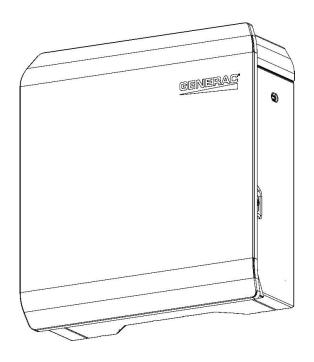


Installation Manual PWRcell 2 Inverter APKE00075





AWARNING

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.

(W000209)

Register your Generac product at: https://pwrfleet.generac.com 1-888-GENERAC (888-436-3722)

Para español, visita: https://www.generac.com/dealers-installers/solar-battery-installer-support/manuals-spec-sheets/Pour le français, visiter: https://www.generac.com/dealers-installers/solar-battery-installer-support/manuals-spec-sheets/

Use this record important to page information about your PWRcell 2 system

Record the information on your data label on this page.

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

Table 1. PWRcell 2 System Table

Inverter Serial Number	
Date Purchased	
Commissioning Date	

CALIFORNIA WARNING

This product can expose you to chemicals including urethane (ethyl carbamate), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to: www.p65warnings.ca.gov

(W000832)

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Section 1: Safety Rules & General Information

Introduction

Thank you for purchasing a Generac PWRcell 2 product. This manual provides instructions for the installation and operation of PWRcell 2 Inverters.

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



AWARNING

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

(W000100)

If any portion of this manual is not understood, contact the nearest Independent Authorized Service Dealer (IASD) for starting, operating, and servicing procedures. 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.

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS for future reference. This manual contains important instructions which must be followed during placement, operation, and maintenance of the unit and its components. Always supply this manual to any individual who 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:

ADANGER

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

(D000001)

AWARNING

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

(W000002)

ACAUTION

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

(C000003)

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

When the unit requires servicing or repairs, contact Generac Customer Service at 1-888-GENERAC (1-888-436-3722) or visit **www.generac.com** for assistance.

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 Rules

ADANGER

Loss of life. Property damage. Installation must always comply with applicable codes, standards, laws and regulations. Failure to do so will result in death or serious injury.

(D000190)

- Follow all safety precautions in the installation & owner's manual and other documents included with the equipment.
- Always consult local code for additional requirements for where the unit is being installed.

- Incorrect installation can result in personal injury and damage to the unit. It may also result in the warranty being suspended or voided. All instructions listed below must be followed including location clearances and conduit sizes.
- Changes or modifications not expressly approved by Generac Power Systems may void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

General Hazards



ADANGER

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

(D000188)



AWARNING

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.

(W000187)

AWARNING

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

(W000215)

AWARNING

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.

(W000209)

AWARNING

Equipment damage. Connecting inverter to electric utility grid must only be done after receiving prior approval from utility company. Failure to do so could result in equipment or property damage.

(W000640)

AWARNING

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.

(W000155)

AWARNING

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.

(W000182)

ACAUTION

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.

(C000598)

- Connecting a Generac PWRcell 2 system to the electric utility grid must only be done after receiving prior approval from the utility company.
- If this installation is in Canada, the installation shall be in accordance with the Canadian Electrical Code, Part I.
- Only competent, qualified personnel should install, operate, and service this equipment. Strictly comply with local, state, and national electrical and building codes. When using this equipment, comply with regulations established by the National Electrical Code (NEC), CSA Standard, and 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.

- 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 overvoltage class CAT III.

This equipment must be installed according to the manufacturer's installation instructions. Follow all instructions included in this manual and use appropriate practices for all product wiring and installation.

Electrical Hazards



ADANGER

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

(D000104)



ADANGER

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

(D000604)



ADANGER

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.

(D000145)



ADANGER

Electrocution. Verify all system voltages are safe before wiring. Disconnect all AC and DC sources of power before touching conductors or terminals. Failure to do so will result in death or serious injury.

(D000642)



ADANGER

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

(D000152)

Safety	Rules	ጲ	General	Inform	ation
Saletv	rules	α	General	IIIIOIII	ialion

Section 2: General Information

PWRcell 2 Inverter Specifications

Description	Units	Value	
Maximum Continuous AC Power	kW	11.5	
Maximum Continuous AC Current	А	48	
Main Breaker Rating	А	60	
Operating AC Voltage Range (L-N)	VAC	105 – 132 (120 Nominal)	
Nominal Grid Voltage	VAC	120/240 (Single Phase)	
Frequency	Hz	60	
Power Factor Range	_	0–1	
Maximum AC Fault Current	А	750 ¹	
Nominal DC Input Voltage	VDC	400	
DC Input Voltage Range	VDC	360 to 420	
Maximum DC Input Current	А	34	
Maximum DC Input Short Circuit Current	А	70.61 (< 1 ms)	
CEC Weighted Efficiency	%	98.0	
Round Trip Efficiency (AC>DC>AC)	%	85	
Warranty		10 years	
Dimensions	in (cm)	22 13/16 x 8 3/32 x 24 3/32 (57.91 x 20.57 x 61.21)	
Total Weight	lb (kg)	62.1 (28.16)	
Lift Weight	lb (kg)	54.7 (24.81)	
Mounting Option	_	Wall	
Operating Temperature	°F (°C)	-4 to 122 (-20 to 50)	
Operating Humidity	% RH	Up to 100%, Condensing	
Maximum Elevation	ft (m)	6,562 (2,000)	
Environment	_	Indoor and Outdoor Rated	
Enclosure Rating	<u> </u>	Type 3R	
Grid Certifications		UL 1741, UL 1741 SA, UL 1741 SB, UL 1741 Multimode CRD, IEEE 1547, Rule 21, Rule 14H (HECO SRD V2.0), CSIP	
Safety Certifications		UL 1741, UL 1998	
Emissions		FCC Part 15 Class B	

¹ Peak-to-peak for less than 3 ms.

Component Locations

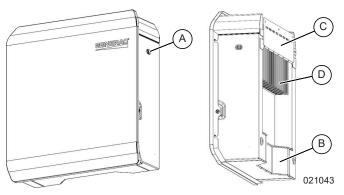


Figure 2-1. Component Locations

Α	Inverter Status LED
В	Plenum Cavity (Passive Cooling)
С	Inverter Mounting Bracket
D	Heat Sink (Passive Cooling)

Removing the Front Cover

See <u>Figure 2-2</u>. To remove the front cover on the PWRcell 2 Inverter loosen the two captive fasteners (A) on either side of the cover.

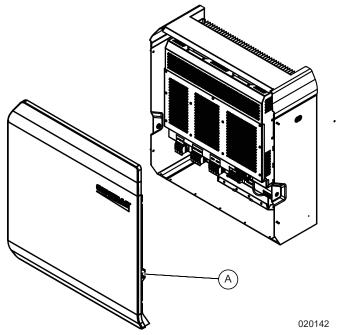


Figure 2-2. Removing the Front Cover

NOTE: The PWRcell 2 Inverter does not have a dead front behind the front cover. There are no mechanical points of operation at the PWRcell 2 Inverter. The cover must be securely fastened while operating.

About PWRcell 2 Inverters

The PWRcell 2 Inverter connects a PWRcell 2 Battery to the Smart Disconnect Switch (SDS) for seamless energy storage. Together, the PWRcell 2 Inverter and PWRcell 2 Battery comprise an Energy Storage System (ESS). The PWRcell 2 ESS can store excess energy from PV production to supply power to the home while grid connected. Upon loss of utility grid power, the PWRcell 2 ESS will be controlled by SDS to support backup loads.

See <u>Figure 2-3</u>. The PWRcell 2 Inverter must be connected to SDS. The system uses a control circuit between all devices for system operation. The PWRcell 2 ESS can charge from AC-coupled PV or from the utility grid (where approved). AC-coupled PV must be connected to SDS for full functionality. See the **Smart Disconnect Switch Installation Manual** for more information.

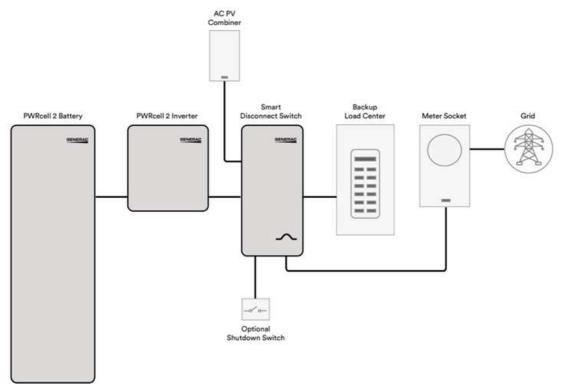


Figure 2-3. The PWRcell 2 System

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Section 3: Location Requirements and Dimensions

Location Requirements

When installing the PWRcell 2 Inverter, consider the following:

- The installation must meet the working space requirements in NEC Article 110.26.
- The inverter can be installed indoors or outdoors.
- The maximum distance for the control circuit between SDS, inverter, and battery is 262.5 ft (80 m).
- Survey the site to determine the most suitable place for mounting the inverter in relation to the PWRcell 2 Battery and SDS.
- If possible, avoid mounting locations where the inverter may be subject to direct sunlight.
- Do not mount where liquids may be prone to drip or collect upon the equipment.

Unit Dimensions

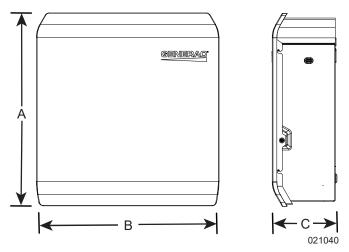


Figure 3-1. Unit Dimensions

Α	24 1/8 in (61.27 cm)
В	22 7/8 in (58.1 cm)
С	8 1/8 in (20.64 cm)

Minimum Clearances

See <u>Figure 3-2</u> and <u>Table 3-1</u>. Survey the mounting location for the minimum clearances below and determine an appropriate layout.

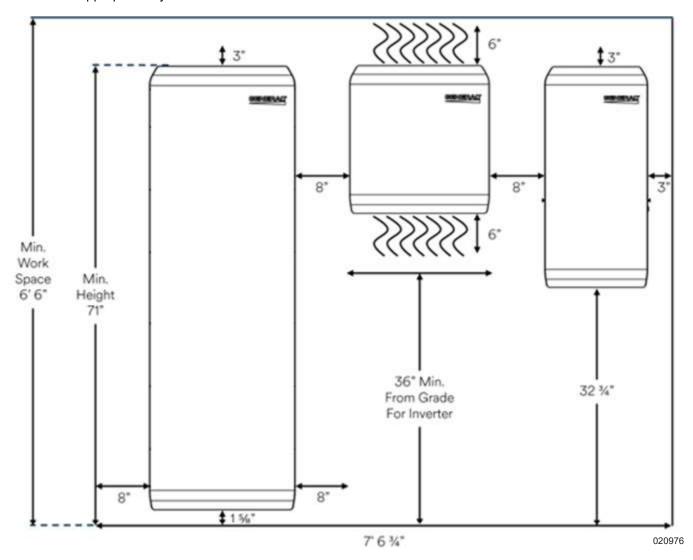


Figure 3-2. Minimum Clearances

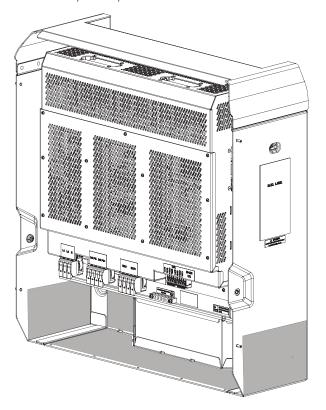
Table 3-1. Minimum Equipment Clearances

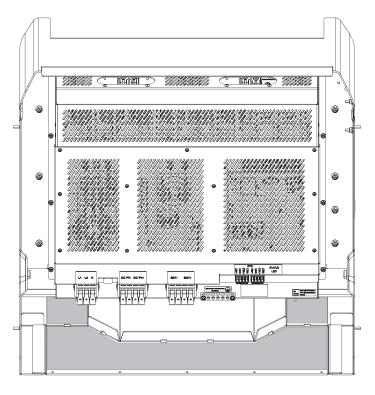
Measurement	Description
77 in (195.6 cm)	Minimum workspace height (NEC 110.26)
69 1/4 in (175.9 cm)	Minimum mounting height for battery cabinet
3 in (76.20 mm)	Minimum space above battery cabinet/SDS
1 5/8 in (41.28 mm)	Minimum from Grade to service air filter
8 in (20.32 cm)	Tool clearance for front covers
6 in (15.24 cm)	Minimum space below inverter for passive cooling
36 in (91.44 cm)	Minimum from Grade to inverter
32 3/4 in (83.19 cm)	Minimum from Grade to SDS
3 in (76.20 mm)	Minimum clearance for SDS padlock operation

Knockout Locations

See <u>Figure 3-3</u>. Holes for conduit may be punched through the inverter enclosure in the shaded portions of the bottom, back, and sides as indicated. Consider

serviceability, clearance requirements, bend radius, and aesthetics when choosing knockout locations. See <u>Section 4: Mounting</u> for additional information on punching conduit holes.





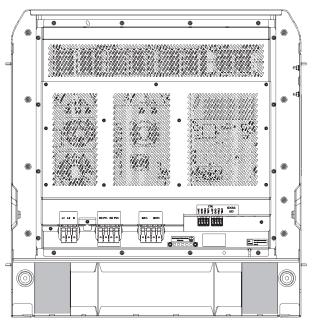


Figure 3-3. Knockout Locations

021039

Location	Requirem	ente and	Dimer	neinne
i ocanon	reamen	ienis and	LULLEL	เอเมาะ

Section 4: Mounting

Mounting Guidelines

AWARNING

Falling Object. Mount equipment in a safe secure manner in alignment with all state and local codes. Failure to mount equipment securely could result in death or serious injury.

(W000825)

ACAUTION

Property Damage. Mount equipment to a strong, stable surface. Never mount to drywall, plaster, or other non-structural wall treatments. Failure to mount equipment to a strong, stable surface could result in equipment or property damage.

(C000641)

Observe the following guidelines when mounting device:

- Verify mounting location adheres to <u>Location</u> <u>Requirements</u> listed in Section 3 of this manual.
- Observe all mounting clearances.
- Inverter must be mounted upright on a vertical wall.
- Never obstruct the plenum cavity for passive cooling.
- Installation must prevent inadvertent contact with the heat sink.
- Secure mounting bracket and enclosure.
- Fasteners must adequately secure the 70 lb (31.75 kg) inverter to the wall.
- Fasteners must be suitable for the mounting surface.
- Fasteners must engage at least two studs or other structural members.
- Install blocking or channel strut as needed.

Fastener Requirements

- A minimum of two structural fasteners are required to mount the inverter wall bracket.
- If mounting outdoors or in a location prone to wet conditions, used corrosion protected steel fasteners.
- Verify head clearance is 3/8 in (9.53 mm) or less.
- If fastening to wood studs, use #14 wood screws with flanged heads and washers as needed.
- If fastening into concrete or masonry, use 1/4 in concrete anchors with washers or flanged fasteners.

Fastening Requirements

If fastening to wooden studs:

- Fastener threads must penetrate at least 2 1/2 in (63.5 mm) into stud.
- Use blocking or channel strut between studs as needed

If fastening onto concrete or masonry:

- Fastener threads must penetrate at least 1 in (25.4 mm) into wall.
- Avoid any mortar joints.

Determining a Top Line

If mounting the PWRcell 2 Inverter on the same wall with the battery and SDS, top-align the enclosures for best aesthetics. If mounting the inverter on a separate wall space, mind the inverter's unit dimensions and minimum clearances to establish an appropriate top line.

Proceed as follows to mount the battery, inverter, and SDS (L-R) on the same wall:

- **1.** Start with the battery cabinet, as the largest enclosure, to establish the top line.
- Cut out the battery cabinet template from the inside of the battery cabinet box to use for general planning and placement.
- 3. See <u>Figure 4-1</u>. Establish a top line measurement at a minimum height of 71 in (180.34 cm) and a maximum height of 84 1/2 in (214.63 cm) from grade to keep the battery disconnect switch at 79 in (200.66 cm) to the center of the switch.

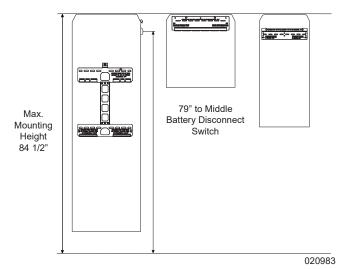


Figure 4-1. Determining Top Line from Battery

NOTE: The battery must be installed in a suitably rated space. See the *PWRcell 2 Battery Installation Manual* for more information.

Fastening the Mounting Bracket

See <u>Figure 4-2</u> and <u>Figure 4-3</u>. Once the top line has been established, proceed as follows to fasten the inverter mounting bracket to the wall:

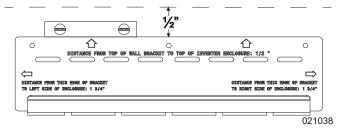


Figure 4-2. Measure from Top Line and Mark Bracket Holes

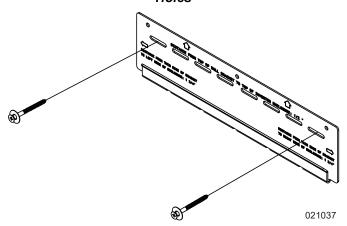


Figure 4-3. Fastening the Bracket

- **1.** Measure from the top line 1/2 in (12.7 mm) down to the top of the inverter mounting bracket and place a mark for reference.
- 2. Use a level on the bracket to mark fastener holes.
- 3. Pre-drill holes.
- 4. Fasten bracket to wall.

Punching Conduit Holes

It may be advantageous to punch conduit holes in the inverter enclosure before hanging it on the wall. Depending on how close the battery cabinet and SDS are mounted to the inverter, tool access may be limited. For best results and to limit metal shavings, use a punch tool appropriate for the diameter conduit to be installed.

Proceed as follows to mount the battery, inverter, and SDS (L-R) on the same wall:

 See <u>Figure 4-4</u>. Locate center punch dimples on each side of the inverter enclosure. These allow conduit holes to be aligned across all three pieces of equipment if all three enclosures are top aligned.

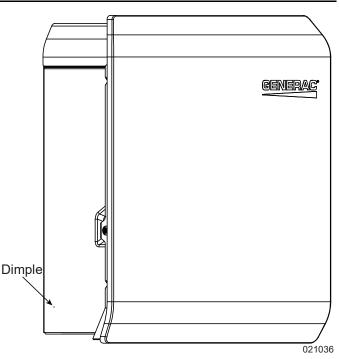


Figure 4-4. Use Dimples to Punch Holes

- Select the correct punch tool die for the diameter conduit to be installed.
- **3.** Drill a pilot hole for the punch tool.
- Use the punch tool to punch holes as needed in the inverter enclosure.

Mounting and Fastening the Inverter

 See <u>Figure 4-5</u>. Hang the inverter on the mounting bracket without fastening and slide horizontally as needed to fit conduit.

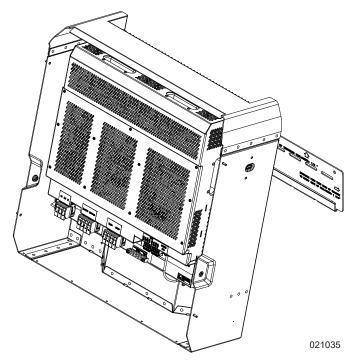


Figure 4-5. Hanging Inverter

2. See <u>Figure 4-6</u>. Secure the bottom of the inverter to the wall with two fasteners through mounting holes (B).

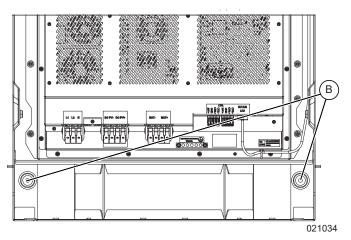


Figure 4-6. Fastening Inverter to Wall

NOTE: Depending on the mounting surface, it may be necessary to hang the inverter, mark interior holes, then remove the inverter to pre-drill holes.

Section 5: Wiring

Wiring Guidelines



ADANGER

Electrocution. Verify all system voltages are safe before wiring. Disconnect all AC and DC sources of power before touching conductors or terminals. Failure to do so will result in death or serious injury.

(D000642)

- The inverter shall be installed in accordance with NEC Article 705.
- All field-installed conductors must be rated for at least 600 V.
- Always use wiring methods in accordance with National Electrical Code (ANSI/NFPA 70) and other applicable codes.
- Field terminals are for copper conductors only.
- All field installed conductors within the unit are to be sized in compliance with NEC Article 310.
- Tighten ground terminals as specified in this section.
- If using non-metallic conduit, four ferrites must be installed on the PWRcell Inverter Power Conductors – two on the AC conductors, and two on the DC conductors. Required Part - Ferrite Core Kit - 6 QTY; Part Number APKE00118.

Wiring Compartment

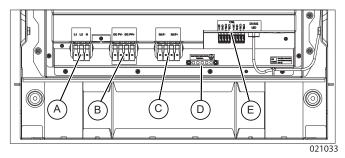


Figure 5-1. Inverter Wiring Compartment

Α	AC Power Terminals (L1, L2, and Neutral)
В	DC PV Terminals (Not Used at This Time)
С	Battery Terminals (2x Negative, 2x Positive)
D	Ground Bar
E	Control Circuit Terminals 2x (24 V+, GND, CTRL+, CTRL-)

AC Wiring

Proceed as follows to wire the PWRcell 2 Inverter to the SDS:

- **1.** Install an Eaton 2-pole 60 A circuit breaker, Type BR260, in the position for ESS 1 at SDS.
- **2.** Route a minimum of #6 AWG type THHN, THWN-2, or NM-B, depending on the application, from SDS to the inverter.
- **3.** See <u>Figure 5-1</u>. Terminate L1, L2, and Neutral at terminals (A) and terminate an equipment ground at the ground bar (D) from SDS in the inverter wiring compartment.
- **4.** See <u>Table 5-1</u>. Tighten grounding conductor according to gauge used.
- At SDS terminate L1 and L2 at the Eaton 60 A breaker.
- **6.** Terminate Neutral at the double-stacked Neutral bar in SDS.
- **7.** Terminate the equipment ground at the ground bar in SDS.

NOTE: Convention for AC wiring uses black for L1, red for L2 (L-R), white for Neutral, and green for Ground.

Table 5-1. Ground bar torque specifications

Wire Size (AWG)	Torque
4–6	35 in-lb (3.95 Nm)
8	25 in-lb (2.83 Nm)
10–14	20 in-lb (2.26 Nm)

DC Wiring

Proceed as follows to wire the PWRcell 2 Battery to the PWRcell 2 Inverter:

See <u>Figure 5-1</u>. Route a minimum of #6 AWG THHN or THWN-2, depending on the application, from the BAT-/+ Terminals (C) in the inverter wiring compartment to the positive and negative terminals at the battery management unit (BMU).

NOTE: Overcurrent protection for the conductors between the inverter and battery is provided through electronic means by the BMU.

Route and connect an equipment grounding conductor from the inverter ground bar to the Ground Terminal on the BMU. **3.** See <u>Table 5-1</u>. Tighten grounding conductor at the inverter ground bar according to gauge used.

NOTE: Convention for DC wiring uses red for Positive, black for Negative, and green for Ground.

Control Wiring

See the following details for correct installation:

- SDS controls the flow of power in the system between devices.
- The control circuit can be no longer than 262.5 ft (80 m) total, across all devices - from SDS to inverter to battery.

Proceed as follows to wire the PWRcell 2 control circuit:

- **1.** Use 600 V rated #18 AWG shielded 4-conductor cable.
- Terminate red 24 V+, black GND, orange CNTRL+, blue CNTRL- at SDS.
- See <u>Figure 5-2</u>. Route cable to inverter and terminate the other end of the cable in one of the two control circuit terminal sets (A) following the same color pattern.

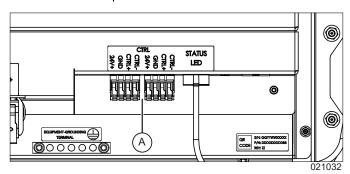


Figure 5-2. Inverter Control Circuit Terminal Sets

4. Route another length of the same cable to the battery from the second set of control circuit terminals (A) at the inverter and terminate at one of the two control circuit terminal sets at the BMU, maintaining the same color pattern.

Section 6: Commissioning



ADANGER

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

(D000152)

Commissioning the PWRcell 2 System is completed by accessing the local network emitted by SDS. Refer to the *Smart Disconnect Switch Installation Manual* for complete commissioning instructions.

Wiring Checks

Complete the following prior to commissioning:

- **1.** Complete a visual inspection of the wiring at the inverter.
- 2. Perform tug tests of the wiring at the inverter.
- **3.** Use a multi-meter to check resistance on each circuit before energizing.
- **4.** Verify polarity of DC wiring and phasing of AC wiring.

Accessing Field Pro Mobile App

Access the *Field Pro Mobile App* by using a mobile device to scan the QR code found on SDS. For detailed information on how to use *Field Pro*, see the *Smart Disconnect Switch Installation Manual*.

Section 7: Inverter Operation

General Information

The PWRcell 2 Inverter has no mechanical parts or digital interfaces for operation after installation.

The PWRcell 2 Inverter is not a standalone product. It must be installed with the PWRcell 2 Battery and connected to a Generac Smart Disconnect Switch. For detailed information on how to operate the PWRcell 2 system, see the *Smart Disconnect Switch Installation Manual*.

Inverter Status LED

See <u>Table 7-1</u>. The inverter and SDS Status LEDs indicate the status of the utility grid connection, Wi-Fi connection, and system functionality through a common LED pattern. The battery cabinet LED indicates similar status information using a similar LED pattern.

Table 7-1. Inverter Status LED

LED Color	Interval	Inverter Status
Green/ Orange/Red	Alternating (1 s)	Initializing or firmware update
Green	Solid	Grid connected, connected to Wi-Fi
Green	Flashing (1 s)	Backup Mode, connected to Wi-Fi
Blue	Flashing (1 s)	Grid connected, no Wi-Fi connection
Blue/Green	Alternating (1 s)	Backup Mode, no Wi-Fi connection
Orange	Solid	ESS in Sleep Mode
Orange	Flashing (1 s)	PV Search Mode activated
Orange/ Green	Alternating (1 s)	System performance limited
Red	Solid	System fault
Red	Slow Flashing (2 s)	System shutdown active
Red	Fast Flashing (0.5 s)	ESS overload

Grid Connected

When the PWRcell 2 system is grid connected the SDS main grid relay will be closed. Available power from AC PV will be used to cover house load. As soon as load

exceeds PV production the ESS will discharge to cover the load.

Depending on the utility interconnection agreement and the settings set by the installer in *Field Pro*, the system may allow for the exchange of power with the grid. See the *Smart Disconnect Switch Installation Manual* for more information.

Backup Mode

In the event of a grid service interruption, the PWRcell 2 system will enter Backup Mode. In Backup Mode, the system will support the loads in the backup loads panel connected to SDS. Backup Mode will be indicated by the Inverter and SDS Status LEDs. Upon loss of grid voltage, the PWRcell 2 system will perform the following sequence:

- SDS Grid Relay will open, disconnecting SDS from utility.
- **2.** During daylight hours, the system will use available PV power to power loads and charge the battery.
- If the battery is charged and the load is not sufficient, the PV relay in SDS will open and PV power will disconnect.
- **4.** When PV power is insufficient to cover house load, the ESS will discharge.
- 5. Once the ESS reaches 10% state of charge (SOC), it will go to sleep, requiring the user to activate PV Search Mode from the *PWRview Mobile App* during daylight hours.
- **6.** Alternatively, if equipped with a Generac air-cooled home standby generator, the generator will turn on once the battery discharges to 10%.
- **7.** The system will prioritize using generator power to power the load. Additional generator power will be used to charge the PWRcell 2 Battery.
- **8.** Once the battery reaches 98% SOC, the generator will shut off and the ESS will take over powering the load.

Sleep Mode

The battery requires reserve energy to operate through an extended outage. If the state of charge (SOC) from the battery drops to the reserve threshold of 10% while in Backup Mode, the ESS will enter Sleep Mode to preserve this reserve. The 10% reserve SOC will be used to wake up the system once the sun is available again. See PV Search Mode for more information.

PV Search Mode

PV Search Mode may be enabled to bring the system out of Sleep Mode. In PV Search Mode, the battery will power ON and the ESS will provide power to SDS and the backup loads. This allows the AC PV system to reconnect and start charging the battery.

NOTE: To conserve the battery's limited reserve, reduce house loads as much as possible before turning on PV Search Mode.

PV Search Mode may be enabled by one of the following methods:

- **1.** Waiting for the morning or for an automatic black start to occur.
- **2.** Perform a reset at the battery cabinet (toggle battery disconnect switch OFF, ON, OFF, ON).
- 3. Enable PV Search Mode using PWRview.

NOTE: Enabling PV Search Mode while sunlight is not present may cause battery reserve to drain below the Sleep Mode reserve threshold. If battery reserve drops below this point, the system will enter Deep Sleep Mode. Grid or generator power will be required to charge the battery before the system can function.

Once PV Search Mode is enabled, the following sequence occurs:

- 1. The system wakes up and begins searching for PV power. The system will continually search until PV power is found, or until the Sleep Mode reserve threshold is depleted. If this happens, the battery will enter Deep Sleep Mode, requiring the grid or generator power (if equipped) to recharge.
- 2. If PV is found, the system will enter backup mode and begin charging the battery (reduce load while charging).

ESS Overload

If the home loads exceed the capability of the PWRcell 2 ESS, the ESS will go into a faulted state and cease moving power. An overload fault will be indicated on PWRview, and the system will be disabled. To return functionality, follow instructions on PWRview to reduce home loads and restart the system.

Shutting Down

See <u>Figure 7-1</u>. To shut down the ESS (inverter and battery), turn off the battery disconnect switch (A) and turn off the circuit breaker in SDS (B).

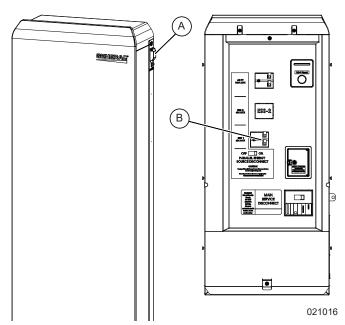


Figure 7-1. Battery Disconnect Switch and ESS 1
Breaker

Section 8: Maintenance

Service



ADANGER

Electrocution. Verify all system voltages are safe before wiring. Disconnect all AC and DC sources of power before touching conductors or terminals. Failure to do so will result in death or serious injury.

(D000642)



ADANGER

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

(D000604)

AWARNING

Burns. Inverter heat sink will be hot after inverter has been operating. Shutdown inverter and allow to cool before handling. Failure to do so could result in serious injury.

(W000824)

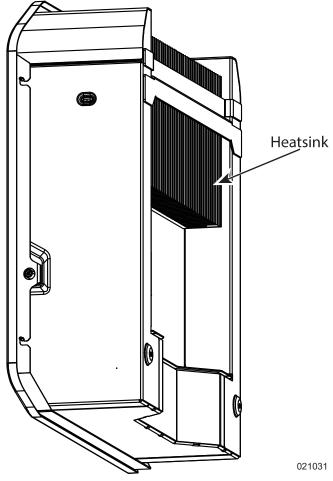


Figure 8-1. Heatsink

For any servicing needs, contact the nearest Independent Authorized Service Dealer (IASD); contact Generac PWRcell Technical Support at 1-855-635-5186; all Generac Customer Service at 1-888-438-3722 (1-888-GENERAC); or visit www.generac.com.

