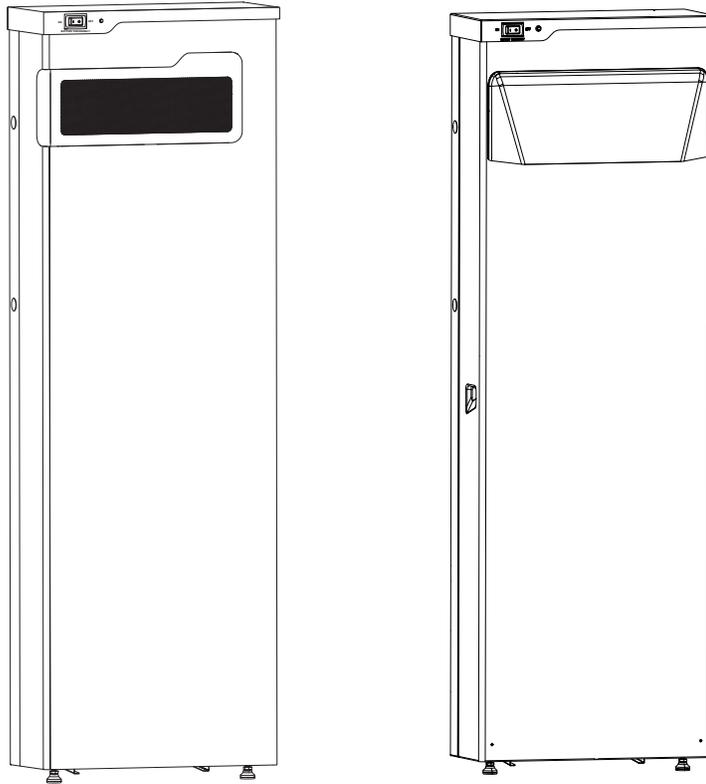


Owner's Manual

Generac PWRcell® Battery



0011031



WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury. (000209b)

Register your Generac product at:

<https://pwrfleet.generac.com>

1-888-GENERAC
(888-436-3722)

Para español, visita: <http://www.generac.com/service-support/product-support-lookup>

Pour le français, visiter: <http://www.generac.com/service-support/product-support-lookup>

SAVE THIS MANUAL FOR FUTURE REFERENCE

Use this page to record important information about your Generac Product

Record the information found on your unit data label on this page. See [Specifications](#).

When contacting an Independent Authorized Service Dealer (IASD) or Generac Customer Service, always supply the complete model number and serial number of the unit.

Operation and Maintenance: Proper maintenance and care of the energy storage system ensures a minimum number of problems and keeps operating expenses at a minimum. It is the operator's responsibility to perform all safety checks, to verify that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by an ASD. Normal maintenance, service, and replacement of parts are the responsibility of the owner/operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage may contribute to the need for additional maintenance or service.

Table 1 - Important Information

Description	Model Number	Serial Number	Date Purchased	Date Commissioned
Generac PWRcell™ Battery				
Battery Module 1				
Battery Module 2				
Battery Module 3				
Battery Module 4				
Battery Module 5				
Battery Module 6				

 **WARNING**

CANCER AND REPRODUCTIVE HARM

www.P65Warnings.ca.gov

(000393a)

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Section 1: Safety Rules & General Information

Introduction

Thank you for purchasing a Generac PWRcell® product. This owner's manual includes full details on the use, operation, and maintenance of the PWRcell Battery. The companion document to this manual is the Generac PWRcell Battery Installation Manual. See the Generac PWRcell Battery Installation Manual for complete information on installing, wiring, and commissioning the battery.

The information in this manual is accurate based on products produced at the time of publication. The manufacturer reserves the right to make technical updates, corrections, and product revisions at any time without notice.

Read This Manual Thoroughly



Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury. (000100a)

If any section of this manual is not understood, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-436-3722 (1-888-GENERAC), or visit www.generac.com for assistance. The owner is responsible for correct maintenance and safe use of the unit.

This manual must be used in conjunction with all other supporting product documentation supplied with the product.

SAVE THESE INSTRUCTIONS for future reference. This manual contains important instructions that must be followed during placement, operation, and maintenance of the unit and its components. Always supply this manual to any individual that will use this unit, and instruct them on how to correctly start, operate, and stop the unit in case of emergency.

Safety Rules

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The alerts in this manual, and on tags and decals affixed to the unit, are not all inclusive. If using a procedure, work method, or operating technique that the manufacturer does not specifically recommend, verify that it is safe for others and does not render the equipment unsafe.

Throughout this publication, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION, and NOTE blocks are used to alert personnel to special instructions about a particular operation that may be

hazardous if performed incorrectly or carelessly. Observe them carefully. Alert definitions are as follows:



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

(000001)



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

(000002)



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

(000003)

NOTE: Notes contain additional information important to a procedure and will be found within the regular text of this manual.

These safety alerts cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

How to Obtain Service

For assistance, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-436-3722 (1-888-GENERAC), or visit www.generac.com.

When contacting Generac Customer Service about parts and service, always supply the complete model and serial number of the unit as given on its data decal located on the unit. Record the model and serial numbers in the spaces provided on the front cover of this manual.

General Hazards

⚠ DANGER

Automatic start-up. Disconnect utility power and render unit inoperable before working on unit. Failure to do so will result in death or serious injury.

(000191)

⚠ WARNING

Risk of injury. Do not operate or service this machine if not fully alert. Fatigue can impair the ability to operate or service this equipment and could result in death or serious injury.

(000215a)



⚠ WARNING

Loss of life. This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in death or serious injury.

(000209b)

⚠ WARNING

Equipment damage. Only qualified service personnel may install, operate, and maintain this equipment. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage.

(000182a)

⚠ CAUTION

Equipment damage. Connect only to REbus-compatible devices to the DC bus. Never connect to any other DC power source. Connecting to other DC power sources could result in equipment damage.

(000598a)

- Connecting the PWRcell system to the electric utility grid must only be done after receiving prior approval from the utility company.
- Only competent, qualified personnel should install, operate, and service this equipment. Strictly comply to local, state, and national electrical and building codes. When using this equipment, comply with regulations established by the National Electrical Code (NEC), CSA Standard; the Occupational Safety and Health Administration (OSHA), or the local agency for workplace health and safety.
- Protection against lightning surges in accordance with local electric codes is the responsibility of the installer.

NOTE: Lightning damage is not covered by warranty.

- If working on energized equipment while standing on metal or concrete, place insulative mats over a dry wood platform. Work on this equipment only while standing on such insulative mats.
- Never work on this equipment while physically or mentally fatigued.
- Any voltage measurements should be performed with a meter that meets UL3111 safety standards, and meets or exceeds over-voltage class CAT III.

Electrical Hazards



⚠ DANGER

Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.

(000104)



⚠ DANGER

Electrocution. PWRcell Battery front cover should be removed by a qualified technician only. Removing the front cover could result in death, serious injury, equipment or property damage.

(000604)



⚠ DANGER

Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury.

(000145)



⚠ DANGER

Electrocution. Turn battery disconnect OFF and de-energize REbus before touching terminals. Failure to do so will result in death, serious injury, equipment and property damage.

(000599)



⚠ DANGER

Electrocution. Verify electrical system is properly grounded before applying power. Failure to do so will result in death or serious injury.

(000152)



⚠ DANGER

Electrocution. Do not wear jewelry while working on this equipment. Doing so will result in death or serious injury.

(000188)



⚠ WARNING

Electrocution. Potentially lethal voltages are generated by this equipment. Render the equipment safe before attempting repairs or maintenance. Failure to do so could result in death or serious injury.

(000187)

⚠ WARNING

Electric shock. Only a trained and licensed electrician should perform wiring and connections to unit. Failure to follow proper installation requirements could result in death, serious injury, and equipment or property damage.

(000155a)

Battery Hazards



⚠ WARNING

Explosion. Do not dispose of batteries in a fire. Batteries are explosive. Electrolyte solution can cause burns and blindness. If electrolyte contacts skin or eyes, flush with water and seek immediate medical attention.

(000162)

⚠ WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death, or serious injury.

(000228)

⚠ CAUTION

Equipment damage. Use ONLY manufacturer approved battery modules. Using any other module could damage Generac PWRcell Battery and may void the warranty.

(000601)

⚠ CAUTION

Ensure all battery modules installed in any single PWRcell Battery are the same type (EX or DCB). Connecting different battery types can result in equipment damage.

(000731a)

Always recycle batteries in accordance with local laws and regulations. Contact your local solid waste collection site or recycling facility to obtain information on local recycling processes. For more information on battery recycling, visit the Battery Council International website at: <http://batteryCouncil.org>.

Fire Hazards



⚠ WARNING

Fire hazard. Never attempt to fight a fire yourself. Evacuate the building and contact emergency services. Inform dispatcher that lithium-ion batteries are in the building. Failure to do so could result in death, serious injury, or property or equipment damage.

(000603)



⚠ WARNING

Risk of fire. Do not crush, puncture, or subject battery units or modules to strong impacts. Failure to do so could result in death, serious injury, property damage, or equipment damage.

(000730)

Safety Precautions

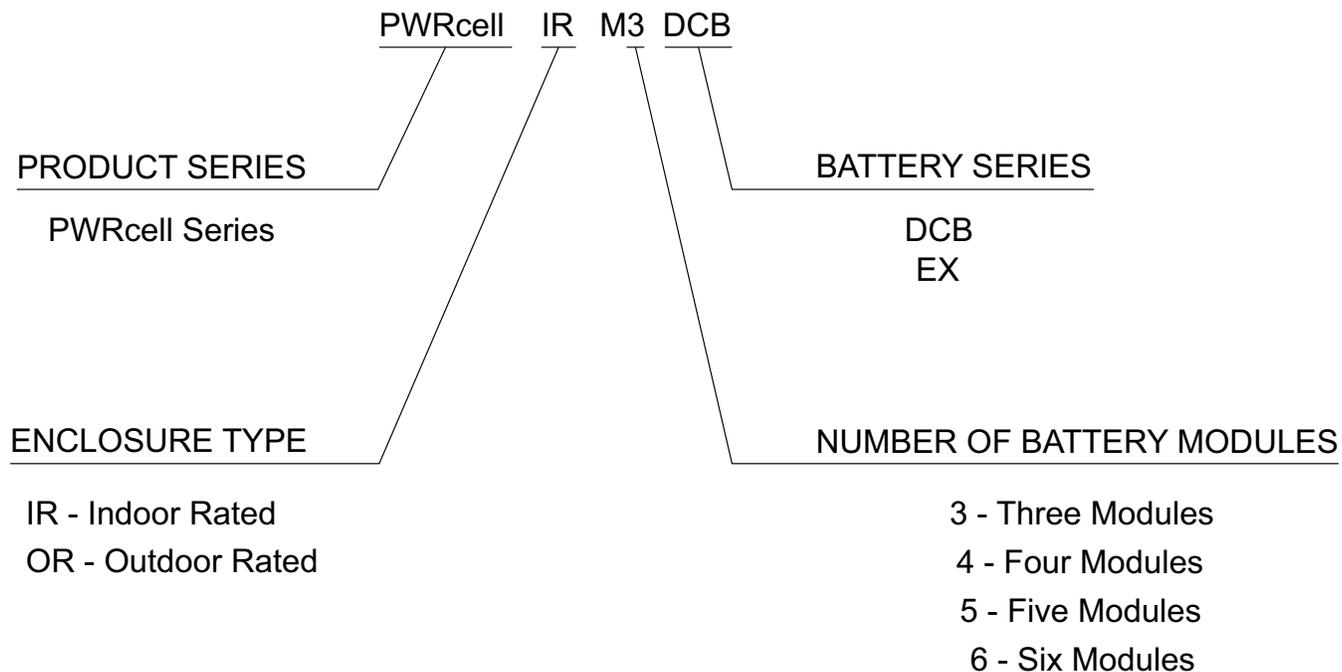
Symbols

Warning symbols are used to warn of the conditions that may cause severe injury or damage to equipment. The following table describes the warning symbols used in the equipment's markings and within this document.

	This equipment contains high voltage which can cause electric shock resulting in severe injury.
	Ensure polarity of connections during assembly.
	Keep equipment away from open flame or ignition sources.
	Read the manual before installing and operating the equipment.
	The equipment is heavy enough to cause severe injury.
	The battery pack may leak corrosive electrolyte if damaged.
	The battery pack may explode if damaged.
	The equipment should not be disposed of in household waste.
	Physical injury or damage to equipment may occur if related requirements are not followed.
	Do not disassemble the equipment.

Section 2: General Information

PWRcell Battery Naming Convention



012273

Specifications



Ensure all battery modules installed in any single PWRcell Battery are the same type (EX or DCB). Connecting different battery types can result in equipment damage.

(000731a)

Description	Units	PWRcell M3	PWRcell M4	PWRcell M5	PWRcell M6
Energy					
Usable Energy	kWh	9	12	15	18
Power					
Nominal Cont. AC Power*	kW	3.4	4.5	5.6	6.7
Max. Cont. AC Power**	kW	4.5	6	7.5	9
Max. Cont. DC Current (Charge/Discharge)	A	11.6	15.5	19.4	23.3
Peak Motor Starting Current (2 sec)	A, RMS	25	33	42	50
Battery Modules					
Number	–	3	4	5	6
For DCB modules - DC Voltage (per module)	VDC	46.8 nominal (39 – 52)			
For EX modules - DC Voltage (per module)	VDC	43.2 nominal (36 – 49.8)			
Max Energy Output (per module)	kWh	3.0			
For DCB modules - Module Weight	lb (kg)	55 (25)			
For EX modules - Module Weight	lb (kg)	58 (26.3)			
REbus					
Communication Protocol	–	REbus DC nanogrid			
Voltage: Input/Output***	VDC	360 – 420			
Round-Trip Efficiency (DC to DC)	%	96.5			
Temperature					
Maximum Ambient Operating Temperature	°F (°C)	14 to 122 (-10 to 50)			
Optimal Ambient Operating Temperature	°F (°C)	41 to 104 (5 to 40)			
Installation Altitude					
Maximum Installation Altitude****	ft (m)	6,560 (2,000)			
Weight (without mounting brackets)					
IR Enclosure	lb (kg)	110 (50)			
OR Enclosure	lb (kg)	115 (52)			
IR Installed - PWRcell IR w/ DCB modules	lb (kg)	276 (125)	331 (150)	386 (175)	441 (200)
IR installed - PWRcell IR w/ EX modules	lb (kg)	282 (128)	340 (154)	397 (180)	454 (206)
OR Installed - PWRcell OR w/ DCB modules	lb (kg)	280 (127)	335 (152)	390 (177)	445 (202)
OR Installed - PWRcell OR w/ EX modules	lb (kg)	287 (130)	344 (156)	401 (182)	459 (208)
Compliance					
Safety	–	UL 9540, UL 1973, UL 1642, CSA 22.2 #107.1			
Seismic	–	IEEE693-High			
<p>*Average AC power over a complete discharge cycle. ** Peak performance, values provided for 104°F (40°C) *** 380VDC Nominal ****Module warranty void if installed above limit. Note: Charge / Discharge rate may be reduced at temperature extremes. Specifications are subject to change without notice. Refer to the product specification sheet for complete list.</p>					

Serial Number Location



Ensure all battery modules installed in any single PWRcell Battery are the same type (EX or DCB). Connecting different battery types can result in equipment damage.

(000731a)

Refer to **Figure 2-1** to locate serial numbers for the unit (A) and the individual battery modules (B). Record this information in **Table 1: Important Information** on the inside front cover of this manual so it is available if the tags are lost or damaged. When ordering parts or requesting assistance, you may be asked to provide this information.

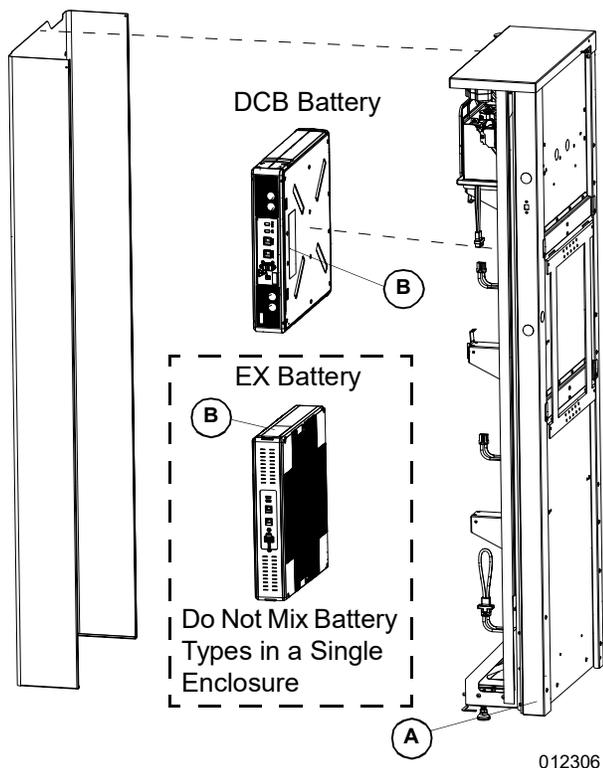


Figure 2-1. Serial Number Location

Unit Dimensions

Indoor Rated Unit Dimensions

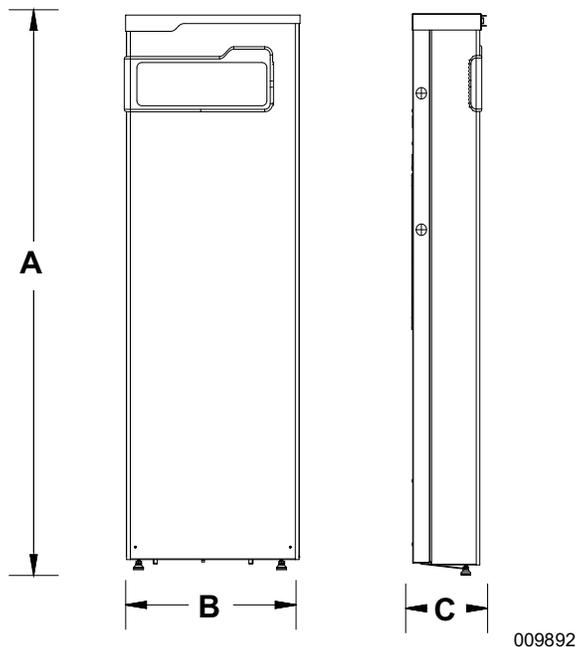


Figure 2-2. Unit Dimensions

A	68-3/8 in (1,737 mm)
B	22 in (558 mm)
C	9-7/8 in (251 mm)

Outdoor Rated Unit Dimensions

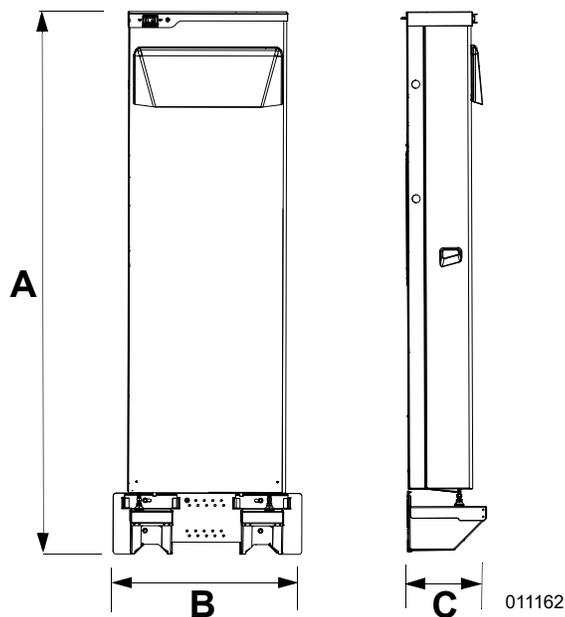


Figure 2-3. Unit Dimensions

A	73 3/16 in (1,859 mm)
B	26 1/8 in (663 mm)
C	11 in (279 mm)

Component Locations

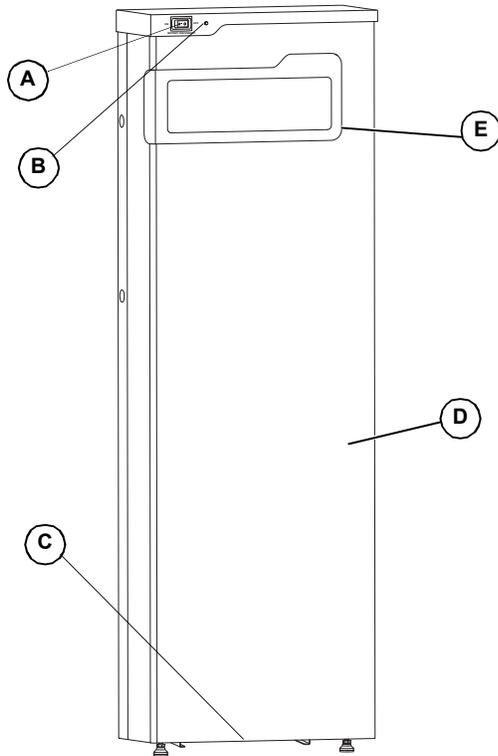


Figure 2-4. Component Locations

- A Battery Disconnect Switch
- B Battery Status LED
- C Intake Filter
- D Front Cover
- E Exhaust Vent

NOTE: PWRcell Battery IR model shown.

Accessories

Touch-Up Paint Kit

Maintains the look and integrity of the battery enclosure. For more information, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-436-3722 (1-888-GENERAC), or visit www.generac.com.

Battery Disconnect Switch



⚠ DANGER

Electrocution. Initiate a system-wide shutdown and turn the PWRcell DC Disconnect Switch OFF on all connected batteries before performing service. Failure to do so will result in death, serious injury, or equipment and property damage.

(000600)

See [Figure 2-4](#). Battery Disconnect Switch (A) disconnects the battery stack from the battery monitoring system (BMS) electronics.

The Battery Disconnect Switch can be locked in the OFF position if required. The switch bracket accepts a standard lockout / tagout lock.

NOTE: Turn Battery Disconnect OFF whenever the system will be powered down and left inactive for an extended period of time to prevent battery discharge.

Battery Status LED

See [Figure 2-4](#). The color and strobing interval of LED (B) communicates battery status.

Table 2-1. Battery Status LED

LED Color / Interval	Battery Status
Orange, solid	Disabled
Orange, strobe (2s)	Waiting
Green / Orange, alternating	Initializing
Green, solid	Charging
Green, rapid blinking (0.5s)	Discharging
Green, strobe (2s)	Standby
Red, rapid blinking (0.5s)	Error
Red, strobe (8s)	Sleeping

About PWRcell Battery

The PWRcell Battery is the storage component of the PWRcell system. The battery can be used for grid-connected solar applications, such as Self Supply, Rate Arbitrage, and Clean Backup power. The battery is designed to work seamlessly with PV Links and the PWRcell Inverter to form the PWRcell system for grid-tied solar-plus-storage.

The PWRcell Battery uses the REbus 380VDC nanogrid to connect the PWRcell Inverter. The REbus nanogrid automates the flow of power to enable plug-and-play setup and operation of PWRcell equipment.

In [Figure 2-5](#), a REbus-compatible PWRcell Inverter (E) is directly connected to PV Links (B) and PWRcell Battery (C) on REbus (D), the DC nanogrid/lines (D). To the right of the inverter are AC lines: 240VAC or 208VAC for grid and home loads (G), and protected loads (H). Load support varies by model and number of battery modules attached. Refer to [Specifications](#) for more information.

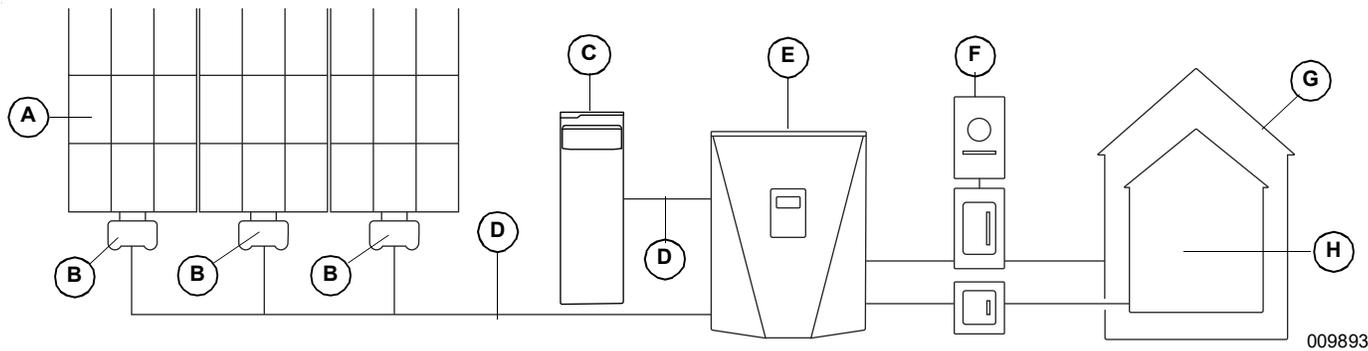


Figure 2-5. Generac PWRcell System Example

- | | |
|--------------------------|---------------------------|
| A Solar Panels | E PWRcell Inverter |
| B PV Link | F Grid |
| C PWRcell Battery | G Loads |
| D REbus | H Protected Loads |

009893

Communication

All communication between REbus devices takes place over the REbus conductors using Power Line Carrier (PLC) communication. No additional communication wiring or equipment is required for communication between a PWRcell Inverter, PV array, and / or other REbus enabled batteries.

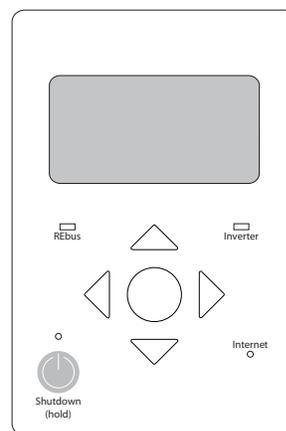
System Operational Modes

The PWRcell system has several operational modes available for various installation configurations, markets, and applications. Operational modes are selected through the PWRcell Inverter control panel. The inverter prioritizes the distribution of power differently based on the selected operational mode.

See the Generac PWRcell Inverter installation and operation manuals for complete instructions on configuring the entire system for each operational mode.

Inverter Control Panel

See [Figure 2-6](#). The battery is controlled through the PWRcell Inverter control panel. Use the inverter control panel to enable or disable the battery, and to set the operational mode for the system. See the Generac PWRcell Inverter Owner’s Manual for more information on settings and display screens.



009894

Figure 2-6. Inverter Control Panel

Battery State of Charge (SoC) Setpoints

There are four user-adjustable setpoints related to the battery state of charge (SoC): Min Absolute, Max Absolute, Min Reserve, Max Reserve. These setpoints are adjusted through the inverter control panel. See the Generac PWRcell Inverter Owner’s Manual for more information.

Table 2-2. Battery State of Charge Setpoints

Setpoint	Behavior
Min Absolute SoC	<p>Shut off point where the battery stops discharging during a utility service interruption. When battery SoC reaches this value, the battery will go to sleep. The battery will charge again as soon as power is available on REbus. If the grid is not present and the system was islanding, the system will perform a Power Search every hour for four minutes. See Power Search.</p> <ul style="list-style-type: none"> • Default value is 2%. • If this setpoint is lowered, the system can provide more energy before it goes to sleep, but the Power Search reserve will be smaller. <p>If this setpoint is raised, the system will go to sleep sooner during an outage, but the Power Search reserve will be larger.</p>
Max Absolute SoC	<p>Maximum percent the battery can charge to. When battery SoC reaches this value, the battery will not charge from any source.</p> <ul style="list-style-type: none"> • Default value is 100%. <p>Lowering this setpoint reduces usable capacity and is not recommended.</p>
Minimum Reserve SoC	<p>Manages the reserve of power guaranteed to be available for local loads in the event of a grid outage while operating in Self Supply system mode. When battery SoC drops to this setpoint, the battery will stop discharging to power local loads, retaining the minimum reserve for backup power in the event of a utility service interruption.</p> <ul style="list-style-type: none"> • Default value is 30%. • Lowering this setpoint increases battery capacity available for Self Supply, but lowers the islanding reserve in the event of an outage. • Raising this setpoint lowers capacity available for Self Supply, but increases islanding reserve in case of a grid outage.
Maximum Reserve SoC	<p>Manages battery capacity by prioritizing where PV power goes. When battery SoC reaches this value, PV power is diverted from charging the battery to powering local loads and export to the grid, saving battery capacity available for charging for a later time. When excess power is not needed by local loads and can not be exported to the grid, this extra capacity can be used to absorb peak PV to mitigate potential clipping.</p> <ul style="list-style-type: none"> • Default value is 100%. <p>Changing this value is only recommended for appropriately sized systems.</p>

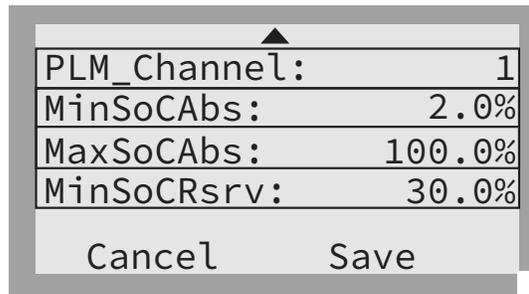
Adjusting SoC Setpoints

SoC setpoints are adjusted using the inverter control panel. See the Generac PWRcell Inverter Manuals for additional information regarding inverter control panel operation.

To adjust SoC setpoints:

1. Use the left and right arrows to access the battery device page, and press center button to enter the battery menu.
2. Use the up and down arrows to highlight Mod. Settings, and press center button to enter the Mod. Settings menu.
3. Use up and down arrows to highlight the desired setpoint, and press center button to select.
4. Use up and down arrows to adjust setpoint value.
5. Press center button to deselect the setpoint.

6. Use down arrow to scroll to the bottom of the list and select Save.



009895

Figure 2-7. SoC Setpoint Screen Example

Battery Settings

Table 2-3. Battery Settings

Setpoint	Range	Default	Description
PLM Channel	1 – 12	1	Channel for REbus communications. All devices in a system must use the same channel (except REbus Beacon).
MinSocAbsl	0 – 20%	2	Minimum state of charge (SOC) absolute- this is the percentage of charge the battery will discharge to while the system is islanded.
MaxSocAbsl	10 – 100%	100	Maximum state of charge (SOC) absolute- this is the percentage of charge the battery will charge to.
MinSocRsrv	0 – 90%	30	Minimum state of charge (SOC) reserve- this is the percentage of charge the battery will discharge to using Self-Supply Mode.
MaxSocRsrv	10 – 100%	100	Maximum state of charge (SOC) reserve- when battery SoC reaches this value, PV power is diverted from charging the battery to powering local loads saving battery capacity for future charging. When excess power might otherwise be clipped, this extra capacity can be used to absorb peak PV.
DschgCurLim	0 – 35 Amps	35	The battery stack will discharge to the BMU up to this current limit continuously before converting onto REbus.
ChgCurLim	0 – 35 Amps	35	The battery stack will charge up to this current limit continuously after power has been converted from REbus.
Sleep Time	1 – 720 Minutes	60	Length of time the battery will sleep for upon reaching its MinSocAbsl while islanded. Battery will wake up every hour for four minutes to power search.
PowSrch Time	10 – 900 Seconds	240	Power search setting is the length of time the battery will wake up from sleeping to search for PV power on REbus for charging.
Module Vset	40.0 – 55 Volts	46.5	Voltage level the battery will drain its modules to upon initiating the Vset procedure. See Vset Procedure.

Island Mode

In the event of a grid outage, the PWRcell Inverter enters Island Mode. While in Island Mode, the inverter disconnects from the utility grid and powers the building from the REbus nanogrid.

In a typical solar-plus-storage configuration, this means all REbus-connected batteries will work together with the PV links to supply power to REbus. The inverter will pull power from REbus to provide AC power to protected loads.

NOTE: To enter Island Mode, the inverter setpoint, Enalstanding, must be set to 'ON' (default value) and the system mode can not be set to Grid Tie. See the Generac PWRcell Inverter Owner's Manual for more information.

NOTE: If Enalstanding is set to "OFF" when an outage occurs, the inverter will disconnect from the grid and enter Standby state if DC power is available from REbus devices. If DC power is not available from REbus devices, the inverter will de-energize. The inverter will not send power to local loads in this state.

Sleep Mode

While in Island Mode, the battery charges from REbus when PV power is greater than local load demand. Once PV power drops below local load demand, the battery will discharge to supplement powering protected loads, lowering its state of charge (SoC). Once the battery SoC reaches the Min Absolute setpoint, the system enters Sleep Mode. In Sleep Mode, the inverter will power down and the protected loads will lose power. See [Battery State of Charge \(SoC\) Setpoints](#) for more information.

Power Search



DANGER

Electrocution. Turn battery disconnect OFF and de-energize REbus before touching terminals. Failure to do so will result in death, serious injury, equipment and property damage.

(000599)

While in Sleep Mode, the battery performs Power Searches at regular intervals. See [Table 2-4](#).

During a Power Search, the battery wakes up, powers the REbus nanogrid, and scans for potential sources of power. If a PV Link or another source of power is available, the battery will begin charging. Once the battery SoC is 5% above the Min Absolute SoC setpoint, the PWRcell system will resume exporting power to support backup loads when islanded. If Power Search does not discover other sources of power, the battery returns to sleep to conserve energy.

The length of time Power Search keeps REbus energized before returning to sleep and the Power Search interval are user-adjustable and are set on the inverter control panel.

Table 2-4. Default Power Search Values

Setpoint	Description	Default
Sleep Time	Minutes between Power Searches	60 min
PowSrch Time	Minutes Power Search keeps REbus energized	4 min

The battery can only perform a Power Search a certain number of times before it runs out of energy completely. The number of searches available is dependent on the value of the Min Absolute Soc setpoint. Once the battery depletes its Power Search reserve, the battery will not energize the REbus nanogrid on its own. Another source of power is required to energize REbus and charge the battery.

See [Battery State of Charge \(SoC\) Setpoints](#) for more information.

NOTE: Turn Battery Disconnect OFF and turn the REbus DC disconnect for the battery OFF at the inverter whenever the PWRcell Battery or Inverter will be powered down and left inactive for long periods of time.

System Recovery During a Utility Grid Outage

If during a utility service interruption, the PWRcell system stops powering backup loads, refer to [Table 2-5](#).

NOTE: Please read sections on [Island Mode](#), [Sleep Mode](#), and [Power Search](#) for complete understanding of system performance during a utility grid outage.

Table 2-5. System Recovery

Problem	Possible Cause	Solution
During an extended grid outage the system turned off.	The battery may have discharged to its Minimum State of Charge (SoC) and gone to sleep. See Island Mode .	Wait until grid power returns or until the sun rises. In an extended outage, the battery will perform a power search every hour for four minutes (default). Once solar power is detected during a power search, the battery will keep the system awake and begin charging / powering loads. See Power Search . Reference Battery Status LED .
Utility grid power went out; backup loads are not being powered.	This could be due to an overload condition where having too many house loads on at one time has caused the inverter to protect itself by purposely blacking out.	Inverter LED will be alternating on a 3 second interval - blinking green, then solid red. The home screen and the inverter device page will show "Islanded" or "Islanding" alternating with "Island Overload." Reduce house loads to recover from this condition.
	The battery may not have been properly connected or fully commissioned prior to the outage. Reference the Battery Status LED for confirmation of battery state/ functionality.	Contact your authorized Generac PWRcell dealer for service.
Utility grid power went out; backup loads were not powered; red shutdown button was pressed on the inverter.	The system may have experienced an overload condition from having too many house loads on at one time. The inverter will purposely blackout to protect itself if such a condition occurs.	If the red shutdown button was pressed, or the battery was disabled in Island Mode and the system has shut off, reference System Blackstart to manually enable the battery and restart the system.

System Blackstart

By manually enabling the battery using the Battery Disconnect Switch, it is possible to perform what is called a Blackstart on the PWRcell system.

IMPORTANT: Performing a Blackstart of the system will cancel a Shutdown initiated at the inverter and re-energize REbus DC wiring.

NOTE: Blackstart battery voltage must be 13V or greater to power the system. See [Service](#) for more information.

See [Figure 2-8](#). If LED (B) goes to solid orange after 3 seconds when the Battery Disconnect Switch is turned ON, the battery is disabled. If the LED goes to green, it is already enabled and does not require a Blackstart. See [Battery Status LED](#) for more information.

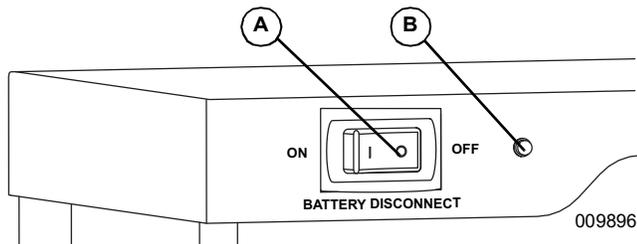


Figure 2-8. Blackstart

PWRcell Battery can be disabled if:

- Disabled by a user from the inverter screen.
- A Shutdown was initiated at the inverter using the red Shutdown button.
- The battery reached a critically low state of charge and no REbus voltage was present.
- No grid power was available during commissioning.

NOTE: To avoid the need for a manual enable, keep the battery enabled, connected to REbus, and keep Battery Disconnect ON.

To perform a manual enable

1. Turn Battery Disconnect (A) ON.
2. If the unit is disabled, LED (B) will light orange for 7 seconds.
3. While the LED is still orange, turn Battery Disconnect OFF.
4. Perform steps 1 – 3 three times in total.
5. Turn Battery Disconnect ON for a fourth time and leave it ON.
6. The LED will alternate between green and orange indicating that it is initializing.

If the battery has sufficient charge, LED (B) will light green (or green strobe) to indicate the battery is enabled. The inverter screen should illuminate. At this time, it will be necessary to enable the inverter and other connected REbus devices.

NOTE: When a Shutdown is initiated on a PWRcell system in Island mode, all communicating REbus

devices will disable and power off. The Shutdown is not considered to be actively maintained in this case, and a manual enable can be used to Blackstart the PWRcell system and clear the Shutdown state.

NOTE: Local codes adoption may require the installation of additional DC disconnection means between battery and inverter which can impact the ability to Blackstart a system if disconnect means is in OPEN or OFF position.

NOTE: Generac does not currently support autonomous, off grid installations with PWRcell equipment.

Section 3: Maintenance

General Upkeep

- Keep the area around the PWRcell Battery neat and clean at all times. Ensure surrounding area is free of snow, sand, leaves, branches, pet hair, or other debris that could obstruct airflow in or out of the unit.
- Do not store items on top of, under, leaning against, or propped up where they might fall on the PWRcell Battery.
- Do not allow irrigation sprinklers or other water sources to spray or flood the unit.

Maintenance



⚠ DANGER

Electrocution. PWRcell Battery front cover should be removed by a qualified technician only. Removing the front cover could result in death, serious injury, equipment or property damage.

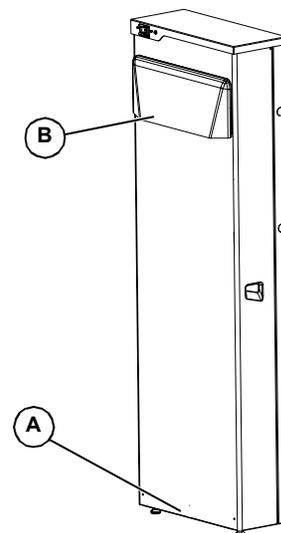
(000604)

- Clean the exterior of the enclosure with a soft cloth.
- Ensure surrounding area is free of snow, sand, leaves, branches, pet hair, or other debris that could obstruct airflow in or out of the unit.
- Inspect the unit. Look for conditions that could hinder performance or safety, such as (but not limited to):
 - Blocked vents.
 - Dirty intake filter.
 - Loose / missing hardware.
 - Loose or broken electrical connections.

NOTE: The Blackstart battery should be inspected annually by a qualified installer or technician. See [Service](#) for more information.

Inspecting Vents

See [Figure 3-1](#). Verify intake vent (A) and exhaust vent (B) are clear at all times.



011035

Figure 3-1. Intake Vent and Exhaust Vent

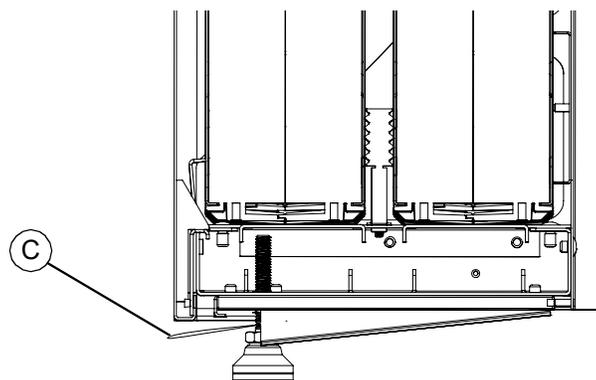
Cleaning Intake Filter

1. See [Figure 3-2](#). Grasp pull tab (C) and push frame back to compress retention springs.
2. Pull tab down and out.
3. Slide filter out.
4. Clean filter with a vacuum cleaner, compressed air, or water.

NOTE: Allow filter to dry before reinstalling.

5. Reinstall filter.

If intake filter is damaged or becomes difficult to clean, contact the nearest Independent Authorized Service Dealer (IASD) or Generac Customer Service at 1-888-GENERAC (1-888-436-3722) or visit www.generac.com for a replacement filter.



009897

Figure 3-2. Cleaning Intake Filter

Cleaning Outlet Vent

Clean outlet vent (A) with dry cloth or shop vacuum.

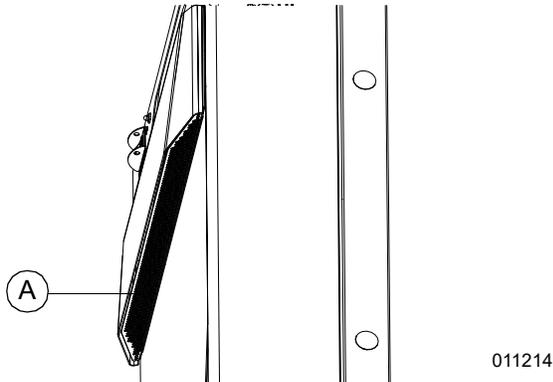


Figure 3-3. Cleaning Outlet Vent

Service



⚠ DANGER

Electrocution. PWRcell Battery front cover should be removed by a qualified technician only. Removing the front cover could result in death, serious injury, equipment or property damage.

(000604)



⚠ DANGER

Electrocution. Turn battery disconnect OFF and de-energize REbus before touching terminals. Failure to do so will result in death, serious injury, equipment and property damage.

(000599)



⚠ DANGER

Electrocution. Initiate a system-wide shutdown and turn the PWRcell DC Disconnect Switch OFF on all connected batteries before performing service. Failure to do so will result in death, serious injury, or equipment and property damage.

(000600)

The PWRcell Battery contains a Blackstart battery used for restoring the system to an operational state after an extended outage where no power source is available to recharge the Li-Ion batteries. Generac Power Systems Inc. recommends that the Blackstart battery condition and state of charge be inspected annually by a qualified installer or technician and replaced after 5 years to ensure proper operation. This operation range is 13.0 V - 13.6 V. Replace if below 13.0 V.

If you are experiencing a problem with this product, contact a qualified installer or technician for appropriate service. Qualified persons may refer to the Generac PWRcell Battery Installation Manual for information on replacing the internal fuses and other troubleshooting.

Decommissioning

⚠ WARNING

Environmental Hazard. Always recycle batteries at an official recycling center in accordance with all local laws and regulations. Failure to do so could result in environmental damage, death, or serious injury. (000228)

⚠ WARNING

Environmental Hazard. Decommissioning must be performed by qualified personnel. Decommissioning performed by unqualified personnel could result in environmental damage, death, or serious injury. (000654)

PWRcell Battery modules will be required to be decommissioned at the battery module end of life stage or if the PWRcell Battery will be removed from the premises in accordance with these instructions, the requirements in NFPA 855, and all applicable code requirements. The authority having jurisdiction (AHJ) shall be notified prior to the decommissioning of the PWRcell Battery.

Decommissioning Plan.

The owner of the PWRcell Battery and the qualified Generac Service Dealer shall prepare a written decommissioning plan that provides the overview of the decommissioning process developed specifically for the PWRcell Battery that is to be decommissioned. The decommissioning plan shall provide the requirements and methods necessary to safely discharge the energy in battery modules and remove from the installation site, including details for the transportation and recycling process for the battery modules.

After the PWRcell Battery has been decommissioned, a decommissioning report shall be prepared by the owner of the PWRcell Battery and the qualified Generac Service Dealer indicating the date the battery was decommissioned, the final results of the decommissioning process, and any issues that were identified during the decommissioning process and the required measures taken to resolve those issues.

Battery Recycling

Always recycle batteries in accordance with local laws and regulations. Contact your local solid waste collection site or recycling facility to obtain information on local recycling processes. For more information on battery recycling, visit the Battery Council International website at: <http://batteryCouncil.org>.

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