Natron Energy

DATASHEET
Part Number ZZ-0009-00

BlueRack™ 250

480 VDC Critical Power Battery Cabinet

Safe, Reliable, High-Power on Demand

Scalable Power Platform From kW to multi MW

- Ready for Artificial Intelligence Electrical Loads
- Breakthrough sodium-ion cells based on Prussian blue electrodes
- Full recharge in 15 minutes, ready immediately
  - No settling or thermal waiting required
- UL9540A 'Champion' rated nonflammable with no thermal runaway under any condition
- >50,000 deep discharge cycles
- Wide temperature operating range
- Twice the power of lithium
- Designed for Data Centers, behind-the-meter grid storage, and mission critical applications
- Round-trip efficiency >97%

Features

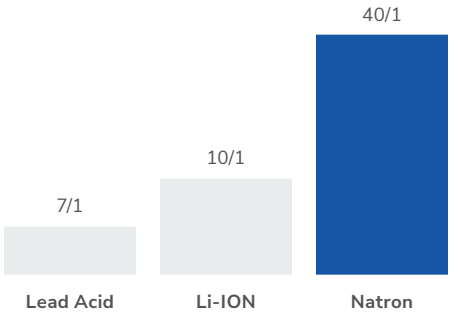
Rapid Cycle-Rate
100-0-100% SOC repeatedly with no wait, settling, or rest periods

Industry leading power capacity & performance

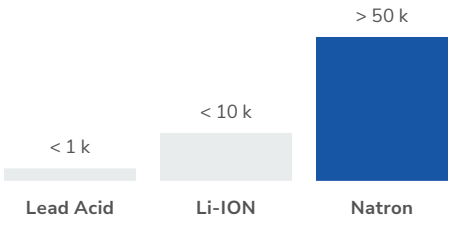
Nonflammable Chemistry & Construction
Industry leading system-level availability

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

High Power
Max Sustained Power per Energy (W/Wh)



Long Life
Deep Discharge Cycle Life



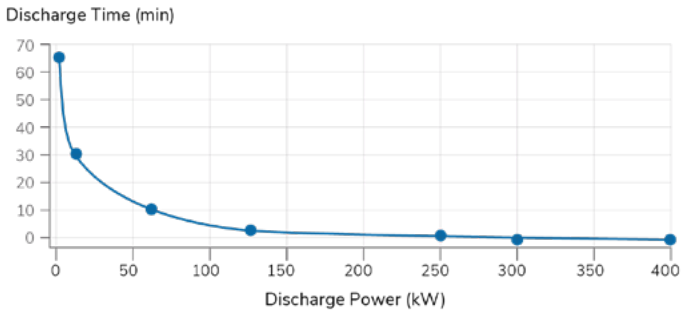
Safe and Fault Tolerant
No Fire or Explosion During

	Lead Acid	Li-ION	Natron
Heating	✓	✗	✓
Overcharge	✗	✗	✓
Short Circuit	✗	✗	✓
Nail Penetration	✓	✓	✓

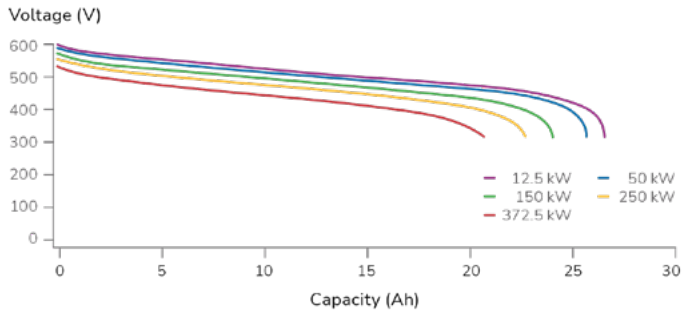
High Power

Over 250 kW sustained discharge

Power vs. Run Time



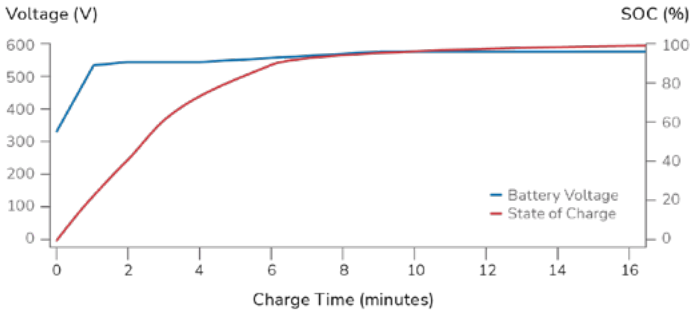
Discharge Performance



Fast Recharge

Full 0 to >99% recharge in just 15 minutes

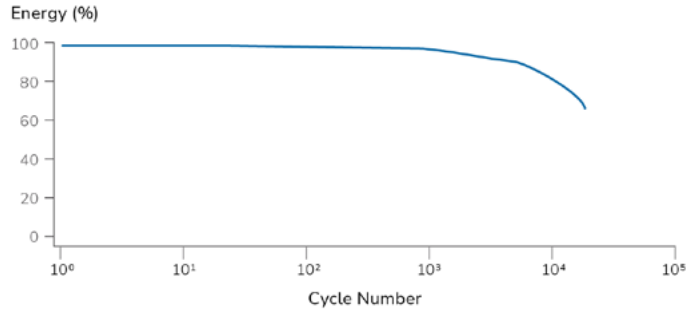
Fast Charge Performance (16C,CC - CV)



Long Life Cycle

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

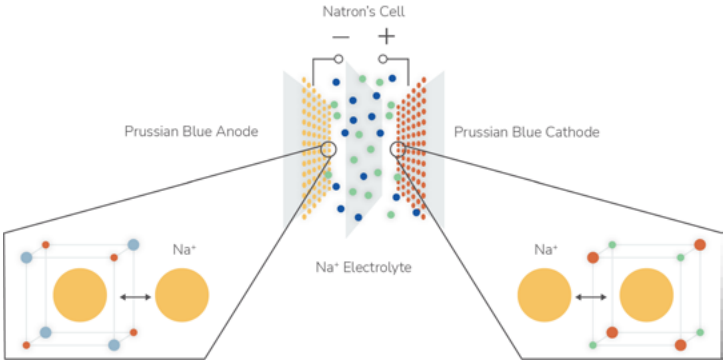
Cycle Life >90% Energy Utilization



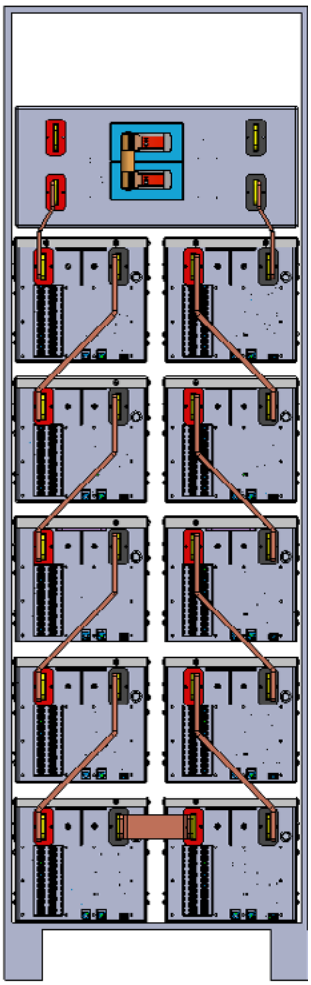
Preliminary specification subject to final product release.
* Battle Hardened – Battery Packs and Cells survive ballistic penetration test with no Fire, acid, or dangerous chemical exposure

Sodium-ion 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 rare-earth materials or caustic metals.



250 kW Cabinet



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

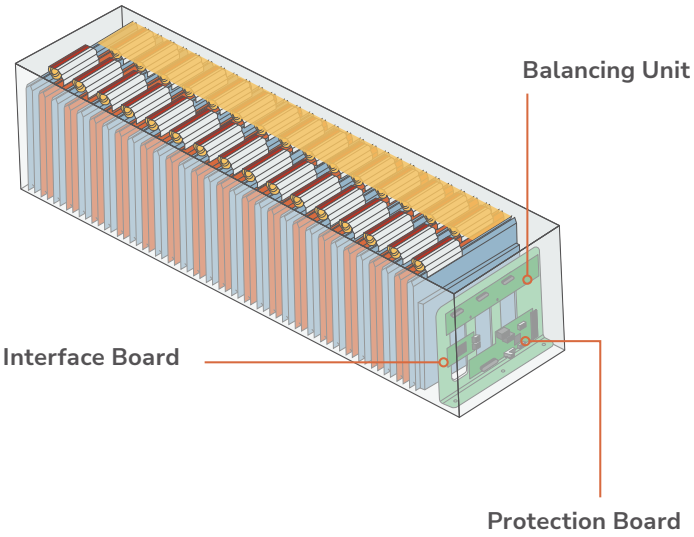
Based on the BluePack Battery

See BluePack datasheet for details

48 V, 25 kW, 2 Minutes	
Voltage Rating Swing	58 V to 38V
Maximum Current Rating	750 A
Size	253mm x 275mm x 960mm 9.9"L x 10.8" H x 37.8" W
Weight Approximately	165 lbs

Communication

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



Specifications

Performance

Run Time, Load	1 min	402 kW
	2 min	245 kW
	3 min	189 kW
	4 min	138 kW
	5 min	125 kW
0-99% Recharge Time	<15 min	
Energy, 1 hour (1C rate)	12.4 kWh	
Energy Efficiency (1C-1C)	>97%	
Coulombic Efficiency (1C-1C)	>98%	
Cycle Life (90% Energy Utilization)	>50,000	

Electrical

Nominal Voltage	480 Vdc
Recommended Float Voltage	580 to 590 Vdc
Operating Range	380 to 590 Vdc
Survival Voltage Range	0 to 800 Vdc
Maximum Discharge Current	750 Amps
Maximum Charge Current	750 Amps
Single System Parallel Capacity	5.5 mW Nominal 14
Emergency Power Off (EPO)	Optional

Thermal

Operating Temperature Range	-20 ° to +45 °C / -4° to 113°F
Survival Temperature Range (1 hr)	-50 ° to +50° C / -58° to 122°F
Optimal (Consult factory for rating/duration)	-10 ° to +35 °C / 14° to 95°F

Monitoring and Communications

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

Mechanical

Exterior Rack Dimensions (H x W x D)	1980 x 630 x 1080 mm / 78 x 24.9 x 42.4 in
Mass	1080 kg / 2381 lbs
Seismic mounts available	
Top cable entry, others optional	
Busbar/stud terminations	

Applications

UPS	Data Centers, Mission Critical Facilities
Telecom	Backup power on and off-grid sites
EV Fast Charging	
Fuel Cell	Bridging, power ramping, load balancing
Behind-the-meter energy storage and grid services	

Additional Information

https://natron.energy/resources/resource-library

Contact:

General inquiries:
www.natron.energy Contact button

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 works with established pigment producers and Li-ion cell OEMs to deliver quality products via massively scalable manufacturing processes.