

Blue Pack™ Industrial Power Battery

Safe, Reliable, High-Power on Demand

Critical Power Applications 48v to 812v*

- Breakthrough sodium-ion cells based on Prussian blue electrodes
- Full recharge in 15 minutes or less, ready immediately
- No settling or thermal waiting required
- UL9540A 'Champion' rated nonflammable with no thermal runaway under any condition
- >100,000 cycles
- Wide temperature operating range
- Twice the power of lithium-ion
- Round-trip efficiency >97%
- Designed for industrial power, EV fast charging, industrial mobility, grid services, decarbonization, peak shaving, and more.



Features



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



**Nonflammable
Chemistry
& Construction**

UL listed and independent safety study confirmed



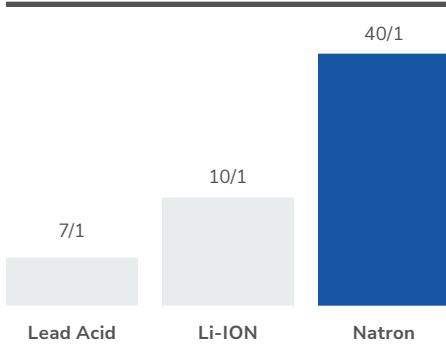
**Industry leading
power capacity
& performance**

* For other voltages, please consult factory.

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

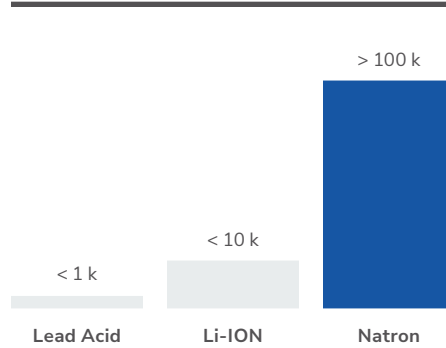
High Power

Max Sustained Power per Energy (W/Wh)



Long Life

Deep Discharge Cycle Life



Safe and Fault Tolerant

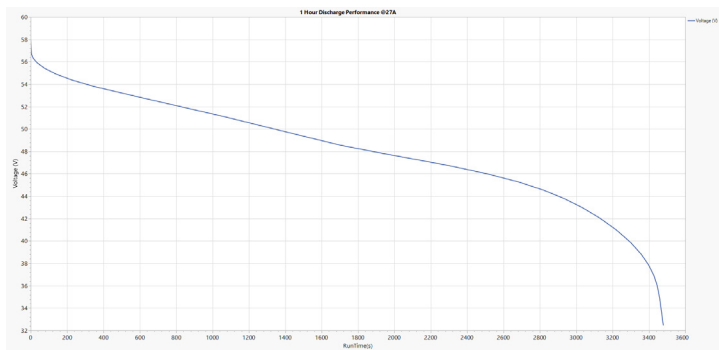
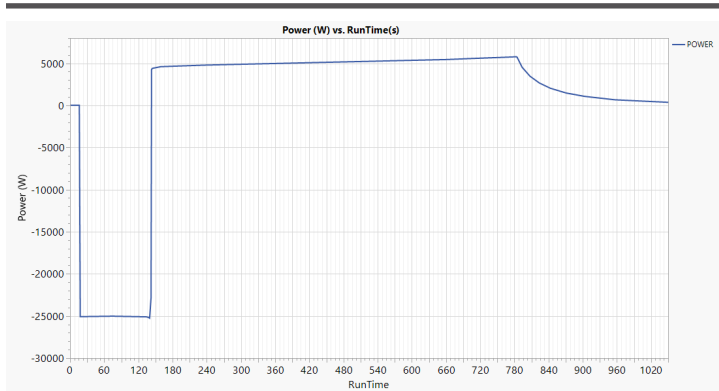
No Fire or Explosion During

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

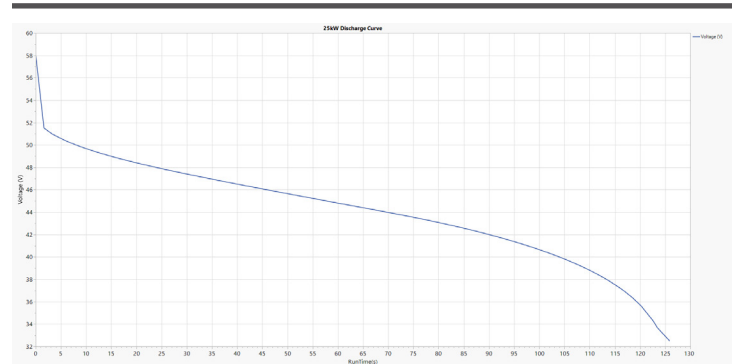
High Power

Over 25 kW sustained discharge

Power vs. Run Time



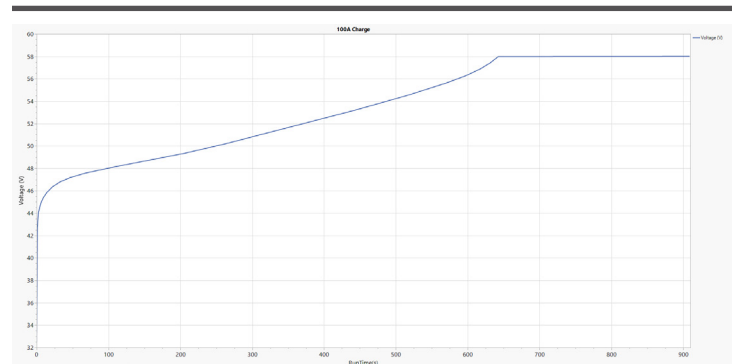
Discharge Performance



Fast Recharge

Full 0 to >99% recharge in ≤15 minutes

Fast Charge Performance (16C, CC - CV)

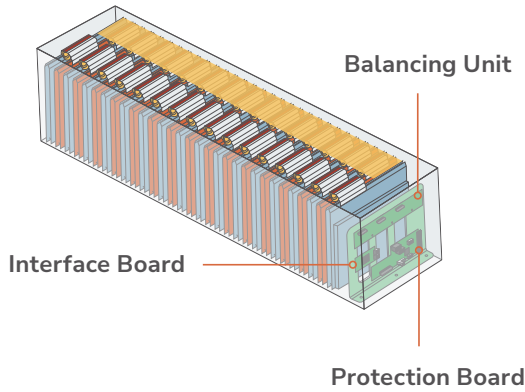


Example shown is a 100 amp charge current.

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

Controls



No BMS necessary! Natron’s chemistry is so safe that thermal runaway is not possible. Our onboard circuitry provides only for charging, cell balancing and communications.

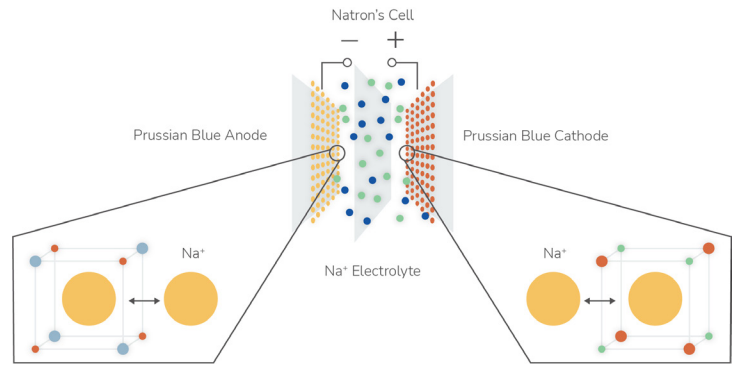
Specifications

Performance

Run Time, Load	1 min	40 kW
	2 min	25 kW
	3 min	19 kW
	4 min	15 kW
	5 min	13.5 kW
0-99% Recharge Time	<15 min*	
Energy, 1 hour (1C rate)	1270 Wh	
Energy Efficiency (1C-1C)	>97%	
Coulombic Efficiency (1C-1C)	>99%	
Cycle Life (90% Energy Utilization)	>100,000	
Watt Hours per liter	20.2 Wh/L	
Peak Power per liter, 1 minute	636 W/L	
Self Discharge Rate	.7% SOC/day	
Temperature Rise - 1st 25kW Discharge	12°C/53.6°F	
Temperature Rise - 1st 100A Charge	-4.5°C/-23.9°F	
Watt hours per Kg	16.9 Wh/Kg	
Peak power per Kg	533 W/Kg	

*Depending on charge current

Sodium-ion and Prussian Blue Chemistry



Sodium-ion 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 rare-earth materials or caustic metals.

Electrical

Nominal Voltage	48 Vdc	
Recommended Float Voltage	58 to 59 Vdc	
Operating Range	32 to 59 Vdc	
Survival Voltage Range	0 to 80 Vdc	
Maximum Discharge Current	800 Amps	
Maximum Charge Current	800 Amps	
Maximum Allowable Voltage	58 Volts	
50% SOC Voltage	49 Volts	
Cutoff Voltage	32 Volts	
Nominal Energy, 1 hour	1300 Wh	
Nominal Capacity, 1 hour	26.5 Ah	
Charge Capabilities (25°C)	0-99% Recharge Time	≤15 minutes
	Maximum Charge Voltage	58.5 Volts
	Maximum Inrush Current (1s)	4500 Amps
Series Operation	48V to 812V (14 pack string) Consult factory for other voltages	
Parallel Operation	Up to 100Mw Consult factory for system configuration	



Specifications

Thermal

Operating Temperature Range	-20° to +50°C / -4° to 122°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
Nominal Temperature Range	10° to 20°C / 50° to 68°F
Rated Transportation Temperature Range*	-20° to +50°C / -4° to 122°F
Humidity (Non-condensing)	10-90% Rh

Mechanical

Exterior Dimensions (HxWxD)	246x269x951mm / 9.7x10.6x37.4in
Mass	75 kg / 165 lbs
Lifting mechanism available	
Front terminal connections	

*Up to 2 weeks at >50°C / >122°F

Monitoring and Communications

Battery, Voltage, Charge, Power, Temperature	
Supported communication protocols	Modbus TCP/IP

Applications

EV Fast Charging	Automotive, Aviation, Mining
Fuel Cell	Bridging, power ramping, load balancing
Motive/GSE	Consult Factory
Industrial Power/Decarbonization	Oil and Gas Platforms, Mining, Water Treatment and Management
Grid Services/Renewables/Solar	Peak Shaving, Dark Starting, Grid Forming, Dispatchable VPP

Additional Information

natron.energy/product

Contact:

General inquiries: info@natron.energy

Careers: jobs@natron.energy

Natron Energy, Inc.
3542 Bassett Street
Santa Clara, CA 95054

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.