

Power Control Systems

Export Limiting, Zero Export, and Zero Import



Multimode Smart Inverter

- 7.6 kW Multimode Inverter (32A)
- ETL listed to UL 1741
- 120/240 V AC Output Voltage
- 380 V DC Input Voltage
- Integral Switching Relays
- Max Backup Power Rating- 9 kW
- Maximum Surge -12kW
- < 1 Second Switchover
- Type NEMA 3R Enclosure



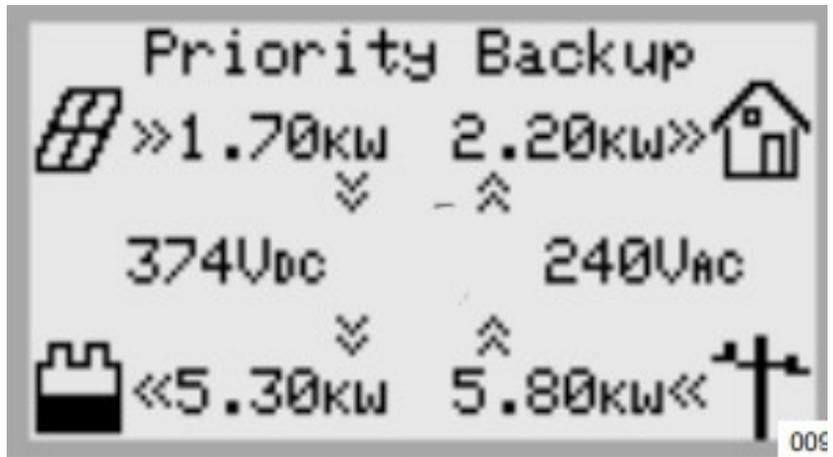
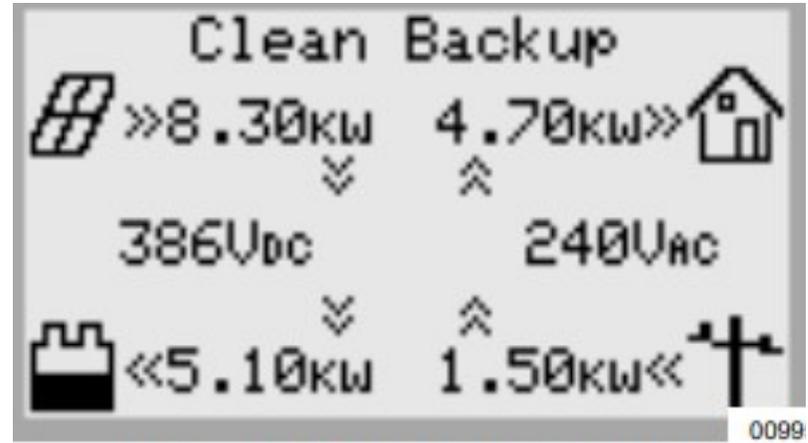
Multimode Smart Inverter

System Modes

- Safety Shutdown- When activated disables the PV, ESS, and Inverter
- Grid Tie- PV only, no ESS, Inverter is Grid Interactive Only
- Self Supply- end user uses PV and ESS to avoid utility power consumption
- Clean Backup- ESS only discharges in Island Mode and only charged by PV
- Priority Backup- ESS only discharges in Island Mode and is charged by all available sources
- Sell Mode- System exports all available PV and ESS power back to the utility

- Remote Arbitrage- DER aggregation via IEEE 2030.5 (Not selectable via the inverter control screen)

System Modes



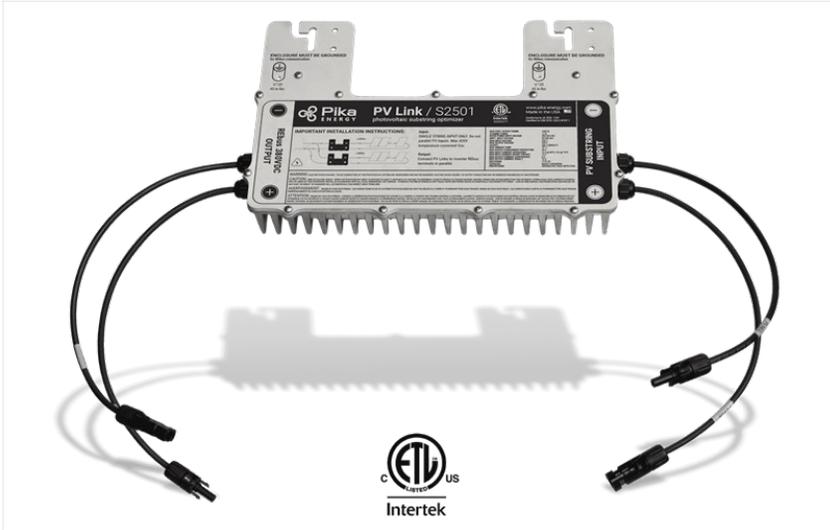
Energy Storage System



- ETL listed to UL 9540
- Li-ion Modules
- 3-6 Modules per Battery Enclosure
- Usable Energy Capacity **18 kWh** with 6 modules
- 6.7 kW continuous power rating, batteries only
- 9 kW continuous power rating, batteries + PV
- 12 kW max surge for motor starting
- Type 3R Enclosure

- 380 V DC, 24A

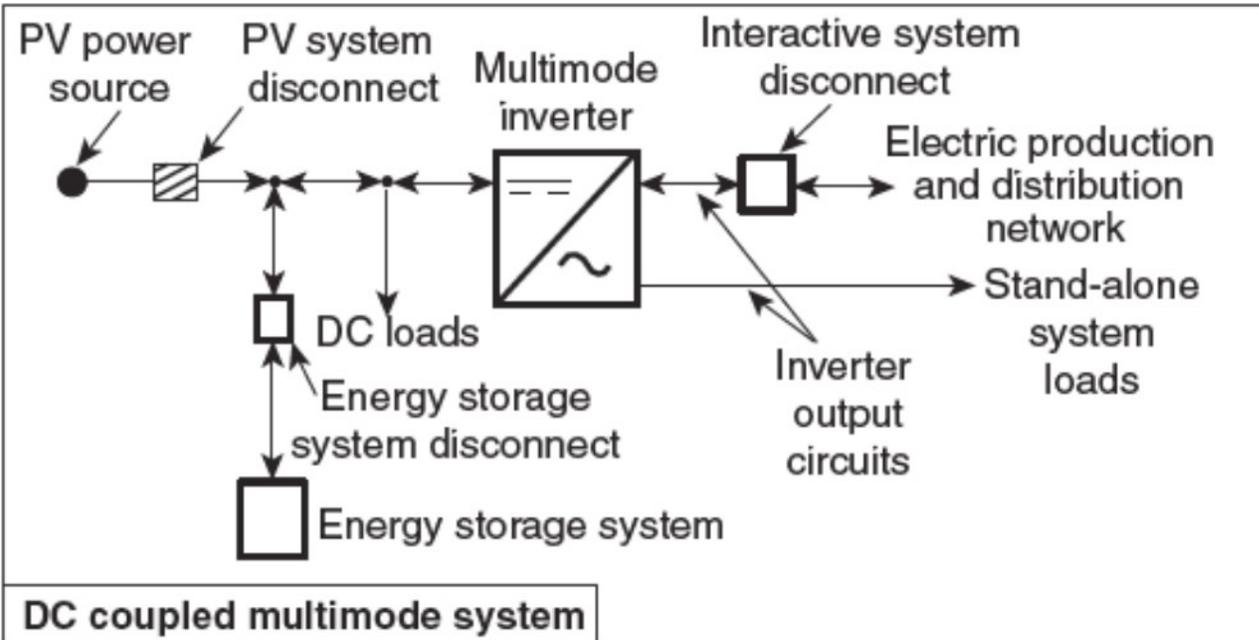
DC Coupled PV Components



- PV Links
- DC to DC Optimizer
- Required for the DC coupling of PV to the Inverter
- PVRSE for the conductors leaving the array

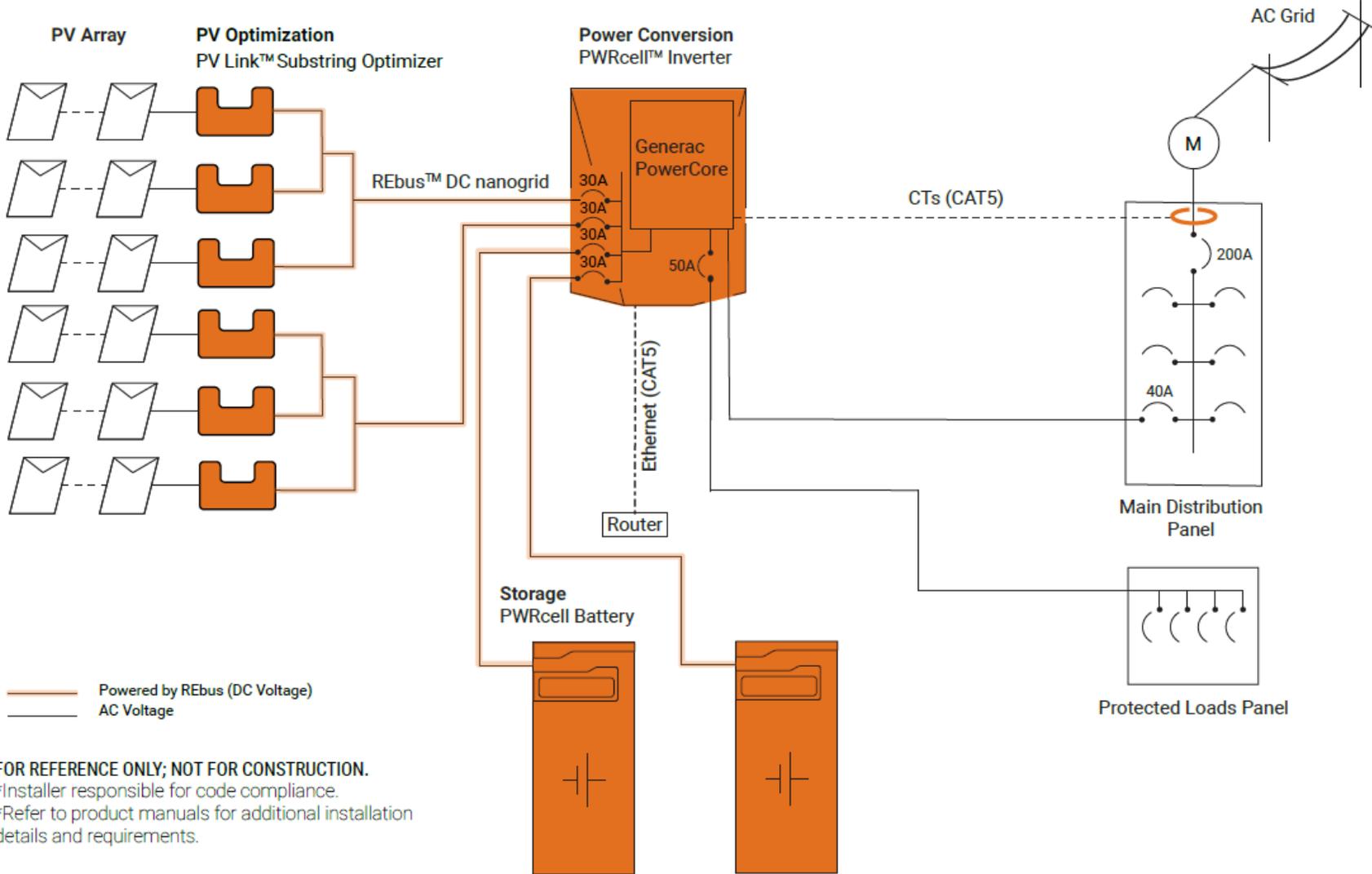
- SnapRS Device
- PVRSE for PV conductors within the array
- One per PV panel

DC-Coupled Multimode System



- DC coupled PV system
- DC coupled ESS
- 1 inverter
- Can supply power to protected loads
- Opening the Interactive System Disconnect (inverter ac output connection to utility) simulates a power outage
- PV and ESS have their own system disconnecting means

Generac PWRcell System



FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.
*Installer responsible for code compliance.
*Refer to product manuals for additional installation details and requirements.

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Power Control System

705.13 Power Control Systems.

A power control system (PCS) shall be listed and evaluated to control the output of one or more power production sources, energy storage systems (ESS), and other equipment. The PCS shall limit current and loading on the busbars and conductors supplied by the PCS.

For the circuits connected to a PCS, the PCS shall limit the current to the ampacity of the conductors or the ratings of the busbars to which it is connected in accordance with 705.13(A) through (E).

Power Control System

705.13(A) Monitoring.

The PCS controller shall monitor all currents within the PCS. Any busbar or conductor on the load side of the service disconnecting means that is not monitored by the PCS shall comply with 705.12. Where the PCS is connected in accordance with 705.11, the PCS shall monitor the service conductors and prevent overload of these conductors.

Power Control System

705.13(C) Overcurrent Protection.

The PCS shall provide overcurrent protection either by overcurrent devices or by the PCS including the functionality as an overcurrent device in the product listing.

Informational Note: Some PCS are listed to provide overcurrent protection.

705.13(D) Single Power Source Rating.

The rating of the overcurrent device for any single power source controlled by the PCS shall not exceed the rating of the busbar or the ampacity of the conductors to which it is connected.

Power Control System

705.13(E) Access to Settings.

The access to settings of the PCS shall be restricted to qualified personnel in accordance with the requirements of 240.6(C).

240.6(C) Restricted Access Adjustable-Trip Circuit Breakers.

A circuit breaker(s) that has restricted access to the adjusting means shall be permitted to have an ampere rating(s) that is equal to the adjusted current setting (long-time pickup setting).

Restricted access shall be achieved by one of the following methods:

- (1) Located behind removable and sealable covers over the adjusting means
- (2) Located behind bolted equipment enclosure doors
- (3) Located behind locked doors accessible only to qualified personnel
- (4) Password protected, with password accessible only to qualified personnel

CEC Approval List



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Power Control Systems

Manufacturers:

Model Names:

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Note #1: The information in this list supplements the Grid Support Inverter List, and Energy Storage System List. The listed model numbers can also be found in the applicable equipment list.

Note #2: "Additional Required PCS Devices" identifies any devices required to enable PCS functionality, as reported on the UL 1741 CRD test report summary. Note that different installed configurations may or may not require different combinations of the devices identified.

Manufacturer ▲	Model Number	Type Of Equipment	Additional Required PCS Devices	Description
Generac Power Systems	X7602 [240V]	Inverter	ESS-tied system: PWRcell battery cabinet Total home monitoring: Neurio PN 011.00021B.F	Inverter with PCS functionality, may be installed in various PCS configurations. Compatible with Generac PWRcell ESS equipment.
Generac Power Systems	XVT076A03 [240V]	Inverter	ESS-tied system: PWRcell battery cabinet Total home monitoring: Neurio PN 011.00021B.F	Inverter with PCS functionality, may be installed in various PCS configurations. Compatible with Generac PWRcell ESS equipment.
Generac Power Systems	X11402 [208V]	Inverter	ESS-tied system: PWRcell battery cabinet Total home monitoring: Neurio PN 011.00021B.F	Inverter with PCS functionality, may be installed in various PCS configurations. Compatible with Generac PWRcell ESS equipment.
Generac Power Systems	XVT114G03 [208V]	Inverter	ESS-tied system: PWRcell battery cabinet Total home monitoring: Neurio PN 011.00021B.F	Inverter with PCS functionality, may be installed in various PCS configurations. Compatible with Generac PWRcell ESS equipment.

4 record(s) found.

Current Transformers

Current Transformers (CTs)



Equipment damage. Only connect CTs provided by Generac. Never connect to any other CTs. Connecting to other CTs could result in equipment damage.

(000732)

Current transformers (CTs) are required to use Self Supply mode and to enable Import / Export Limiting capability. CTs also allow the inverter to provide information on utility consumption through the PWRcell Inverter control panel and the PWRview monitoring app.

WARNING: This sensor is part of a Power Control System. Do not remove. Replace only with same type and rating.

WARNING: This sensor is part of a Power Control System. Do not remove. Replace only with same type and rating.

- CT's are a component of the PCS
- Have to be installed for system to function
- Removing a CT causes an inverter shutdown

Zero Import

Set Import / Export Compliance (optional)

By default, all Generac PWRcell Inverters ship without restrictions on import and export. Utility interconnection requirements may require the system to restrict or limit its ability to import or export power from or to the Utility grid. There are two PCS CRD200-compliant settings for PWRcell equipment: Zero Import and Export Limit.

NOTE: These settings are only available for inverter firmware version 13290 or greater. See [Verifying Inverter Firmware Version](#) for more details. To request a firmware update, please call 1-855-395-7841.

NOTE: Import / Export compliance settings rely upon proper CT functionality. Ensure CTs placement is correct for the system configuration, and ensure CTs are calibrated and functioning. See [Current Transformers \(CTs\)](#) for more information.

Zero Import

(CRD200 Export Only compliance): allows the battery to export power to a connected utility grid but will not allow the battery to be charged from the utility grid. In Zero Import, the battery will only be charged by connected DC PV power sources.

NOTE: Zero Import is one-time settable. Once set, some utilities may require the request to unset this setting to come from the utility. To unset Zero Import, please contact Generac PWRcell Technical Support.

Zero Import Restriction

- Prohibits the ESS from charging from the utility grid
- ESS will only be charged by the PV system
- One-time settable. Installer or End User cannot change the set point in the field after commissioning.
- Requires Generac PWRcell Tech Support to reset the parameter
- Generac will require Utility Documentation to be submitted allowing the change

Zero Import

Enabled SysModes ⓘ
0x7F
0: SAFETY_SHUTDOWN
1: GRID_TIE
2: SELF_SUPPLY
3: CLEAN_BACKUP
4: PRIORITY_BACKUP
5: REMOTE_ARBITRAGE
6: SELL

Priority Backup (Utility can charge ESS)
Disabled

Trigger CT calibration ⓘ AUTO ▾
Clear display ⓘ NO ▾
PLM channel ⓘ CH_2 ▾
PLM enable ⓘ PLM_ENABLED ▾

Zero Import Enabled

Self Supply Source Power (w) ⓘ 0
Self Supply Sink Power (w) ⓘ 0
Enable External Transfer ⓘ DISABLED ▾
External Transfer Voltage (v) ⓘ 95
External Transfer timeout (s) ⓘ 15
Zero Import ⓘ ENABLED ▾

Export Limiting/ Zero Export

Export Limit

(CRD200 Import Only compliance): allows a qualified installer to restrict the export to a connected utility grid and set an Export Limit value. When the Export Limit value is set to 0, this setting functions as a “Zero Export” mode or CRD200 Import Only mode. For this setting's value to be active, the setting Export Limiting must be ENABLED.

NOTE: Export Limiting is one-time settable. Once set, some utilities may require the request to unset this setting to come from the utility. To unset Export Limiting, please contact Generac PWRcell Technical Support.

NOTE: Export Limit setting can only be decreased from its current value. To reset the value of this setting, please contact PWRcell Technical Support.

Export Restriction

- Limits the export value of the inverter
- Can be adjusted from 7600 to 0
- When set to 0, the inverter does not export
- One-time settable. Installer or End User cannot raise the set point in the field after commissioning. They can go lower.
- Requires Generac PWRcell Tech Support to raise the value
- Generac will require Utility Documentation to be submitted allowing the change

Export Limiting/ Zero Export

GENERAC
Common
Inverter
000100070A5C
REbus Status
Beacon
000100121272
Inverter Status
PWRcell Configuration
Battery
000100080596
Inverter (Split-Phase)
Owner Information
Inverter Export
Compliance PDF
Proof of Compliance
Utility Compliance Configuration
RGM/LTE Kits
Cloud Status: Connected
Version 1.5.4

PWRcell Configuration

Configure PWRcell system settings

Enable inverter

Compliance selection IEEE_1547

Compliance settings defaulted DEFAULTED

Export Limiting

Enable Islanding

Enabled SysModes 0x7F
 0: SAFETY_SHUTDOWN
 1: GRID_TIE
 2: SELF_SUPPLY
 3: CLEAN_BACKUP
 4: PRIORITY_BACKUP
 5: REMOTE_ARBITRAGE
 6: SELL

Trigger CT calibration

Clear display

PLM channel

PLM enable

Self Supply Source Power

Self Supply Sink Power

Enable External Transfer

External Transfer Voltage

External Transfer timeout

Zero Import

Export Limit

Export Limiting defaults to “Disabled”

Export Limit Defaults to “20000”

When Export Limiting is Enabled, the Export Limit Changes to what the installer enters

Must be a value between 0-7600

Clicking “Submit” sets the parameters

Export Limiting/ Zero Export



4:04 10.10.10.10/d/4/m/64206 19%

GENERAC Inverter
00010007353F

PWRcell Configuration

Configure PWRcell system settings

Enable inverter
ENABLED

Compliance selection
IEEE_1547

Compliance settings defaulted
DEFAULTED

Export Limiting
ENABLED

Enable Islanding
ISLANDING_ENABLED

Enabled SysModes
0x5F

- 0: SAFETY_SHUTDOWN
- 1: GRID_TIE
- 2: SELF_SUPPLY
- 3: CLEAN_BACKUP
- 4: PRIORITY_BACKUP
- 5: REMOTE_ARBITRAGE
- 6: SELL

Trigger CT calibration

Submit

4:06 10.10.10.10/d/4/m/64206 19%

GENERAC Inverter
00010007353F

NO

PLM channel
CH_12

PLM enable
PLM_ENABLED

Self Supply Source Power (w)
0

Self Supply Sink Power (w)
0

Enable External Transfer
ENABLED

External Transfer Voltage (v)
95

External Transfer timeout (s)
15

Zero Import
ENABLED

Export Limit (w)
7600

Export Override
DISABLED

Submit

Compliance Report



Utility Compliance Report

Name John Smith
 Street 123 Main Street
 City/State/Zip City, State, 00000
 Country United States

Model PWRcell XVT076A03 Inverter
 Nameplate Power Rating (WMax) 7600 W
 RCP Number 0001000711B9
 Firmware Version 13590
 Date 2022-01-12 19:50:38 UTC
 In compliance with IEEE_1547

- Utility Compliance Reports can be downloaded during commissioning
- Inverters have to be disabled to be commissioned
- Export Limiting has been enabled
- Export Limit has been set to 0 W
- This inverter will not export any power back onto the utility grid

PWRcell Configuration		Configure PWRcell system settings
Enable inverter	DISABLED	Enable inverter
Compliance selection	IEEE_1547	Select which utility your inverter is being installed under.
Compliance settings defaulted	DEFAULTED	Indicates whether or not the default settings from the Compliance Selection field have been applied.
Export Limiting	ENABLED	When enabled, reduces the inverter exporting power to the utility grid to the value of Export Limit (below). NOTE: THIS IS A SET ONCE ATTRIBUTE. To unset Export Limiting, please contact Generac.
Enable Islanding	ISLANDING_ENABLED	When enabled, PWRcell Inverter shall export backup power at its Protected Loads output terminals to connected load. This setting does not override or interfere with the anti-islanding capabilities of the inverter.
Enabled SysModes	SAFETY_SHUTDOWN, GRID_TIE, SELF_SUPPLY, CLEAN_BACKUP, PRIORITY_BACKUP, SELL	Select the Operational Modes that will be available to this installation
Trimmer CT		
Export Limit	0	W The limit, in watts, that the inverter is allowed to push onto the grid. This setting will only take effect if Export Limiting (above) is ENABLED. NOTE: This value can only be lowered. This feature is only available for inverter firmware version >13200. For older firmware versions, the value 32768 may appear, and it can be ignored. To reset this limit or request a firmware update, please contact Generac. NOTE: This feature requires CTs to be properly installed and calibrated prior to use. For more information on CT calibration, see the PWRcell Inverter Installation and Owner's Manual.

Questions?



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