

# User Guide

## Prometheus II - 12 V Sodium-Ion Starter Battery

**Model:** SIB12V60P2 (60 Ah, 4S6P)

**Revision:** B/0

**Date:** 2026-06-23

Prepared by	Reviewed by	Approved by
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Kagen Lim	Wonje Jeon	Wonje Jeon
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### Revision History

Revision	Note	Changed by	Date
A/0	Creation	Kagen Lim	2025-06-27
B/0	Updated maximum continuous charge current to 100 A	Wonje Jeon	2026-06-23

## **Introduction**

The Prometheus II is a commercial drop-in replacement for lead-acid PRO DIN45, PRO DIN55, and DIN66 starter models, built around novel sodium-ion cells that deliver a long service life. It is designed to be compatible with standard 12 V vehicle electrical systems and integrates with existing alternators, starters, and electrical loads without significant modification. This compatibility ensures ease of replacement and minimises disruption to vehicle operations. The Prometheus II can sustain 100 % depth of discharge without significant degradation, making it suitable for frequent start-stop operation, and it performs reliably across a wide temperature range, including extreme cold and hot environments critical for automotive applications.

# Overview

The Prometheus II can be carried using the included handle, and standard automotive battery connectors can be used to connect the battery to the vehicle electrical system.

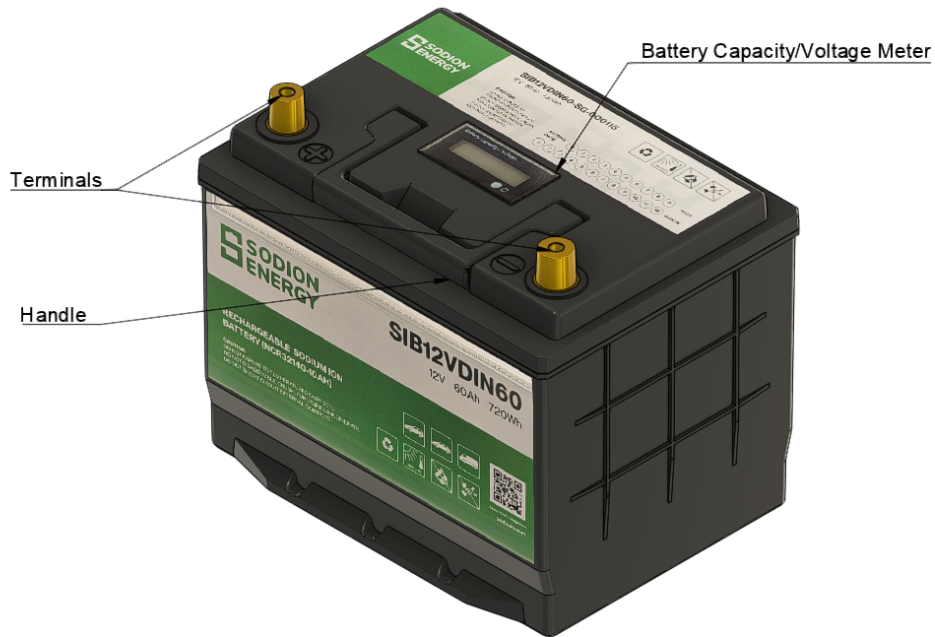


Figure 1: Features of Prometheus II

The specifications of the Prometheus II 60 Ah (SIB12V60P2) are as follows:

Group	Parameter	Value
<b>Performance</b>	Battery type	SIB12V60P2
	Nominal rated voltage	12 V
	Operating voltage	6 V to 16 V
	Nominal capacity @ 100 % SOC	60 Ah
<b>Cycle life (25 ± 2 °C)</b>	Test method	Charge to 14.4 V at 0.5C, rest 5 min; discharge at 0.5C to 10.5 V, rest 5 min; repeat for 10,000 cycles. Capacity retention after 10,000 cycles ≥ 80 %.
<b>General parameters</b>	Dimensions (W x H x D)	230 x 175 x 200 mm
	Weight	7.6 kg
	Installation	Vehicle
	Cold cranking amps	600 A < 3 s; 1000 A short circuit

Group	Parameter	Value
	Working temperature	Charge: -20 °C to +60 °C; Discharge: -40 °C to +60 °C
	Operating humidity	5 % RH to 95 % RH
	Storage temperature / humidity	0 °C to +35 °C (< 60 % humidity)
	Storage SOC	0 % to 50 % SOC
	Installation environment / cooling / IP	Interior; natural convection; IP68 enclosure
<b>Charging / discharging parameters</b>	Recommended depth of discharge	90 %
	Standard continuous charge current	0.5C (at 25 °C and above)
	Standard continuous discharge current	0.5C (at 25 °C and above)
	Maximum continuous charge current	<b>100 A (~1.67C, at 25 °C and above)</b>
	Maximum pulse charge current	4C (at 25 °C and above)
	Maximum continuous discharge current	8C @ 0 to 60 °C; 2C @ -40 to 0 °C
	Maximum pulse discharge current	20C

Table 1: Prometheus II 60 Ah (SIB12V60P2) battery specifications. Highlighted row updated at rev B/0.

## Installation of Prometheus II

**Note:** If you are using flat washers, ensure the battery cable lug is contacting the base surface of the terminal, with the washer placed on top of the wire connection. Do not place the washer between the battery terminal and the battery wire; this creates high resistance and can cause terminal meltdown. Fasteners must be tightened to the appropriate torque for each terminal type.

### Preparation

1. Verify that the Prometheus II specifications match the vehicle requirements (voltage, capacity, and current ratings).
2. Ensure the vehicle alternator and electrical systems are in good working condition.
3. Ensure the battery terminals are clean and tight to avoid voltage drops.
4. Ensure the vehicle battery connectors use appropriate cable gauges.
5. Ensure the installation location has adequate ventilation to avoid accumulation of gases.

### Removal of existing battery

1. Disconnect the negative terminal first to prevent short circuits, followed by the positive terminal.
2. Carefully remove the old battery, avoiding contact with any leaking electrolyte or corrosion.

### Installation of Prometheus II

1. Place the Prometheus II in the designated tray, ensuring a secure fit to prevent unnecessary movement during vehicle operation.

### System check

1. Verify proper installation by testing the vehicle starting system and electrical components.
2. Check for any warning indicators on the dashboard related to the battery or charging system.

# Battery Capacity Monitor

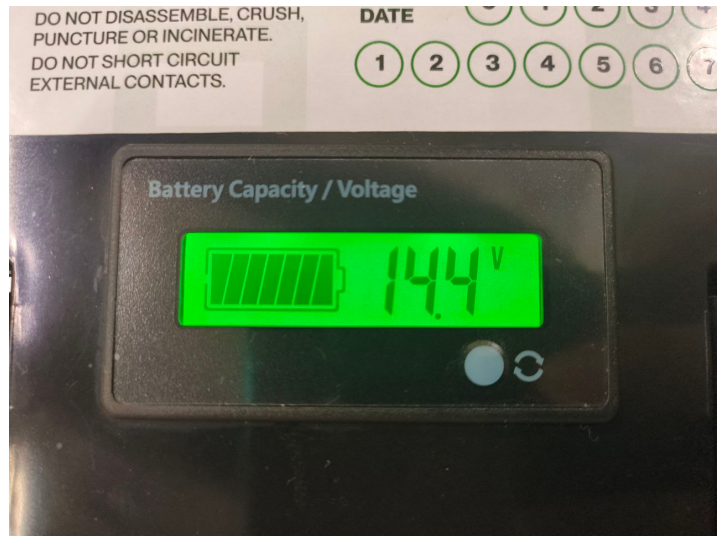


Figure 2: Features of the Battery Capacity Monitor

The battery charge is indicated according to the SOC chart below.

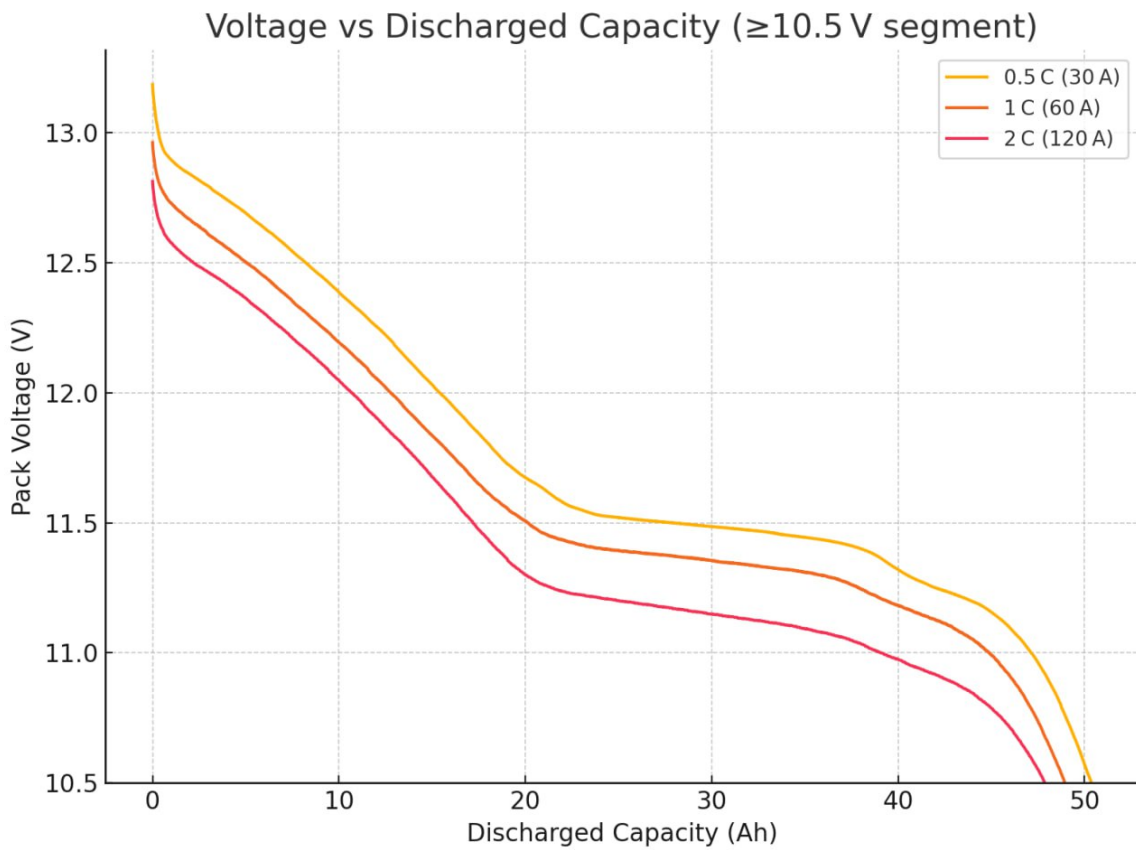


Table 2: Prometheus II 60 Ah pack voltage vs discharged capacity (SOC reference)

**Note:** The Prometheus II sodium-ion cells generally have an operating range of 1 to 2 volts. These SOC values are for reference only.

## Installing a Resettable Fuse

An optional resettable fuse can be integrated into the starter battery system to protect against electrical faults. The fuse is designed to trip when the current exceeds the safe operational threshold of 60 A due to short circuits, overloading, or prolonged high-current demand. This disconnects the battery from the circuit to prevent damage to the cells and the vehicle electrical system.

### Preparation

1. Ensure the battery is fully disconnected from the vehicle electrical system before beginning the installation.

### Connecting the fuse

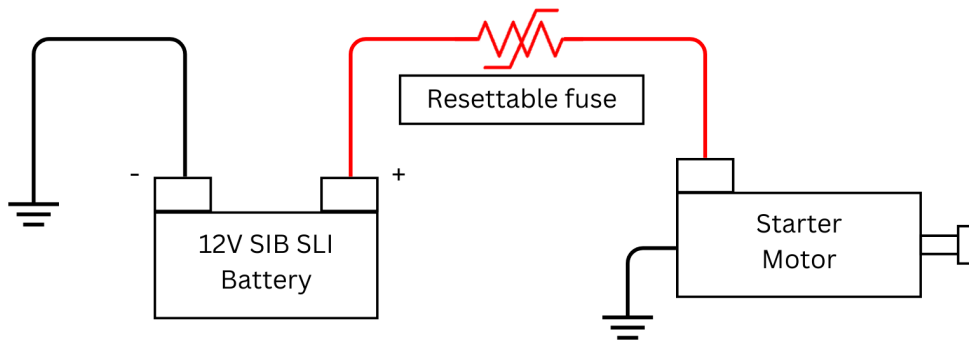


Figure 3: Battery circuit with optional resettable fuse installation

1. Install the resettable fuse securely in series with the positive (red) line of the circuit.
2. Verify that the connections are tight and that the fuse is positioned for easy inspection access.
3. Reconnect the battery to the vehicle electrical system, ensuring all connections are secure and properly insulated.

### Operation and troubleshooting

If the fuse trips due to a fault, follow these steps:

1. Inspect the battery and vehicle electrical system for possible causes, such as loose connections, damaged cables, or excessive electrical loads.
2. Once the fault condition is resolved, reset the fuse. Ensure the battery is in a safe state before reconnecting.
3. Test the vehicle starter and electrical components to confirm normal operation.
4. If the battery was heavily discharged during the fault, recharge it to restore the state of charge.

5. If the fuse trips again, contact Sodion Energy for further inspection of the vehicle electrical system.

## **Jumpstarting the Prometheus II**

If the starter battery is discharged below 60 % (battery voltage drops below 10 V) and cannot start the vehicle, jumpstarting may be required. Follow these steps to safely jumpstart the battery.

### **Preparation**

1. Ensure both the discharged vehicle and the donor vehicle or jump-starter device are turned off.
2. Use only compatible 12 V jump-starting equipment to avoid damaging the sodium-ion battery.

### **Connecting the cables**

1. Connect the positive (red) cable to the positive terminal of the discharged battery.
2. Connect the other end of the positive cable to the positive terminal of the donor battery or jump-starter device.
3. Connect the negative (black) cable to the negative terminal of the donor battery or jump-starter device.
4. Attach the other end of the negative cable to an unpainted metal surface on the engine block or chassis of the vehicle with the discharged battery. Avoid connecting directly to the negative terminal of the discharged battery to reduce the risk of sparks.

### **Starting the vehicle**

1. Start the donor vehicle or activate the jump-starter device.
2. Attempt to start the vehicle with the discharged battery. If it does not start within a few seconds, wait a minute before trying again.

### **Disconnecting the cables**

1. Once the vehicle starts, carefully disconnect the cables in reverse order: negative cable from the engine block or chassis, negative terminal of the donor battery, positive terminal of the donor battery, and finally the positive terminal of the discharged battery.

### **Recharging the battery**

1. Allow the vehicle to run for at least 20 minutes to recharge the battery through the alternator.
2. If the battery does not hold a charge, contact Sodion Energy to inspect the battery and charging system.

## Battery Transportation and Storage

The state of charge of the Prometheus II during transportation should be within 0 % to 50 %. During loading and unloading, handle the product with the utmost care; throwing, rolling, and heavy compression must be strictly avoided.

If the product is to be stored for a prolonged period (longer than one month), adjust the SOC to around 50 % periodically (every three months is recommended). Depending on storage temperature, the recommended recharge interval is:

Recharge interval (months)	Temperature (°C)
6	10 to 30
3	30 to 45
1	45 to 60

**Note:** The recharge intervals are for reference, and the SOC should not fall below 20 % during storage. These figures account for self-discharge of the Prometheus II only, not consumption from the BMS or other auxiliary equipment. Store the Prometheus II in a cool, dry location, protected from the elements and disconnected entirely from any equipment. When taking the battery out of storage for active use, check the SOC and recharge before use if required.

## Battery Handling

To avoid leakage, heating, combustion, or explosion of cells, observe the following:

1. It is strictly forbidden to immerse the Prometheus II in liquids. When not in use, store it in a cool, dry environment.
2. It is strictly forbidden to place the Prometheus II near high-temperature heat sources such as fire or heaters.
3. Do not strike, throw, trample, or bend the Prometheus II with excess force.
4. Do not pierce the Prometheus II with nails or other sharp tools.
5. It is recommended that Prometheus II cells are not used at high temperatures (above 70 °C).
6. Do not use the Prometheus II in places with strong static or magnetic fields.
7. If the Prometheus II leaks and electrolyte contacts your eyes, DO NOT RUB YOUR EYES. Rinse with clean water for 15 minutes, uninterrupted, and seek medical treatment immediately.
8. If there is any abnormality such as odour, heat, discolouration, deformation, or any other anomaly during use, storage, or charging, immediately remove the Prometheus II from the device and stop its use.
9. Check battery cables and connections. Replace any damaged cables and tighten any loose connections between the cable and the battery.
10. Disassembly of the Prometheus II is strictly prohibited. Cell replacement is strictly reserved to Sodion Energy and its cell suppliers. End users are not allowed to replace cells themselves.
11. Do not use damaged Prometheus II packs.

# Battery Preventive Maintenance

## Inspect the exterior

Examine the outer appearance of the battery. The tops of the battery and terminal connections should be clean, dry, and free of dirt and corrosion. The case should show no signs of cell expansion, which could cause bulging or splitting. If any cells have expanded, do not use the battery; dispose of it immediately in accordance with local regulations. Check the cables and connections; replace any damaged cables and tighten any loose connections. Do not crush or deform the terminals.

## Cleaning the exterior

Inspect the battery regularly and ensure terminals and connectors are free from corrosion, which can impair performance and pose a safety risk. Clean the top of the battery, terminals, and connections with a cloth or brush. If a cleaning solution is used, ensure it does not enter the battery. Keep the area around the battery clean and dry at all times.

## Battery Disposal

Avoid exposing the battery to extreme heat, water, or corrosive environments prior to disposal, as this may compromise its structural integrity.

Prometheus II batteries must be disposed of in an environmentally responsible manner according to regulations to avoid potential harm to the environment or human health. In Singapore, improper disposal of batteries is regulated under the Environmental Public Health Act and the Resource Sustainability Act.

Do not dispose of Prometheus II batteries in general waste bins or landfills, as this can lead to environmental contamination and fire hazards. Instead, take them to authorised e-waste recycling points or collection centres managed under Singapore's Extended Producer Responsibility framework for e-waste.

Prometheus II batteries are recyclable; materials such as sodium, metal casings, and other components can be recovered and reused. Ensure batteries are delivered only to licensed recyclers. In the event of a damaged or leaking battery, handle with care using appropriate protective equipment and contact authorised recycling centres for safe disposal.