

# BluePack™

## Industrial Power Battery

Safe, Reliable, High-Power on Demand

### 48VDC Building Block

- Breakthrough sodium-ion cells based on Prussian blue electrodes
- UL9540A 'Champion' rated nonflammable cells with no thermal runaway under any condition
- UL1973 Recognized
- Can recharge in less than 14 minutes
- No thermal settling or waiting required after recharge
- No active cooling necessary
- >50,000 discharge cycles
- Wide temperature operating range
- Round-trip efficiency >97%
- No conflict materials
- Designed for critical power applications



#### Features



##### Rapid Cycle-Rate

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



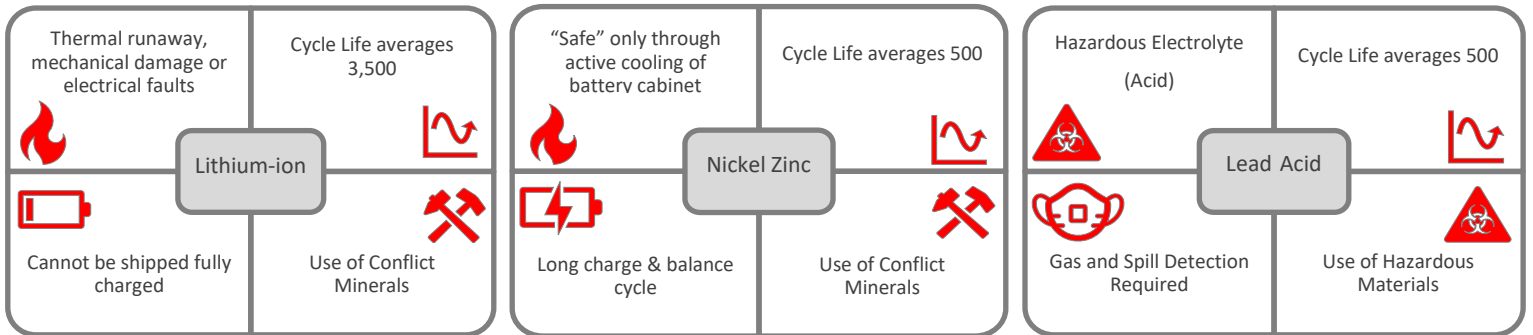
##### Industry leading power capacity & performance



##### Nonflammable Chemistry & Construction

Industry leading system-level availability

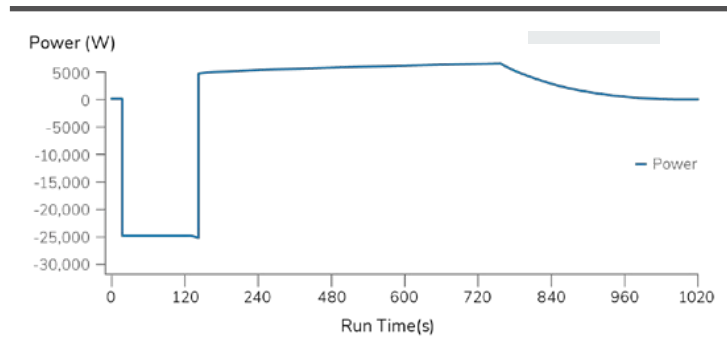
# Introducing the Industry’s Highest Power, Highest Cycle Life, Safest Battery\*



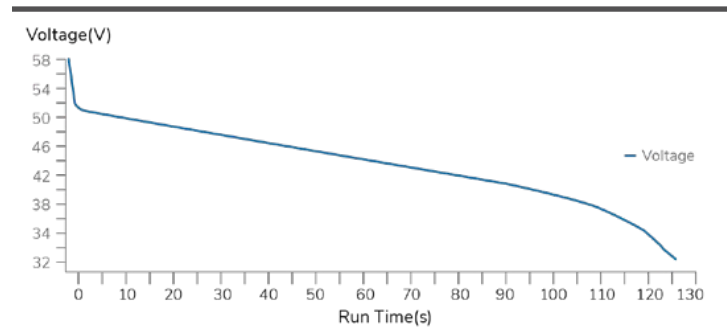
## High Power

Over 25 kW sustained discharge

Power vs. Run Time



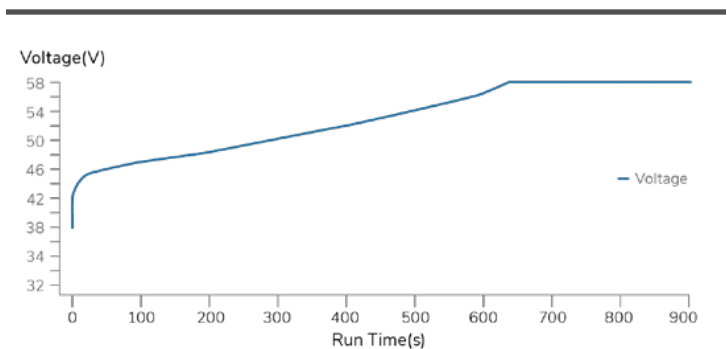
## Discharge Performance



## Fast Recharge

Full 0 to >99% recharge in just 15 minutes

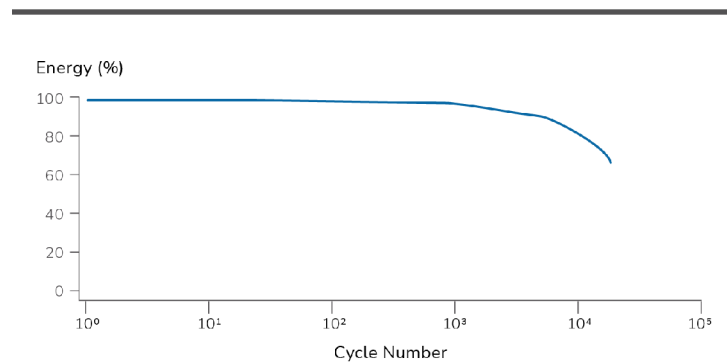
Fast Charge Performance (16C, CC - CV)



## Long Life Cycle

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

Cycle Life >90% Energy Utilization



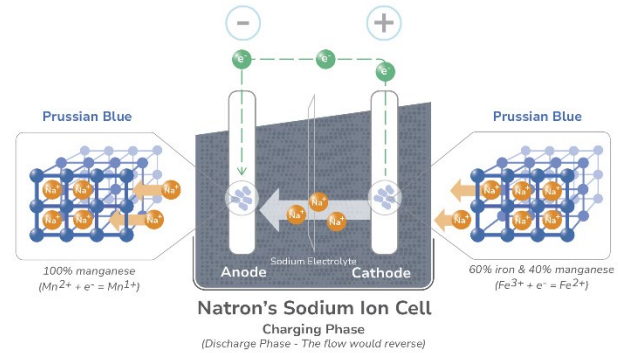
Preliminary specification subject to final product release.

\* 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.



## 250 kW Cabinet – 10 BluePacks™ in Series



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

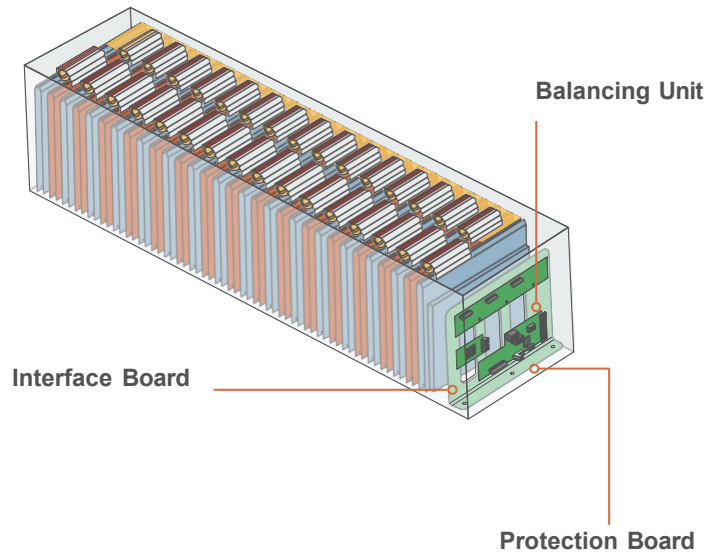
### BluePack™ Spec

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	44 kW
	2 min	27 kW
	3 min	20.2 kW
	4 min	15.8 kW
	5 min	14 kW
0-99% Recharge Time	<14 min	
Energy, 1 hour (1C rate)	12.7 kWh	
Energy Efficiency (1C-1C)	>95%	
Coulombic Efficiency (1C-1C)	>97%	
Cycle Life (90% Energy Utilization)	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 Dimensions (H x W x D)	246 x 269 x 951 mm
	9.7 x 10.6 x 37.4 in
Mass	75 kg / 165 lbs
Connections	Front terminal lugs
Orientation	Horizontal

### Electrical

Nominal Voltage	48 Vdc
Recommended Float Voltage	58 to 59 Vdc
Operating Range	32 to 59 Vdc
Nominal Discharge Current	550 Amps
Maximum Discharge Current	750 Amps
Maximum Charge Current	750 Amps
Module to Module Communication	CAN

### Monitoring and Communications

Parameters:	Voltage, Charge, Power, Temperature
Supported communication protocols	CAN
	Contact factory for other protocols

### 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](https://natron.energy/product)



### Contact:

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**Careers:** [jobs@natron.energy](mailto: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.