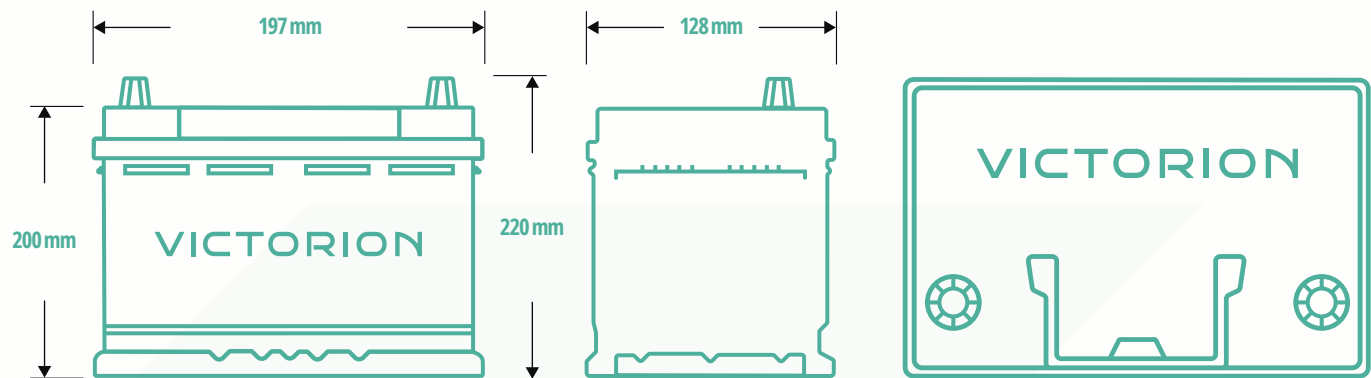


# NA1230 Sodium-ion Starter Battery

## Battery Appearance & Dimension



Connector definition:

| Item                            | Specification |
|---------------------------------|---------------|
| Positive and negative terminals | SAE           |

| Item               | Dimension |
|--------------------|-----------|
| Length             | 197mm     |
| Width              | 128mm     |
| Total height       | 220mm     |
| Height to top edge | 200mm     |

## General Parameter

| Item                         | Parameter                                       |              |
|------------------------------|-------------------------------------------------|--------------|
| Rated power                  | 12V 30Ah (Cell: 3.0V 10Ah, Configuration: 4S3P) |              |
| Energy                       | 360Wh                                           |              |
| Standard charge voltage      | 15.6V (Single cell: 3.9V)                       |              |
| Charge method                | CC-CV                                           |              |
| Max charge current           | 30A                                             |              |
| Cut-off voltage              | 8V (Single cell: 2.0V)                          |              |
| Continuous discharge current | 100A                                            |              |
| Peak discharge current       | 200A @5s                                        |              |
| Starting current             | 400±50CCA                                       |              |
| Total weight                 | 5 kg                                            |              |
| Impedance (Max, at 1000Hz.)  | <50mΩ                                           |              |
| Operation temperature range  | Charge                                          | -20~60 °C    |
|                              | Discharge                                       | -30~65 °C    |
| Storage environment          | Temperature                                     | 0~45 °C      |
|                              | Humidity                                        | ≤75%RH       |
| Cycle life                   | 1C@DOD100%                                      | ≥2500 cycles |
|                              | 0.2C@DOD100%                                    | ≥4000 cycles |
| Self-discharge rate          | ≤3%/Month                                       |              |
| Battery dimension            | L=197±2mm                                       |              |
|                              | W=128±2mm                                       |              |
|                              | H=220±2mm                                       |              |

## Performance & Test Condition

| Item                                       | Standard                                        |       | Testing Method                                                                                                                                                                                        |
|--------------------------------------------|-------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated capacity                             | 30Ah                                            |       | After standard charge, discharge @0.5C current to the end of discharge voltage, cycles for three times. One cycle capacity arrive standard, that's to say it is qualified.<br>(The below as the same) |
| Capacity retention rate                    | Remain capacity<br>≥ standard capacity<br>* 97% |       | After standard charging, store at 25°C±5°C for 1 month, and then discharge capacity @0.2C current to the end of discharge voltage, Then measure the capacity of cell.                                 |
| Cycle life                                 | Capacity<br>≥ Standard capacity<br>* 80%        |       | After standard charge, discharge @0.2C current to the end of discharge voltage. Rest for 1h, cycles for 4000 times.                                                                                   |
| Internal Impedance                         | <50mΩ                                           |       | @50% SOC @1kHz AC internal resistance test instrument.                                                                                                                                                |
| Discharge temperature characteristic @0.2C | -30°C (12h)                                     | ≥75%  | Capacity @specified temperature/Capacity @25°C.                                                                                                                                                       |
|                                            | -20°C (12h)                                     | ≥85%  |                                                                                                                                                                                                       |
|                                            | 0°C (12h)                                       | ≥90%  |                                                                                                                                                                                                       |
|                                            | 25°C (12h)                                      | ≥100% |                                                                                                                                                                                                       |
|                                            | 45°C (12h)                                      | ≥100% |                                                                                                                                                                                                       |
|                                            | 60°C (12h)                                      | ≥95%  |                                                                                                                                                                                                       |

\* Any other items which are not covered in this specification shall be agreed by both parties.

## Storage & Transportation

- Based on the character of cell, proper environment for transportation of Sodium-ion battery pack need to be created to protect the battery.
- During transportation, 30%-50% SOC must be kept; Avoid short circuit, prevent the liquid from entering the battery pack or immersing in the liquid (such as water, oil, etc).
- Battery should be kept at 0°C~45°C in warehouse where it's dry, clean and well-ventilated.
- During loading of battery, attention must be paid against dropping, turning over and serious stacking.

## Warnings & Tips

In order to prevent the battery leaking, getting hot and exploding, please pay attention to preventing measure as following:

### WARNING!

- Never throw the battery into water, keep it under dry, shady and cool circumstance when not use.
- Never upside down the positive and negative.
- Never connect the positive and negative of battery with metal.
- Never ship or store the battery together with metal.
- Never knock, throw or trample the battery.
- Never cut through the battery with nail or other edge tool.

### NOTICE!

- Never use or keep the battery under the high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life. The proposed temperature for long-term storage is 0-45°C.
- Never throw the battery into fire or heating machine to avoid fire, explosion and environment pollution; scrap battery should be returned to the supplier and handled by the recycle station.
- Never use the battery under strong static and strong magnetic field, otherwise it will destroy the protecting device.
- If battery leaked, the electrolyte get into eyes, please don't knead, please wash eyes by water and send to hospital. Otherwise it will hurt eyes.
- If battery emit peculiar smell, heating, distortion or appear any unconventionality during using, storage or charging process, please take it out from device or charge and stop using.
- Never cut the battery in socket directly; please use the stated charger when charging.
- Check the voltage of battery and relevant connectors before using the battery. It can't be used until everything turns out to be normal.
- The battery should be stored in half SOC. It needs to be charged once if out of use for as long as half a year.
- Clean the dirty electrode, if any, with a clean dry cloth, or poor contact or operation failure may occur.
- If the battery pack is used in series or in parallel, it must be ensured that the battery pack has the same charge and the pressure difference is within 50mV.
- In case of fire use CO2 fire extinguisher.