



# SunCase 3651 User Manual

## WARNING

Read this ENTIRE user manual to familiarize yourself with the features of this product before operating. Failure to operate the product correctly may result in damage to the product or your personal property. It can cause serious injury as well. New Use Energy will not assume legal responsibility for any damage caused by improper use and care. DO NOT use the SunCase with incompatible components or alter the SunCase in any way. Otherwise, you cannot get after-sales service from New Use Energy under our warranty. These safety guidelines include instructions for operation and maintenance. It is important to read and follow all the instructions and warnings in the user manual before setting up or using the product.

## Included in the box:

1. SunCase 3651
2. PV Charging Cable (MC4 M&F to Blue SB50)
3. AC Charging Cable (IEC 6030-C13 to NEMA 5-15P)
4. User Manual

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# Product Safety Guidelines

**If instructions are not properly followed property damage and serious injury may result. Be sure to use this product in accordance with the following safety rules and guidelines.**

1. The SunCase 3651 is weather resistant for outdoor use but it is NOT WATERPROOF, and if water gets into the case it can damage the electronic components and battery. DO NOT allow water to get inside the case or submerge any part of the SunCase 3651. If the battery in the SunCase 3651 comes into contact with water, it may cause chemical decomposition of the battery. This could cause the battery to catch fire or explode.
2. Only use the SunCase 3651 in the rain if it is laying flat (i.e. with the NUE logo facing up) and will not be opened or positioned vertically (i.e. with the outlets facing up) without protection from the rain.
3. Do not block ventilation ports (fans) on both sides of the case to allow proper cooling operation of the unit
4. Never use or charge swollen, leaking, or damaged batteries. If your SunCase 3651 is emitting an unusual noise, odor or otherwise appears abnormal, contact New Use Energy for further assistance.
5. Never disassemble, pierce or subject the SunCase 3651 to undue shock. Otherwise, it may leak, catch on fire, or explode.
6. DO NOT use the SunCase 3651 if it was involved in a vehicle crash or similar impact.
7. If the SunCase 3651 falls into water during use, take it out of the water immediately and put it in a safe and open area. Keep a safe distance from it until it is completely dry. Do not use it again and dispose of it properly as described in the disposal section below.
8. DO NOT place heavy objects on the SunCase 3651. The only heavy object that should ever be put on a SunCase 3651 is another SunCase 3651 stacked on it when laying flat using the stacking holes/structure.

## FEATURES OF THE SUNCASE 3651



1. DC Switch – activates DC outlets including USC (A & C) as well as 12V (NOTE: the DC switch must be activated before the AC Switch and outlets can be used)
2. AC Switch – activates the inverter, allowing the 110V AC receptacles to be used
3. Color LCD Display (push button to activate)
  - a. Battery State of Charge (SoC) Level Display
  - b. Battery Voltage Display
  - c. Net Power flow (A)
  - d. Temperature indicator
  - e. Battery Status indicator: standby (“STBY”), charging (“CHG”), discharging (“DISCH”) or in an error state (“ERROR”)
  - f. % SoC Display
4. AC Out Receptacles (110V 15A Model shown)
5. AC Charging Inlet – to charge SunCase from an AC source such as a wall outlet
6. 12V DC Outlet (10A max)
7. USB Type-A & C Outlet
8. Serial Number : This code is your serial number for warranty claims and is how you can identify the unit when using the Bluetooth App.
9. Carry Handles
10. Clasps

## Right Side View



1. 48V DC (51.2V nominal) Red SB50 connectors
2. Exhaust fans
3. Clasps
4. Side Handle

## Left Side View



1. Solar charging port (Blue SB50 connectors) – 70V DC to 150V DC input range up to 1700W max
2. Intake fans

## Starting Up the SunCase 3651 for the first time

Note: The SunCase 3651 is shipped with security hardware to prevent the case from being easily opened and the Main Breaker inside is left in the ON position. To undo the security hardware you will need a wrench or long nose pliers and a Philips screwdriver. *However, you will not need to do this in order to start using the unit.*

To start using the unit:

- 1) Activate (briefly push down) DC switch – you will hear a beep and a green light will come on around the switch (see pic). This allows you to use the DC ports such as the USB chargers.



- 2) Activate (briefly push down) AC switch – you will hear a short beep and it will take approximately 3 seconds for the inverter to come on (the switch will be backlit to show it's ON). This allows you to use the 2 – 110V AC receptacles.



Your Suncase is now ready to use

# HOW TO CHARGE THE SUNCASE 3651

## FROM A SOLAR PANEL OR ARRAY

1. Check your solar panel (or array, comprised of multiple solar panels) to ensure that the input voltage is between 70V to 150V DC (the information is typically on the manufacturer's nameplate on the panel). IF YOU ARE NOT SURE WHETHER THE SOLAR PANEL/ ARRAY YOU INTEND TO CONNECT TO THE SUNCASE 3651 IS BETWEEN 70V – 150V DC PLEASE CONTACT YOUR SUPPLIER OR NUE DIRECTLY.
2. Attach the solar panel/ array using the industry standard MC4 connectors and the included cable to attach the MC4s to the SunCase's BLUE SB50 connector (see pic)
3. Breaker and DC switch must be ON for battery to accept a charge.
4. NOTE: it may take up to 30-45 seconds for the solar charge controller to activate and start charging the battery, once the solar panels are exposed to direct sunlight.



## FROM AN AC SOURCE (outlet or generator)

1. Take the included universal cable (see pic1) and attach it to the AC charging port (see pic). Plug the cord into an AC outlet (from the wall or a generator)
2. Breaker and DC switch must be ON for battery to accept a charge.
3. Please note that the unit will go on standby mode once it is 100% fully charged to protect the battery. This will require you to unplug power input and restart the unit



by using the “Turning on for the first Time” instructions provided earlier in this user manual to prepare your 3651 for use.



### Additional notes on AC charging:

1. Always use the New Use Energy approved charging cable shipped with the unit. While compatible with other extension cables, New Use Energy takes no responsibility for any damage caused by using a different cord.
2. The internal charger will provide approximately 30 Amps DC into the battery, or approximately 1,700 Watts. The maximum charge rate for the battery is 100A. NUE supplies external 20A and 30A chargers as accessories that can be used in parallel with the onboard charger to speed up the charging process. Please contact NUE or your dealer for more information.
3. When charging, please place the SunCase 3651 on solid ground with no flammable or combustible materials around.
4. DO NOT charge a SunCase 3651 immediately after handling a very high energy load, because the product's temperature may be elevated due to the load. Wait for the product to cool down to room temperature. Unit temperature can be measured on the BAT-BMS app discussed later in this manual.
5. DO NOT charge a SunCase 3651 outdoors during sub-freezing temperatures. (<32 °F or 0 °C)
6. DO NOT charge a SunCase 3651 if it is hot to the touch. (over 120 °F) The product is unsafe to charge when the internal temperature is outside the range of 32 to 130 °F (0 to 55 °C).
7. If you are charging from a gasoline or diesel generator, please follow all instructions and safety procedures for that generator and do so in a well-ventilated area outside.



# TECHNICAL SPECIFICATIONS

## Pure Sine Wave Inverter

Battery Type  
Storage Capacity  
Estimated Cycle Life based on an 80% Depth of Discharge  
(subject to other variables including temperature and load)  
DC Nominal Voltage  
Output Options  
  
AC 110/220V Output (x2)  
DC 12V Output (x1)  
QZ 3.0 Output (x3)  
Type-C Output (x3)  
Solar Charge Controller  
PV Charging Time with Max PV Input (from 80% DoD)  
AC Charger (built in)  
AC Charging Time (from 80% DoD)  
Circuit Breaker Protection  
Operating Temperature Range  
Weight  
Enclosure Dimensions  
  
Enclosure Rating  
Warranty and Certifications

## 3600W Continuous (7200W Surge)

Lithium Iron Phosphate (LiFePO4)  
5.12 kWh  
6,000  
  
48V (51.2)  
120V or 240V, 50/60Hz, All models have 48V, 12V, and 5V USB  
DC direct output  
3600W Continuous total output  
12-13V, 10A, 120W Max  
5V 3A, 9V 2A, 12V 1.5A, 18W Max  
5V 3A, 9V 2A, 12V 1.5A, 18W Max  
70-150V DC 1700W Max  
~4hrs  
1650W. External fast-charger optional. Max 100A charge rate  
~3hrs  
Built-in 80A, CHNT, Model#: NXB-125-1P  
32-131°F (0-55°C)  
123 lb (53 kg), (boxed gross: 135lb [61kg])  
(HxWxD) 28"x18"x11" (72x46x28 cm), Box Dimensions 39"x  
24"x17" (100x59x43cm)  
Conforms to IP54  
2-YEAR LIMITED MANUFACTURER'S WARRANTY, UL1973  
(cells), UN38.3 (cells) CE (cells), RoHS compliant (Cells), UL  
489 (Circuit Breaker), CSA C22.2 No. 5 (Circuit Breaker)

## BAT-BMS Bluetooth APP

For your convenience, a Bluetooth App called “BAT-BMS” can be downloaded for iOS or Android users from their respective App Stores . This allows users to view the SunCase battery’s state of charge (as a percent of total capacity), battery voltage, net power (coming in/out), battery cycles and other features.

NOTE: the BAT-BMS App also allows users to control battery charging and discharging through an ON/OFF switch that is linked to the BMS (battery management system)

### How do I access the Device’s Bluetooth App?

1. Visit the App store on your iPhone or Samsung device.
2. Search for “BAT-BMS”.
3. Download the app of that name in the “Utilities” category. Remember to give the app access to your Bluetooth and accessories.
4. Open the app. If your SunCase is nearby, it will appear as a device in the list. If there are multiple SunCases or NUE brand PowerPacs nearby, multiple devices will show up. Please use the serial number (which should be on a sticker on your SunCase) to identify the specific unit you would like to monitor. If your serial code has worn off, we recommend running a small load (e.g. a laptop computer) out of the AC outlet with the unit not being plugged in. This will appear as a 50-100W load. While going through your units, you will be able to match the unit to the load. If this doesn’t work please contact NUE and we can help you as best as possible.
5. Connect to the device you would like to monitor.
6. Open that device on the app. You will be given multiple pages. To get accurate up-to-date information check the RT page, which should have information direct from the BMS.

### Use the BAT-BMS Bluetooth app to monitor these measured values and parameters:

1. State of Charge % battery capacity remaining
2. Battery Voltage, Amps and Power
3. Single Cell Voltage to ensure they are from x to y. Display will highlight the highest and lowest cell voltages.
4. Charging switch status: ChgMos: ON [Charging Mode is on]
5. Discharging switch status: DisMos: OFF [Discharge Mode is on]
6. Balance ON/OFF
7. Protection ON/OFF
8. Review and record total discharge-charge cycles

9. Temperature readings for the BMS and the battery itself (Celsius and Fahrenheit).

On the “Control” screen the Charge Switch and Discharge Switch can be turned off and on

10. AutoBalance

11. Heating state: if available for your system ensure it is switched on

12. On the “Parameter” screen a wide range of protection and other parameters can be viewed.

13. Bluetooth device name can be customized under the “Basic Information” page

## FAQ

Q: Can you use the SunCase to power devices while it is charging (from a solar PV or AC source)?

A: Yes

Q: I opened my SunCase 3651 for the first time and followed the startup instructions but the unit won't turn on, what are my next steps?

A: If your SunCase 3651 is not charging and discharging out of the factory, even after following the above procedures, the most likely cause is that the unit was set with charge and discharge modes off at the factory. Please download the Bluetooth app, visit it, and switch the unit into charge and discharge mode (ie. switch those modes into on).

Q: Does the SunCase comply with OSHA “Lock out tag out” rules?

A: Yes. All you need to do is switch the Main Breaker into OFF position and place a lock on the outside of the case. None of the external switches or connections will be usable at this point.

Q: Is it possible to charge the SunCase from both an AC and a DC source at the same time?

A: Yes. You can charge the SunCase using both the AC charging port as well as using solar panels at the same time.

# Additional Product Information

## Product Storage

1. Keep the SunCase 3651 out of the reach of children.
2. DO recharge the SunCase 3651 regularly. To maintain maximum battery health, cycle (charge/ discharge) the battery every few months.
3. DO NOT completely discharge or recharge the battery before storage. Extended time at a very low OR very high State of Charge (SoC) may cause internal damage to battery cells. For long-term storage, ensure the battery State of Charge (SoC) is between 50 and 70% of full capacity. Fully charge the battery before use to access the maximum stored energy.
4. The Battery Management System (BMS) will enter hibernation mode if it is depleted and stored for a long time. Recharging the SunCase 3651 with either the AC input or solar PV will bring the battery out of hibernation.
5. DO NOT place the SunCase 3651 near a high heat source, such as an open flame, or a stove.
6. Store the product in dry environments. DO NOT place the SunCase 3651 where it may come into contact with water.
7. Store the product in environments between 14 and 113 °F (-10 to 45°C).
8. Turn OFF the AC inverter and DC power switches so that the internal electronics are not consuming any power while not in use.
9. For long-term storage, the Bluetooth App can be used to control the unit at the BMS so there is minimal internal self-discharge. Please see the BAT-BMS App section for more details.
10. Alternatively, you can use the main breaker, which is discussed in “OSHA Lock-Out Tag-Out” in the FAQs section. This method of disconnect also ensures the minimum internal self-discharge.

## Optional Heating Element

### Self-Heating Battery Programming

The programming will automatically be turned off when it is delivered from the factory. The discharge and recharge will also be turned off on the BAT-BMS app for safe transportation. Please always transport heated SunCase 3651s with discharge and charge modes OFF using the BAT-BMS to avoid the unit turning on during storage or shipping.

When you receive your heated SunCase 3651, please turn discharge, charge, and heating modes ON.

When enabled by the **BMS app**, the built-in heating pad will always come on when the battery drops below 0 degrees Celcius. During charging, when the **Battery Management System (BMS)** detects that the battery's temperature is below 0°C, it initiates charging heating. In the event of a power outage, if the **BMS** detects that the battery's temperature is below 0°C, the battery automatically discharges to provide power for heating the film. This keeps the battery between 0 and 4 degrees celsius, through the discharge of the battery. During discharge, if the **BMS** detects that the battery's temperature is below 0°C, the battery automatically discharges to supply power for heating the film. In all three scenarios, heating stops when the temperature reaches or exceeds 5°C. Exceptionally cold environments will require a greater heating duty cycle. Heating control systems consume up to 250W of power.

The heating pad can be disabled by turning off the **BMS Discharge Switch** using the **Bluetooth App**. If freezing temperatures are expected during storage or transport the heater pads should be turned OFF to prevent excessive self-discharge. Please note that excessive discharge is more risky to the battery than being cold for a short period of time. NUE only encourages the purchase and use of heated SunCase 3651s for users that understand they will be exposed to cold temperatures repeatedly.

## Transporting the SunCase 3651:

1. Keep your original packaging if you plan to transport the SunCase using a commercial carrier
2. Shipping a SunCase 3651 using commercial carriers requires that the personnel involved are fully trained and certified for hazmat shipments and lithium ion battery shipping.
3. The SunCase 3651 falls under the category "UN3480 Lithium Ion Batteries". Follow all applicable international, national, state, or corporate shipping rules and regulations in packaging, labeling, and booking. NUE takes no responsibility for any damage or injuries caused by not properly following international, national, state, or corporate shipping guidelines.
4. Ship the unit in the original (UN approved) packaging and on a pallet.
5. Make sure the unit is OFF during transport per instructions later in this manual.

## Battery Disposal:

1. Dispose the SunCase 3651 in a facility that is designed to handle electronic waste and Lithium batteries. If you need assistance, contact the NUE service team.
2. DO NOT remove the battery to dispose of it separately.