



StratoForse

Start Battery

Sodium Ion Technology

User Manual v1.2

Thank you for choosing Aeson Power's sodium ion battery technology for your vehicle.

This user manual provides information so you can get the most from your investment. More technical details and specifications are available in the series datasheet.

Application

The StratoForse series are automotive Start batteries using Sodium Ion (Na) Technology. They are not designed for UPS/standby or deep cycle applications.

StratoForse

Strato comes from the Greek stratos (στρατός), meaning "army" or "layer". In modern use (e.g., stratosphere), it conveys elevation, stability, and high performance. Our sodium ion cathode material provides a unique 3-D layer for reliable strength.

Forse is a stylized form of the Latin-derived fortis (via Italian forza), meaning "strong", "forceful", or "powerful".

StratoForse suggests "elevated power" or "layered strength"—ideal for a sodium-ion battery brand.

Sodium Ion Technology

Sodium Ion Technology will provide you with many benefits. Its energy is derived from one of the most clean and common materials on the planet – salt (Sodium Chloride = NaCl). Its performance exceeds any lead battery and is like a lithium battery.

However, it is different in some key areas, chiefly it doesn't suffer from very cold or very hot temperatures, and crucially, it doesn't suffer from thermal runaway, which results in battery fires.

1. Fire Safe – Thermal Stability
2. Unmatched Working Temperature Range
3. Extreme Start Discharges
4. Recovers from 0 Volts without severe damage
5. Super High Cycles
6. Cyclic Capable
7. Very Fast Charge and Discharge Speed
8. Light Weight – 60% of a traditional lead battery
9. Environmentally Friendly – no toxic lead, acid, or hard to recycle lithium
10. Long Warranty

Recommended Use

StratoForse are designed to start vehicles with internal combustion engines (ICE) such as cars, SUV's, 4X4's, and light commercial vans. While powerful, it is important to correctly match the battery to the vehicle for long life. Our sodium ion technology delivers an extreme quantity of starts – up to 120,000.

Safety Warnings

- Unauthorized disassembly is prohibited. Disassembling the battery may cause short circuits, heat generation, and fire risks. It could also lead to electrolyte leakage from the cells, polluting the environment.
- Assume the electrolyte inside the cells is toxic. Non-professionals should avoid contact. Users should wear protective eyewear and rubber insulated gloves when operating the battery and use insulated tools.
- Keep the battery away from heat sources and open flames and avoid direct sunlight.
- When installing the battery, use insulated tools to avoid short circuits, fires, or even explosions.
- Do not short-circuit the battery terminals.
- Handle the battery with care to avoid mechanical shock.
- Do not immerse the battery in water or expose it directly to rain.
- Ensure correct polarity when connecting the battery. Never reverse the connections.
- Do not mix this battery with other types or specifications of batteries.
- Keep the cells away from children.
- Dispose of the battery safely through professional institutions.

Emergency Handling

- In case of electrolyte leakage, immediately submerge the entire battery in a container filled with water and move it away from people.
- Contact professional personnel or the battery dealer for proper disposal.
- If the electrolyte contacts the eyes or skin, rinse immediately with large amounts of water.
- Seek medical attention if necessary.

Installation Instructions

1. Preparation:

- Ensure engine and all electronics are off.
- Clean terminals and remove corrosion from the battery tray.
- Check that the replacement battery matches OEM specifications in terms of external dimensions, terminal/post orientation and size, and performance such as CCA.
- Connect a separate, second 12V battery to back-up the car's electrical system and provide power to the computer and other electronics.
- If possible, turn off the vehicle's alarm, so it does sound if power is lost during battery change-over.

2. Removal:

- Disconnect the **negative (-)** terminal first.
- Disconnect the **positive (+)** terminal.
- Remove any hold-down brackets and carefully lift out the old battery.

3. Installation:

- Insert the new sodium-ion battery into the tray.
- Secure with hold-down brackets.
- Connect the **positive (+)** terminal first.
- Connect the **negative (-)** terminal.
- Check that terminals are tight and apply terminal protector spray.
- Disconnect the separate, secondary 12V back-up battery.
- Reset the vehicle's alarm system.

4. Connection:

- Parallel – maximum of 3 batteries
- Series - maximum of 2 batteries

5. System Reset (if needed):

- Some vehicles may require battery registration or ECU reset after replacement.

Operating Conditions

- **Operating Voltage Range:** 10.5V to 14.8V
- **Operating Temperature:** -30°C to +80°C

Charging Guidelines

- Sodium-ion batteries are compatible with standard automotive alternators.
- If charging with an external charger:
 - Recommend using a smart charger compatible with lithium or sodium ion batteries that can charge from 0.0 volts.
 - **Do not** use any kind of battery recondition mode. It will be ineffective and may cause cell damage.
 - A lead battery charger can be used, but **do not** use a de-sulphation mode. It will be ineffective and may cause cell damage. Chargers often test a lead battery for sulphation using low voltage, then start the pulsing technique of de-sulphation mode. Sodium ion batteries are different. They do not suffer from sulphation and much lower voltages

are normal. Poor quality or damaged chargers may spike voltages in a recondition or de-sulphation mode and may damage the cell.

- Another recommended charging method is constant current, or power supply, charging to 14.6V, until the current drops to 2A, indicating the end of charging.
- **Avoid overcharging:** Prolonged voltages >15V may shorten lifespan.
- Charging Voltage Range: 6V ~ 14.6V
- Charging Temperature Range: 0°C ~ +80°C
- Recommended charge Voltage: 14.6V
- Recommended charge rate for max. cycles: 0.5C
 - Example: If battery is 40Ah, then recommended charge current is 20A.

Maintenance & Storage

- No maintenance required under normal operation.
- Self-discharge (excluding vehicle loads) ≈ 3% per month
- For long-term storage (>3 months):
 - Store at 30–100% state of charge.
 - Disconnect from vehicle or parasitic loads.
 - Recharge every 6 months to maintain performance.

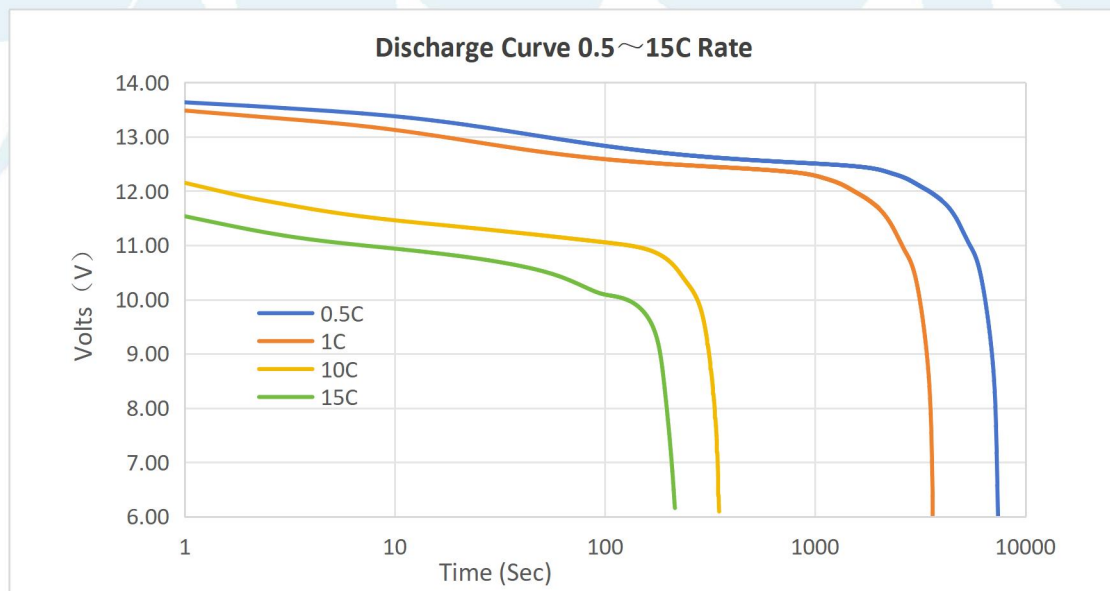
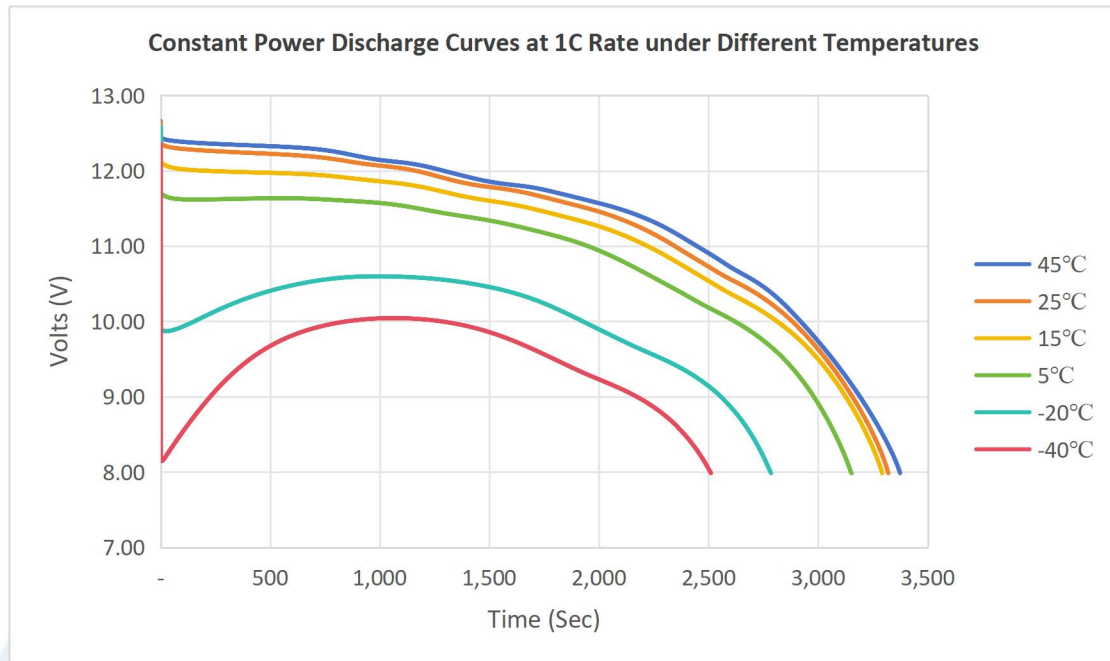
NOTE: 6V = 0% State of Charge (SoC)

Transport

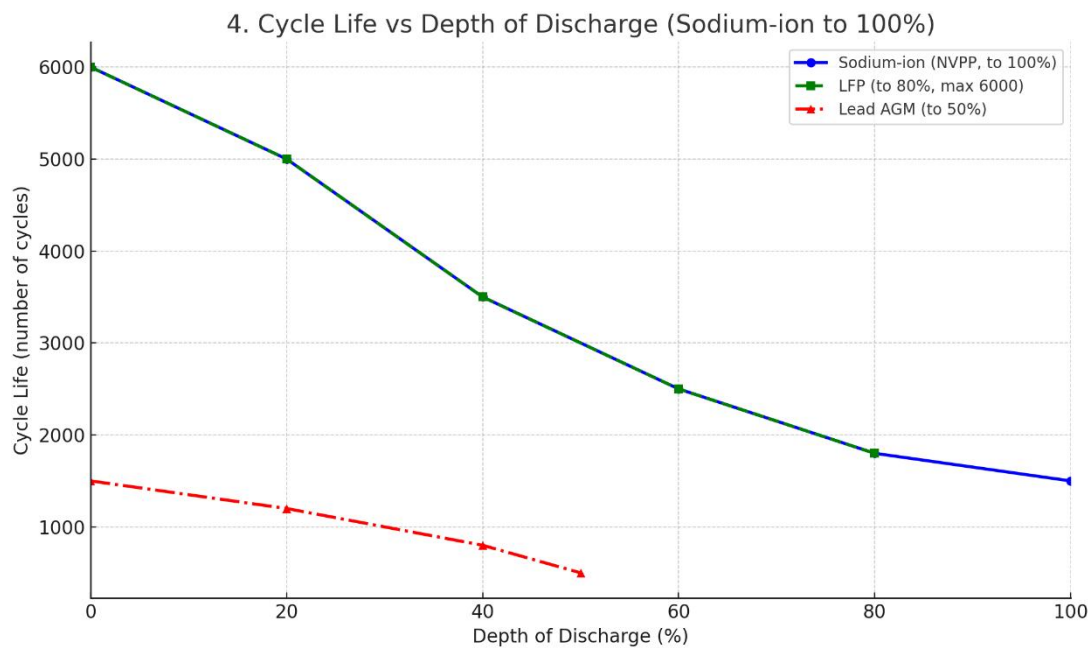
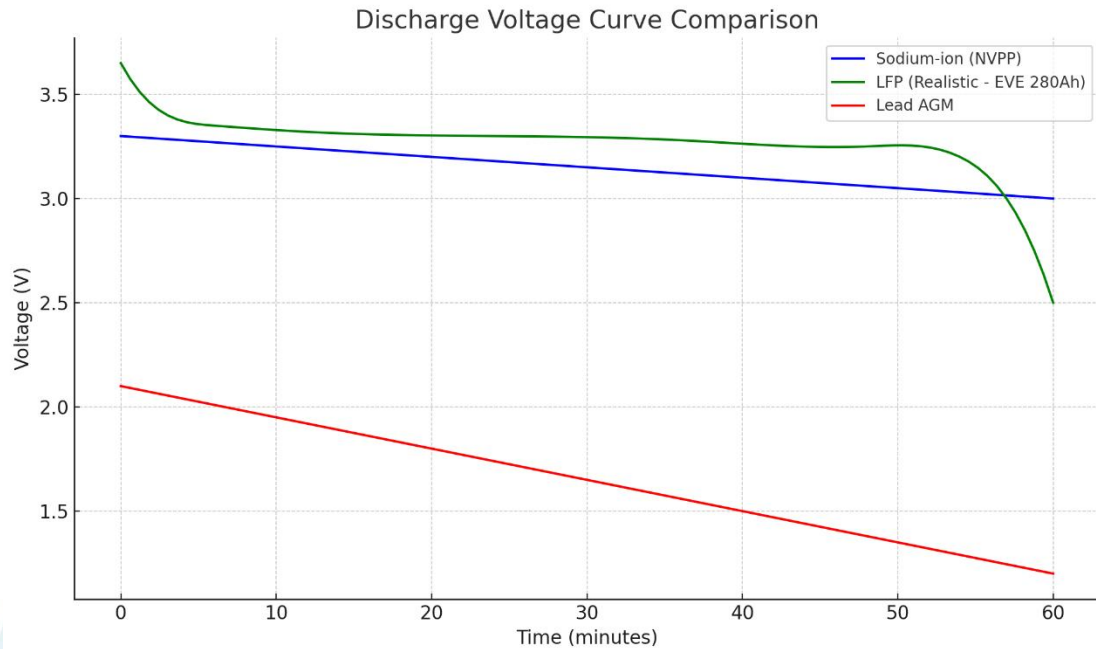
- This battery can be discharged to zero 0 volts for short periods of time for safe transportation.
- Self-discharge (excluding vehicle loads) $\approx$ 3% per month
- For long-term storage (>3 months):
 - Store at 30–100% state of charge.
 - Disconnect from vehicle or parasitic loads.
 - Recharge every 6 months to maintain performance.

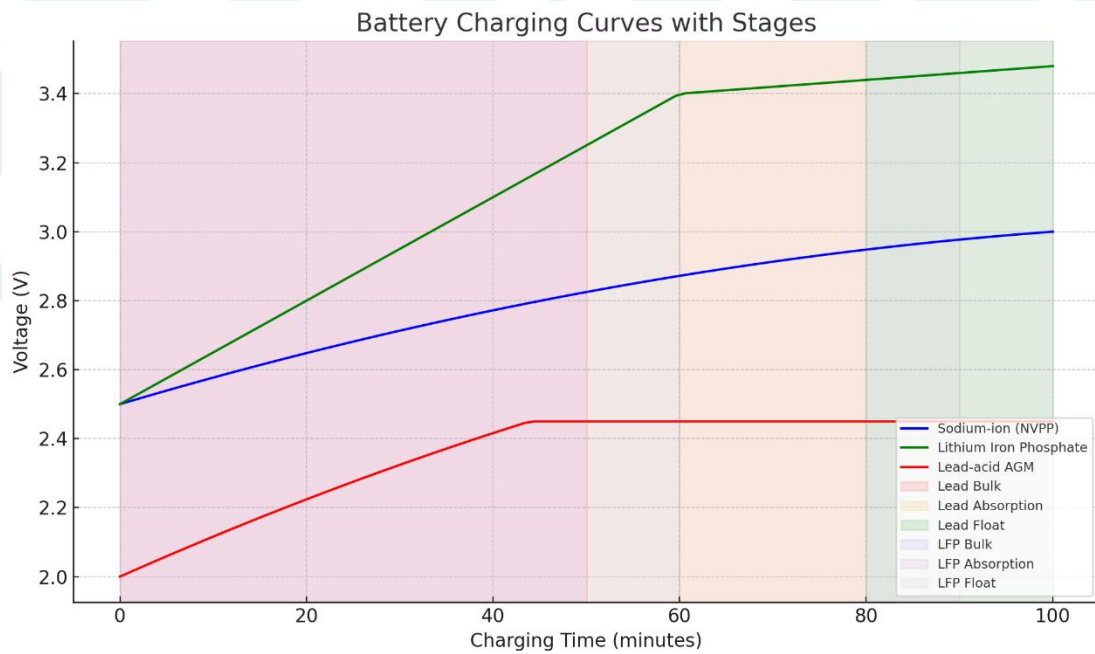
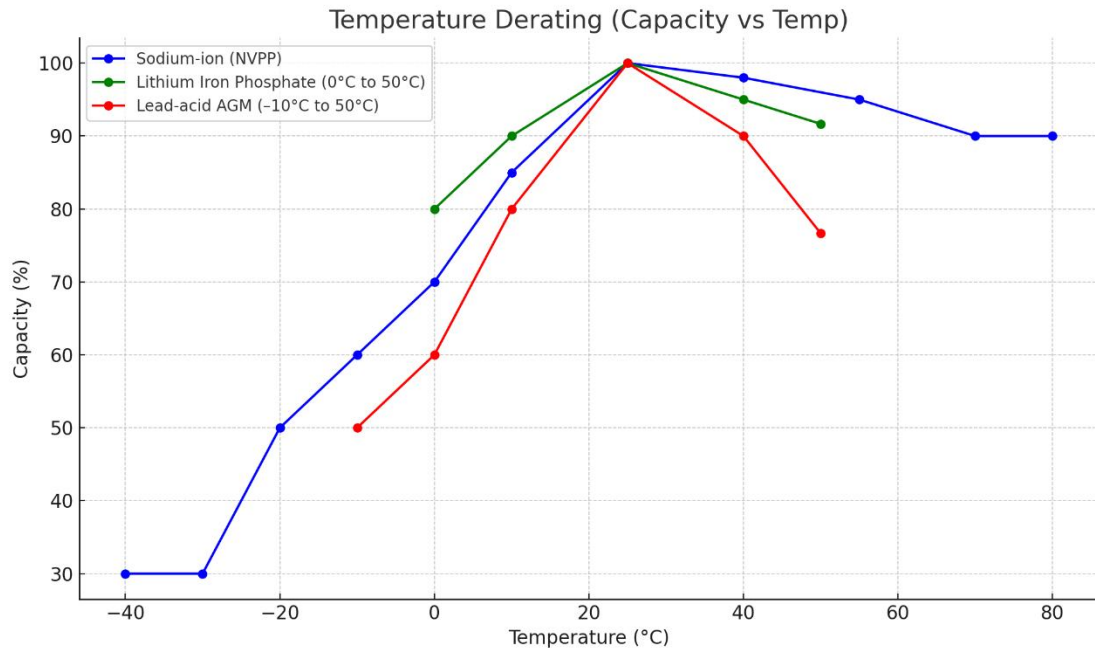


Sodium Ion Start Battery Performance



Comparison Graphs – Sodium Ion v Lead v Lithium





Troubleshooting

Issue	Possible Cause	Solution
Engine fails to start	Battery voltage too low	Recharge or replace battery
Repeated restart failures	Battery undersized or faulty stop-start system	Check OEM spec; consult mechanic
Swollen case	Overcharging or thermal exposure	Replace battery, check alternator output
Battery drains quickly	Parasitic draw in vehicle	Check for power drains with technician

Disposal & Recycling

Do **not** dispose of the battery in general waste. Sodium-ion batteries are non-toxic but must be recycled through licensed battery recycling programs.

Recycling Locations (Australia):

- Your Local Council Recycling Station

Warranty

Refer to Warranty document for this battery Series.

Warranty covers defects in materials and workmanship but excludes damage from misuse, improper installation, improper charging or vehicle electrical faults.

Contact Details

This product is manufactured by Aeson Power Pty Ltd (ABN: 94 631 781 121) of:

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If you have any queries in relation to this document, you can contact Aeson Power:

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