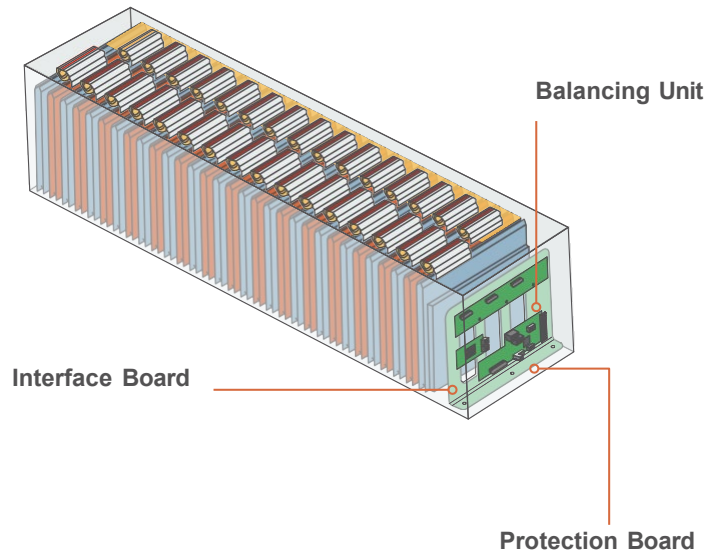
BluePack™ Spec

48V, 25kW, 2 Minutes

Voltage Rating Swing	58V to 32V
Maximum Current Rating	750 A
Size	37.4" L x 9.7" H x 10.6" W
Weight Approximately	165 lbs

Communication

External	MODBUS TCP/IP
Internal Communication	CAN Bus 2.0B 1 MBS



Specifications

Performance (from 25°C)

Run Time, Load	1 min	431 kW
	2 min	265 kW
	3 min	198 kW
	4 min	155 kW
	5 min	137 kW
0-99% Recharge Time	<14 min	
Energy, 1 hour (1C rate)	12.4 kWh	
Energy Efficiency (1C-1C)	>95%	
Coulombic Efficiency (1C-1C)	>97%	
Cycle Life	50,000-100,000 application dependent	

Thermal

Operating Temperature Range	-20° to +45° C	
Maximum Current Operating Range	-20° to +40° C	
Optimal (Consult factory for rating/duration)	+20° to +30° C	

Mechanical

Exterior Rack Dimensions (H x W x D)	1980 x 630 x 1080 mm	
	78.0 x 24.9 x 42.4 in	
Mass	1080 kg / 2381 lbs	
Seismic mounts available		
Top cable entry standard		

Electrical

Nominal Voltage	480 Vdc
Recommended Float Voltage	580 to 590 Vdc
Operating Range	320 to 590 Vdc
Nominal Discharge Current	560 Amps
Maximum Discharge Current	750 Amps
Maximum Charge Current	750 Amps
	5.5 MW
Single System Parallel Capacity	
Inputs/Outputs	Dry Contact Closures

Monitoring and Communications

Parameters:	Voltage, Charge, Power, Temperature
Supported communication protocols	Modbus TCP/IP
	Consult factory for other protocols
Front Panel Display	Optional, future

Applications

Power Generation and Distribution	Behind-the-meter, dark start, load balancing
Industrial	Peak load shaving, frequency stabilization
EV Fast Charging	
Fuel Cell	Bridging, power ramping, load balancing

Additional Information

natron.energy/product



Contact:

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Careers: jobs@natron.energy

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About the company:

Natron Energy was founded by a group of Stanford scientists and engineers in 2012 to fulfill a singular mission: to offer safer, longer lasting batteries to underserved industrial and grid storage customers.

Today, Natron is a world leader in sodium-ion batteries and the first company to commercialize Prussian blue electrodes. Natron is a BABA qualified Made In America manufacturer.