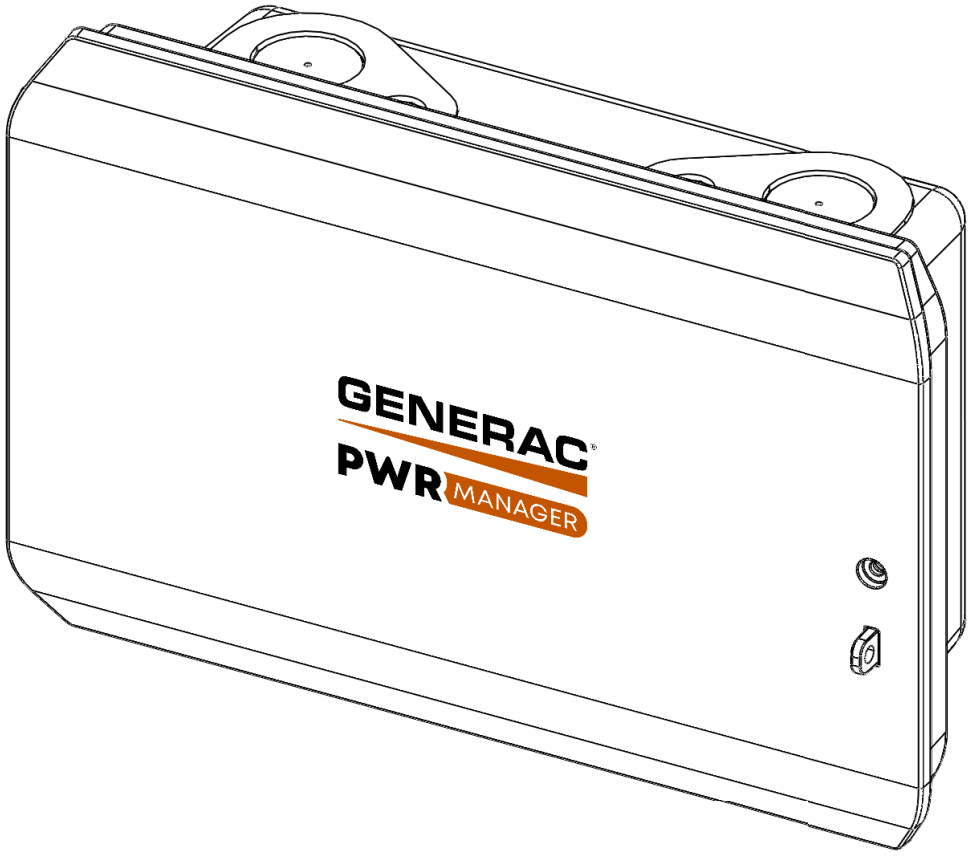
Installation Manual

Generac PWRmanager 12 Relay Load Controller



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⚠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 ***Serial Number Location***.

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: PWRmanager 12 Relay Load Controller Important Information

Unit Model Number	
Unit Serial Number	
Date Purchased	
Commissioning Date	

⚠WARNING

CANCER AND REPRODUCTIVE HARM

www.P65Warnings.ca.gov.

(000393a)

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Section 1: Introduction & Safety Rules

Introduction

Thank you for purchasing a Generac PWRcell® product.

The Generac PWRmanager is a load management panel that connects to the main breaker panel and coordinates with your PWRcell Inverter to provide flexible backup power in a cost-effective way.

This manual provides instructions for installing the PWRmanager, including mounting, wiring, configuration, and integration with the PWRcell system.The companion document to this installation manual is the Generac PWRmanager Owner's manual. See the owner's manual for information on day-to-day use, and configuration that customers may wish to do on their own.

The information in this manual is accurate based on the 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

⚠WARNING

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 starting, operating, and servicing procedures. The owner is responsible for proper maintenance and safe use of the unit.

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:

⚠DANGER

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

(000001)

⚠WARNING

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

(000002)

⚠CAUTION

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 an IASD or Generac Customer 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

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

(000188)

⚠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

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)

⚠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)

- 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.

- 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.

Electrical Hazards

⚠DANGER

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

(000104)

⚠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)

⚠WARNING

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

(000745a)

Section 2: General Information

Load Management Options

Load management systems are designed to prevent a power source such as an inverter from being overloaded by large appliance loads. Options include:

- Smart Management Modules (SMMs)
- Smart A/C Module (SACM) (found in PWRview transfer switch)
- Advanced Load Controller: PWRmanager

When using the PWRmanager in a system, it will control 12 circuits and two HVAC thermostat channels. Additional circuits can be managed by adding SMMs and configuring for lockout.

Do not use SACM circuits when using PWRmanager; instead use the PWRmanager's HVAC thermostat circuits.

Application Considerations

Overload on the power source is determined by AC power signal fluctuations.

The PWRmanager can control 12 AC single pole circuits and interrupt two HVAC thermostat low voltage circuits.

For digital thermostats where a 24 VAC thermostat wire is not available, interrupt the unit’s power source by wiring through one of the 12 power relays in the PWRmanager.

Compatibility

The PWRmanager is compatible with the XVT series 2-phase inverters. For Whole Home Backup applications, the PWRcell ATS is also recommended.

Interfaces and Elements

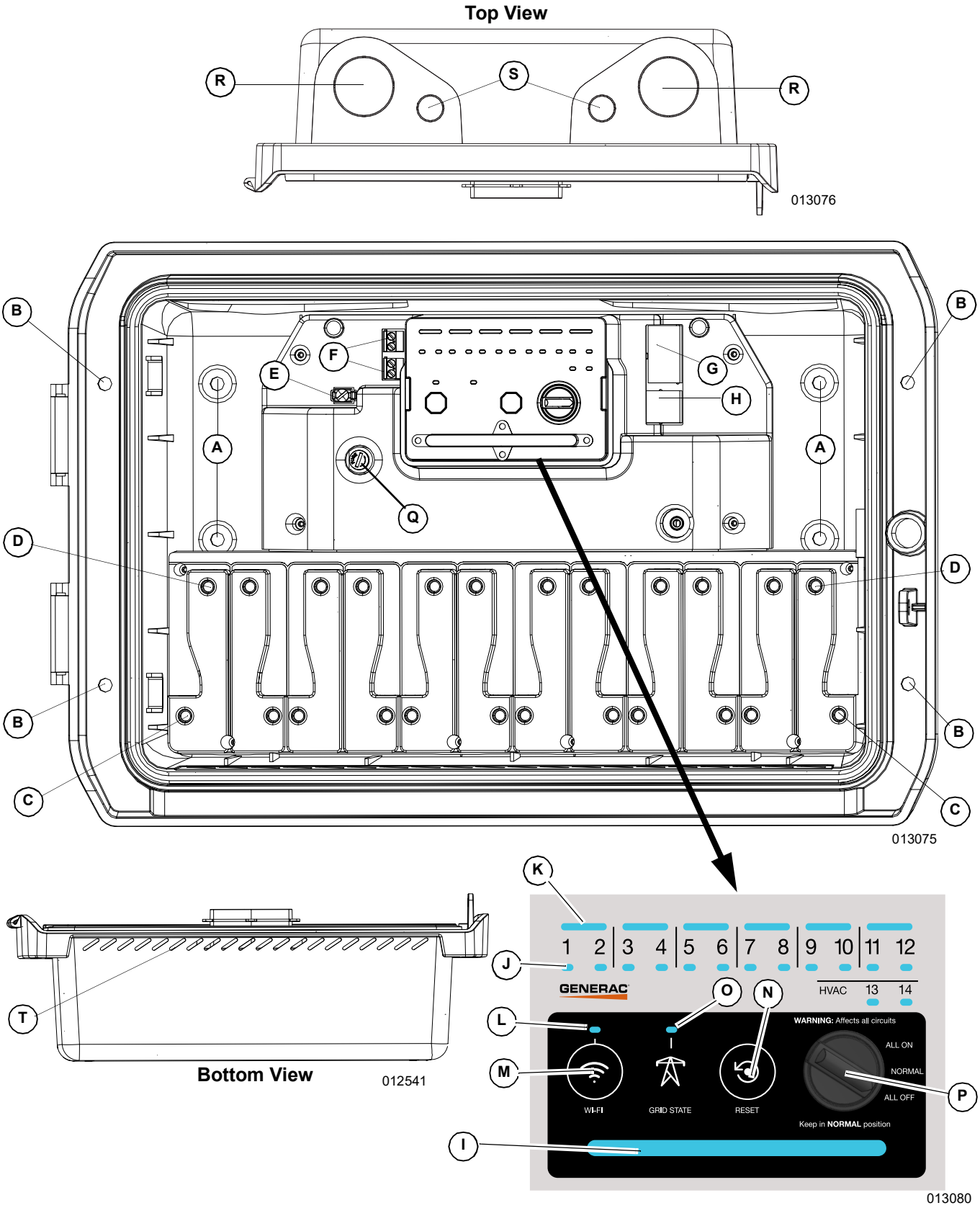

Figure 2-1. Interfaces and Elements

A	Back Wall Mounting Holes	Surface mount installation holes. (0.276 in dia (7 mm))
B	Flange Mounting Holes	Flush mount installation holes. (0.276 in dia(7 mm))
C	Relay Load Terminals	Connect the load circuit wire to these terminals.
D	Relay Line Terminals	Connect the wire to the breaker for the circuit.
E	Neutral Termination Lug	Must terminate a neutral wire to provide power to the PWRmanager unit.
F	HVAC Contacts	Connect low voltage AC Thermostat signal wires to these terminals.
G	CANbus	(future functionality)
H	Ethernet	Optional connection.
I	Status LED	Indicates power and operation status of the unit.
J	Relay LEDs	Indicate the relay status for each channel.
K	Relay Pairing LEDs	Lit to indicate relays bonded together for 2 pole circuits.
L	WiFi / Ethernet Status LED	Indicates status of the WiFi connection.
M	WiFi Broadcast Button	Press this button to trigger local WiFi AP mode.
N	Reset Button	Press to reset the unit. Long press to revert to factory default settings.
O	Grid State LED	Indicates whether the grid is present, or the system is islanding.
P	Mode Selector Knob	Selects to force all relays on, all relays off, or allow normal operation. Must be kept in normal position except in troubleshooting situations.
Q	Fuse	2 Amp 250 VAC slow blow glass fuse. Recommended part: Eaton BK / GMD-2-R.
R	Large Conduit Knockouts	Use one or two of these to wire power circuits into the electrical panel.
S	Small Conduit Knockouts	Use these knockouts for all wire insertions with a voltage lower than 30 V; such as HVAC control circuits and Ethernet.
T	Vents	Allow water to exit if entered through inside of conduits.
N/S	Mounting Screws	Wood screws for mounting to wood substrates.
N/S	Circuit Label Sheet	Fill in the circuit names wired to each relay (Mounted on the touch-safe cover).

Indicators

J	Relay LED	Off	Relay is open.
		Green	Relay is closed. (load is enabled).
		Red	Relay is not operating normally and remained in its last state (closed or open). See ***Troubleshooting*** for more information.
K	Relay Pairing LED	Off	Relays not paired.
		Green	Relays are paired.
		Red	Relays are paired, but at least one relay is not operating normally. See ***Troubleshooting*** for more information.
L	WiFi / Ethernet Status LED	Green	Connected to Generac server.
		Blue	Unit is either connected to the internet using local WiFi or Ethernet connection, but it is not connected to the Generac server.
		Flashing Blue	Connecting to local router via WiFi.
		Red	Unable to connect to local router or internet.
		Flashing Green	AP mode is broadcasting.
I	Status LED	Off	No power is available to the unit.
		Red	Relay or unit is not operating normally. See ***Troubleshooting*** for more information.
		Flashing Orange	Mode Selector Knob is not in normal position.
		Blue	Unit is powered by the PWRcell system and no issues are detected.
		Green	Unit is powered by the grid and no issues are detected.
O	Grid State LED	Green	Grid power is available. Unit is powered by grid.
		Blue	Grid power is not available. Unit is powered by PWRcell system.
		Orange	Grid status is unknown.

Section 3: Installation

Unpackaging

Open the carton and remove the PWRmanager unit.

Thoroughly inspect each component for damage and match carton contents to contents table below. If shipping carton shows damage as well as the contents, report damage to shipper before accepting the shipment.

If shipping package is undamaged, but any components are damaged, contact customer support.

Carton and Contents

Confirm package contents.

1	PWRmanager Unit (G0080090)
1	Mounting Template Sheet
1	Installation Manual (this document)
4	Wood Mounting screws
2	Tie-wrap strips

See ***Figure 3-1***. For later steps in installation, access to the internal areas of the PWRmanager will be necessary. Open the lid (A) of the unit and remove the touch-safe cover (B) by prying between the catch and the right-hand wall, and pulling directly outward.

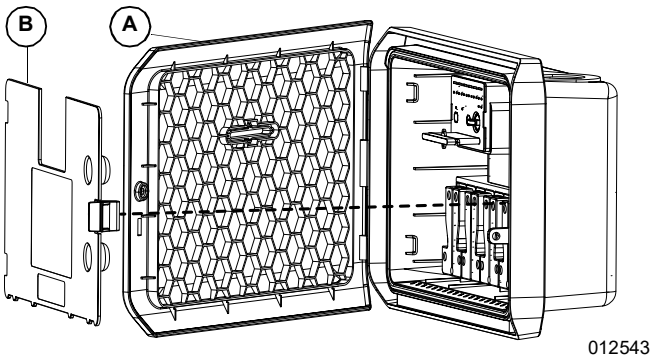

Figure 3-1. Remove Touch-safe Cover

Turn Off Power to the Breaker Panel

⚠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.

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Turn off the power to the main electrical breaker panel.

Install PWRmanager

NOTE: When installing outdoors, unit must be oriented with the conduit knockouts upward. Use watertight conduit hubs.

NOTE: Ensure that water does not enter the unit through the conduit openings from the breaker panel.

See ***Figure 3-2***. Prior to installing the unit, drill or knockout conduit holes in the breaker panel floor to match the conduit spacing (Q) of the PWRmanager. Drill or knockout as needed on the PWRmanager as well. Prepare the conduit pieces, and knockout hubs.

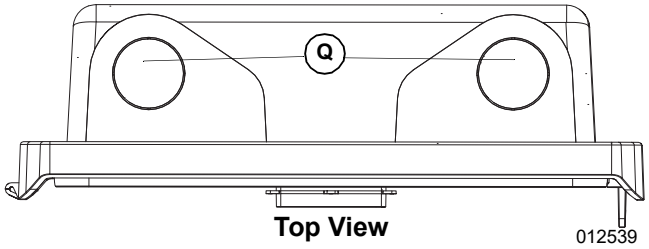

Figure 3-2. Conduit Knockouts

Surface Mount

See ***Figure 3-3***. When installing on a cinderblock, brick, or concrete wall, drill through the mounting holes in the back (A), and use suitable concrete anchors (not provided) to fasten unit to the wall. (recommend 1/4 in bolt)

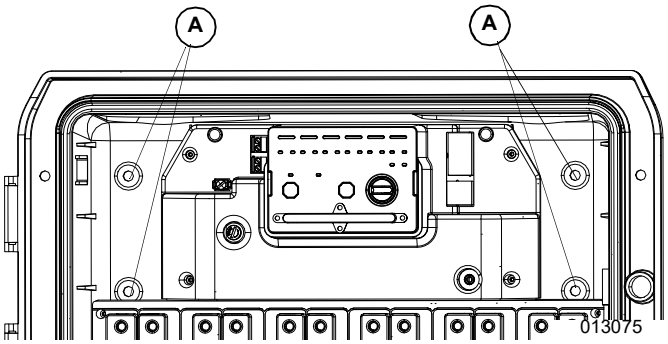

Figure 3-3. Surface Mounting Holes

Flush Mount

See ***Figure 3-4***. When installing between studs through a drywall sheet, follow instructions below:

1. Use the mounting template sheet to cut the hole in the drywall.
2. Using the provided wood screws, fasten the unit to the studs on both sides through mounting holes (B).

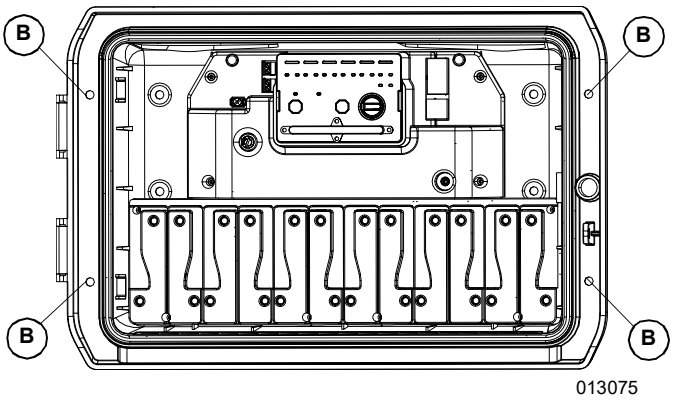

Figure 3-4. Flush Mounting Holes

Wire the Circuits

Without applying power to the system, continue with the following steps. See ***Advanced Considerations*** for important information on selection of circuits to wire through the PWRmanager. Use Field wire rated for at least 90C and 14AWG.

Wire Power Supply and Channel 1

See ***Figure 3-5***. Run a neutral wire (#14 AWG) from the neutral bar in the breaker panel to the neutral lug (E) in the unit. Tighten the lug to **25 in-lb** (3 N-m).

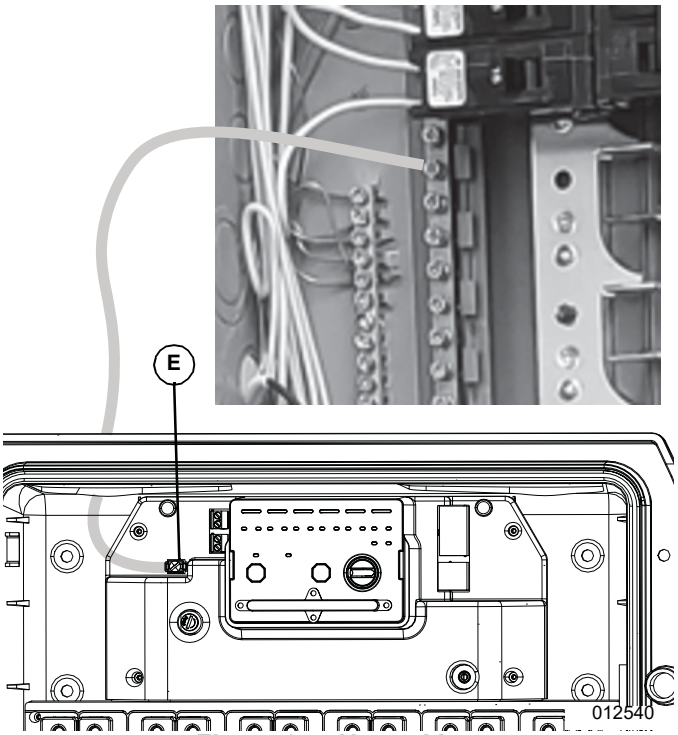

Figure 3-5. Neutral Lug

See ***Figure 3-6***. In the breaker panel, remove the selected circuit wire from its breaker. If necessary, apply a wire nut and add a wire to route it through the conduit into the PWRmanager. Terminate it on the load terminal for channel 1. Torque all lugs to appropriate specification listed in ***Table 3-1***.

TABLE 3- 1. Lug Torque

Wire Gauge	Lug Torque
14	**25 in-lb** (3 N-m)
10 – 12	**30 in-lb** (3.5 N-m)
8	**40 in-lb** (4.5 N-m)
6	**45 in-lb** (5 N-m)

NOTE: If connections are not allowed in the panel according to the local AHJ, use a separate junction box for extending wires.

Run a separate wire of a suitable gauge from the line terminal of channel 1 up to the breaker from where the load wire was removed.

NOTE: Channel 1 and the neutral terminal must be wired to provide power to the PWRmanager unit.

Important: Channel 1 and Channel 2 must be wired and must be on separate phases to correctly measure power for all circuits.

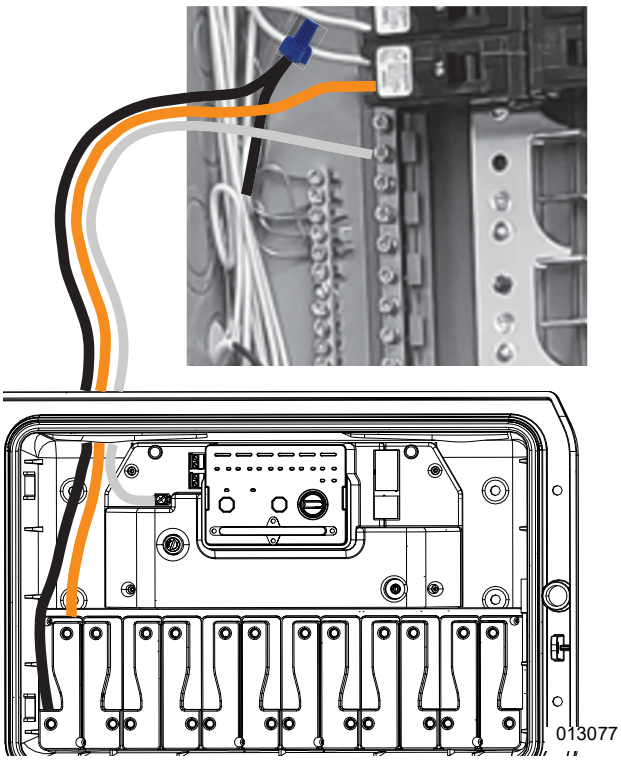

Figure 3-6. Wiring the Circuits

Wire Remaining Circuits

See ***Figure 3-7***. For each additional circuit to be wired, remove the selected wire from the breaker and route it into the PWRmanager. Run a separate wire of a suitable gauge back to the breaker from the line terminal for the same channel. Follow the same procedures as for the first circuit.

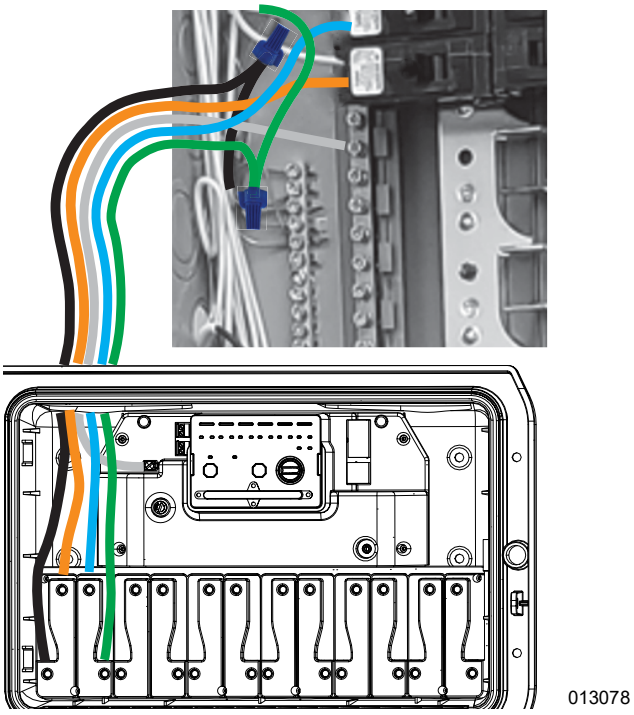

Figure 3-7. Wiring Multiple Circuits

Wire Two-Pole 240 VAC loads

See ***Figure 3-8***. When wiring a two-pole load, you must run the two wires to bonding-capable relay pairs:

1&2, 3&4, 5&6, 7&8, 9&10, 11&12.

For example, it is not possible to pair relays 2 and 3.

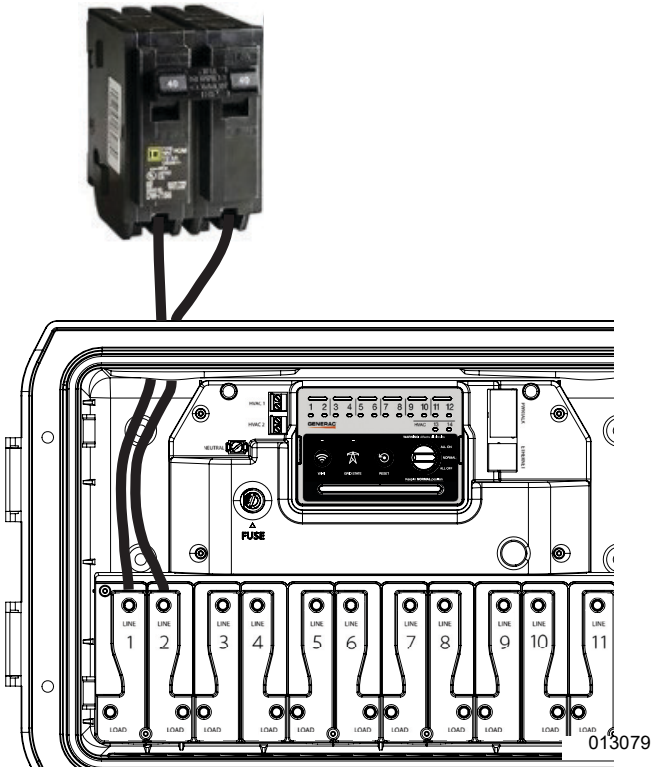

Figure 3-8. Wiring Two-Pole Loads

See ***Figure 3-9***. To avoid any unsafe conditions when first configuring the unit for operation, turn the mode selector knob (A) to All Off until the relay pairing has been done. This will prevent any unintended connections while in commissioning.

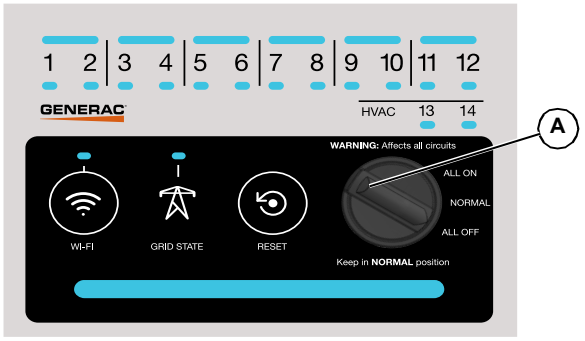

Figure 3-9. Turn Selector Knob to All Off

See ***Pairing Relays for a Two-pole Circuit*** for details on how to pair them.

NOTE: Multi-wire branch circuits must be wired to the PWRmanager as 2-pole 240 V circuits.

Wire HVAC Circuits

Important: Only wire low voltage circuits through the HVAC relays. Do not wire line-voltage baseboard heaters through these relays. Failure to do so will result in equipment damage.

See ***Figure 3-10***. To wire the HVAC circuits, run wires from the thermostat in the home to the PWRmanager through one of the smaller conduit openings (R).

NOTE: Low voltage wiring (HVAC, Ethernet) needs to be routed through separate conduits from the AC lines. The smaller conduit openings (R) can be used for this purpose.

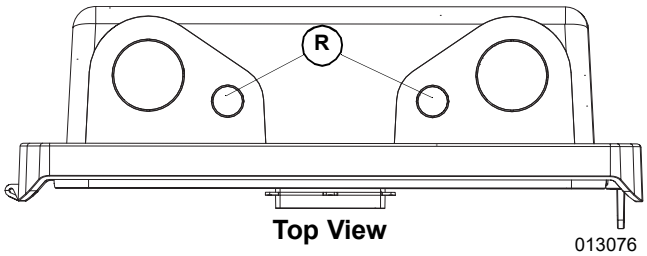

Figure 3-10. Small Conduit Openings

See ***Figure 3-11***. For each thermostat set of wires, interrupt one of the signal wires through one of the relays (F) and leave the other wire intact and carrying on to the HVAC equipment.

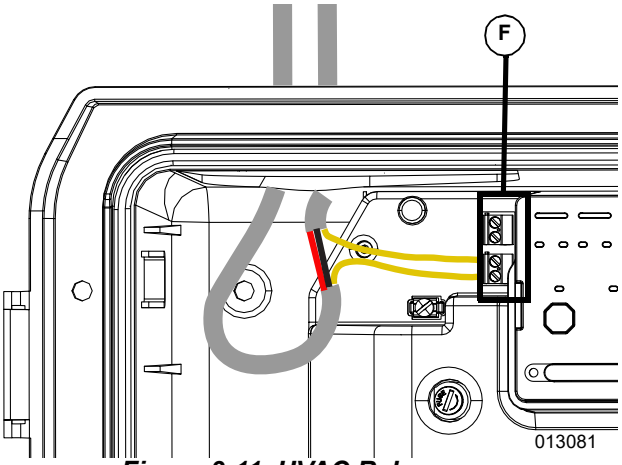

Figure 3-11. HVAC Relays

For air conditioning units, interrupt the yellow wire through the HVAC relay.

If the thermostat does not have a low voltage demand signal, it will be necessary to control the HVAC load by interrupting the equipment's branch circuit wiring instead of the thermostat signal.

Directory of Managed Circuits

Fill out the circuit directory label on the touch safe cover with controlled branch circuits or devices in accordance with NEC Article 750.50.

Power the System On

Confirm wiring, then put the touch-safe cover back over the relay wiring area and ensure the catch is firmly engaged.

Ensure the Mode Selector Knob is in "All Off", then apply power to the system.

Confirm the unit status LED indicates flashing orange to show the unit is operating, but the Mode Selector Knob is not in "Normal" position.

Without making any changes, proceed to ***Section 4: Configure Load Management***.

Section 4: Configure Load Management

Connection to PWRmanager

Connect directly to the PWRmanager's broadcast WiFi network from a mobile device or laptop following the steps below.

1. See ***Figure 4-1***. Open the device's WiFi configuration tab, find a PWRmanager-xxxxxx WiFi Access Point (AP), and connect to it. Look on the label for the required password.
2. Open a browser on your device and point at IP address: http://10.10.10.10 to open the configuration web interface tool. In the prompt that appears, enter "admin" as the user name and the password from the label (see ***Figure 4-1*** and ***Figure 4-2***) for the PWRmanager's Web Interface.

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Figure 4-1. Touch Safe Cover

If the unit's WiFi has previously been configured, it may no longer be broadcasting the local AP network. To trigger it to broadcast that network once more, press the WiFi button. The WiFi LED will begin to flash green indicating it is ready to connect locally.

Now it is possible to connect to the local AP network using the steps above. After twenty minutes, if still not connected to the unit, the AP mode broadcast will stop, and the unit will connect to the home WiFi network if it has a valid configuration for it. The WiFi LED / Ethernet will indicate this condition. A landing page should appear similar to ***Figure 4-2***.

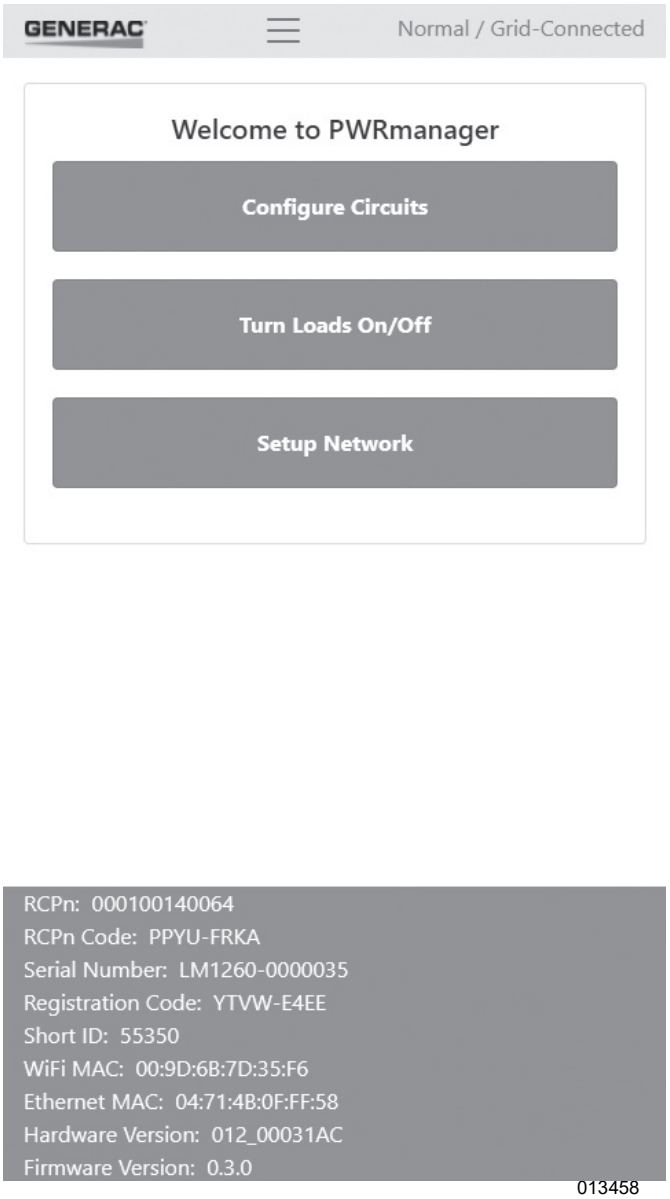

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Figure 4-2. PWRmanager Web Interface

Configure PWRmanager

Tap the configure circuits button to see the configure tab in the PWRmanager's web interface. It will show one circuit. It is possible to configure that circuit or add more.

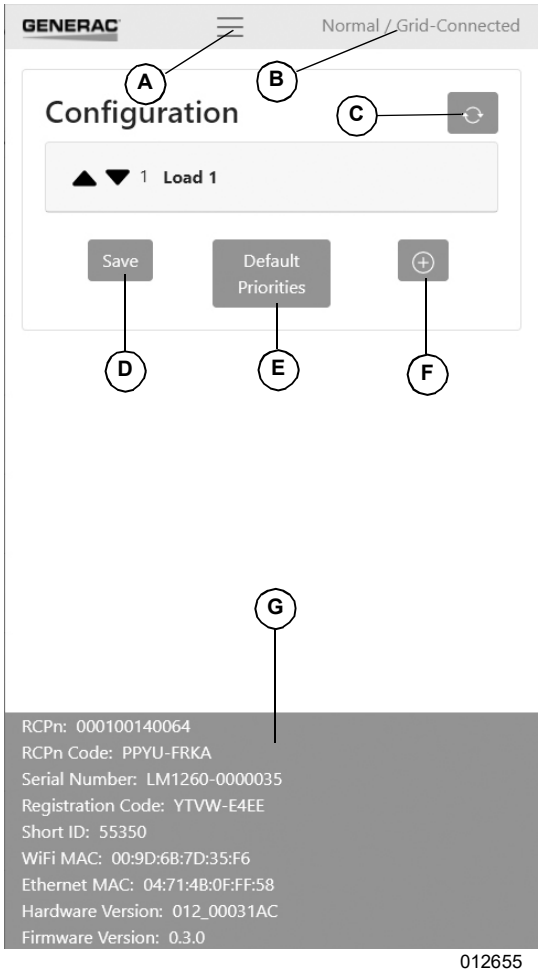

Figure 4-3. Configure PWRmanger

Screen Layout

A	Menu	Tap to open different screens.
B	Status Field	Shows selector switch and grid status.
C	Refresh Button	Tap to reload circuit list data from the PWRmanager.
D	Save	Tap here to save changes. All configurations must be valid to save.
E	Default Priorities	Tap here to order the circuits in the list.
F	Add Circuit	Tap here to add a new circuit to continue.
G	System Data	Bottom of screen contains detailed system information.

Adding a Circuit

To add an additional circuit to be configured, tap on the "+" button.

Deleting a Circuit

To delete a circuit configuration, open the expanded configuration section for it, and tap on the garbage can icon to delete it. All configuration data will be erased when a circuit is deleted.

Pairing Relays for a Two-pole Circuit

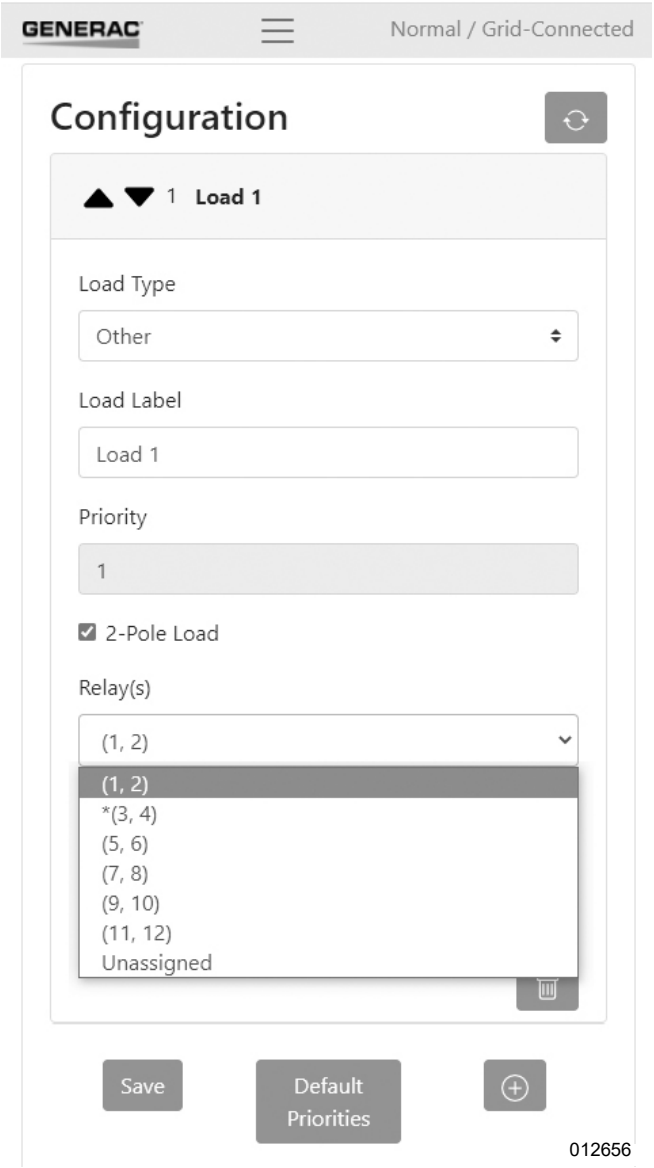

Figure 4-4. 2 Pole Relay Menu

1. See ***Figure 4-4***. Tap to select the circuit. The detailed configuration view will open for that circuit.
2. Tap to select 2-Pole Load.
3. Tap the "Relay(s)" dropdown list box and select the relay pair from the 6 shown.
4. Tap Save. This circuit is now a paired relay set.
5. Confirm on the PWRmanager unit that the paired relay LED is lit to show the relays are bonded.

Continue making other configurations for this circuit or move on to another circuit.

Pair all two pole circuit relays needed and confirm the paired LED for each is lit. Once all two-pole relays are paired it is a good time to move the Mode Selector Knob to Normal.

Test Paired Relay Circuit

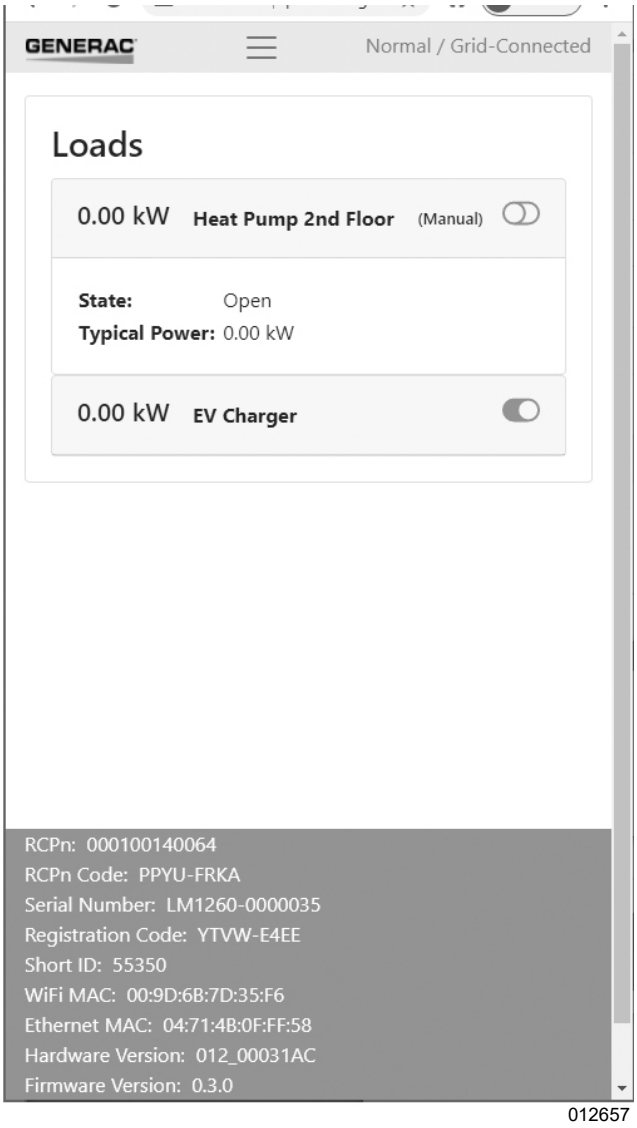

Figure 4-5. Test the Paired Relay Circuit

1. See ***Figure 4-5***. Tap on the Control tab in the web interface.
2. Select the circuit to be tested.
3. Tap or slide the toggle button to turn the circuit on, then off again.
4. Note the LEDs in the unit for the circuit being controlled.
5. Note the connected loads going on and off.

Configure Circuits

See ***Figure 4-6***. Configure the parameters listed. When finished, make sure to tap on the save button.

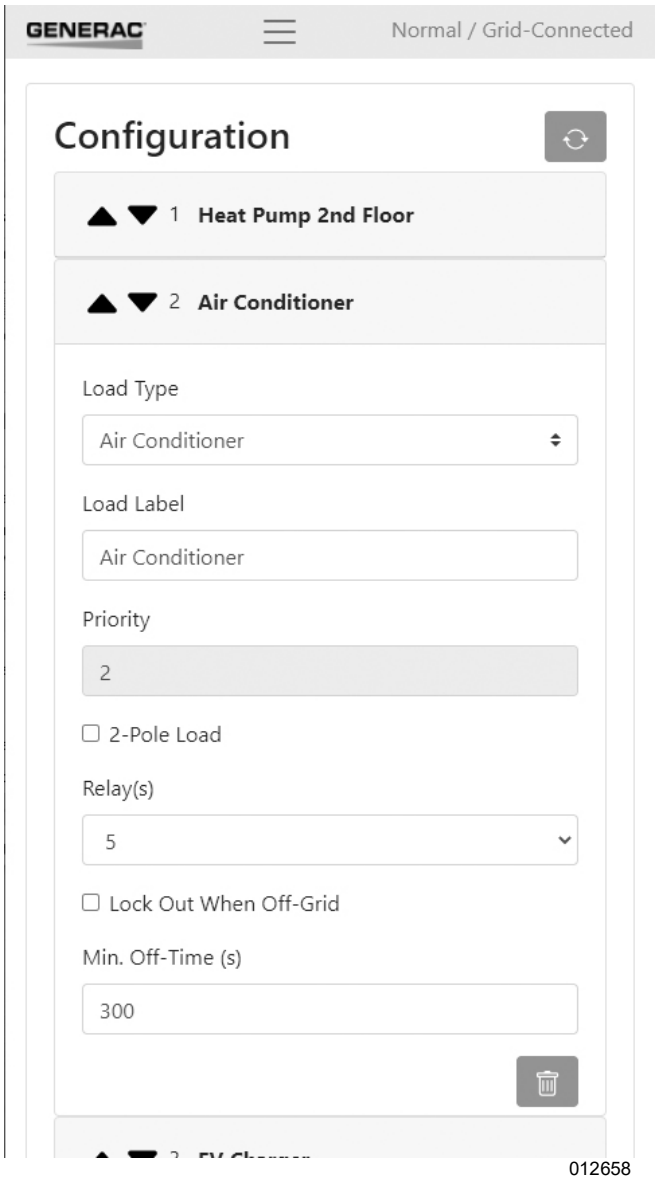

Figure 4-6. Configuring the Circuits

Load Label

Tap on the Circuit Name field and enter a text label up to 39 characters long. This will display for the homeowner when they are viewing their circuits in the PWRview app.

Load Type

See ***Figure 4-7***. Select the category for the load from the list provided. If a suitable choice is not shown select “other”. It is also suggested to use the category “mixed circuit” if there is no specific type of load on that circuit.

The category field is helpful for setting up the initial priority for the circuits. The fixed default priority order can be seen in the selection box. The higher up the list, the higher priority that circuit is given based on the type of appliance or circuit.

For example, if a refrigerator is selected, it will be set as one of the highest priorities when the default priority button is pressed.

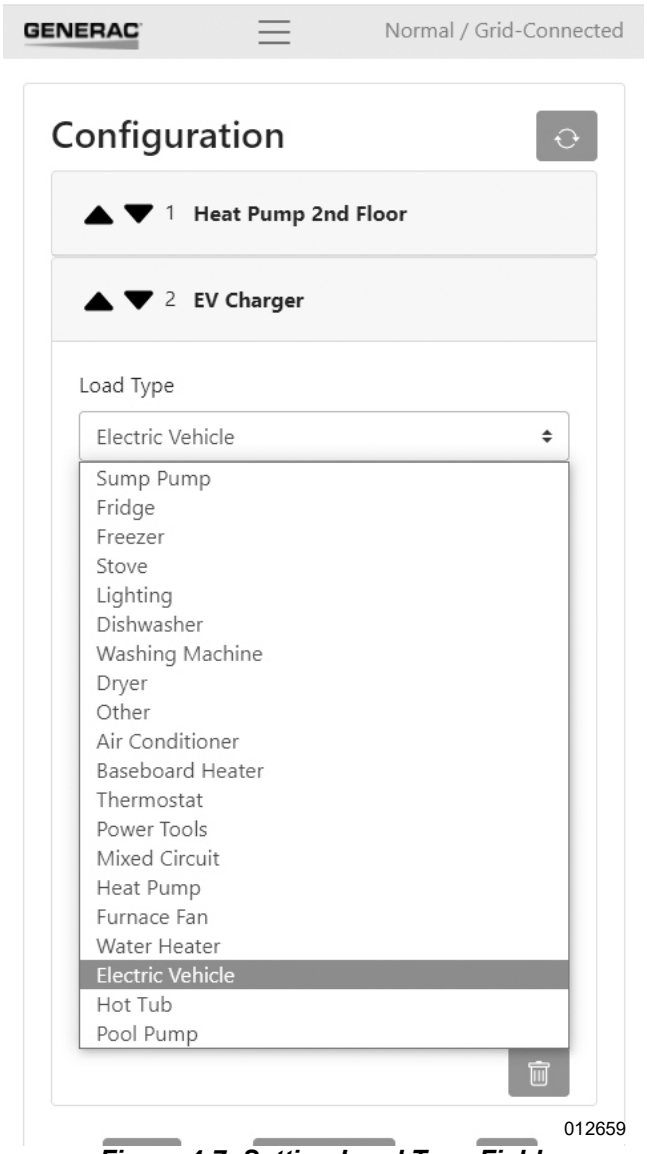

Figure 4-7. Setting Load Type Field

Relay(s) Assigned

If this is a two-pole circuit, see the section for ***Pairing Relays for a Two-pole Circuit***. If it is a single relay circuit, select the relay from the list of 14 that appear in the dropdown list box. Relays cannot be allocated to more than one circuit. Make sure before saving to have the correct allocation.

Selecting a relay which was already in use on another circuit, will enable this circuit to take over and the other circuit will lose its relay association. Relays in use will show an asterisk beside them in this list.

Lockout

See ***Figure 4-8***. To set a load to be shut off when the system is islanding, select this option on the circuit. Lockout loads will be shed immediately when the grid goes down, and will be powered once again when the grid returns. Loads configured to lock out will have a lock icon shown to the right in the bar.

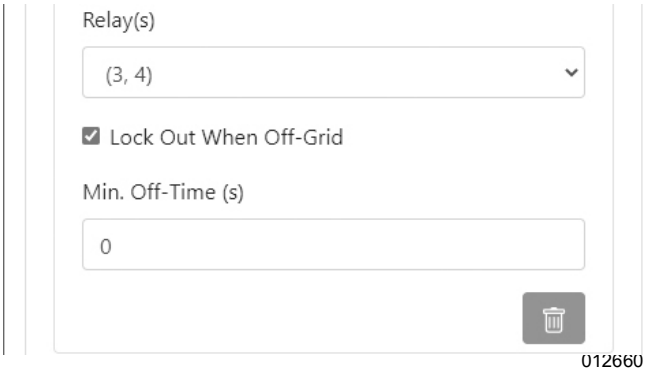

Figure 4-8. Lockout Loads

Minimum Off Time

- Some circuits require a minimum off time to allow them to return to ready state.
- For any equipment like this, set a minimum off time of 5 minutes.
- If the homeowner attempts to restart load too soon, the app will inform it is pending and display a warning icon. See ***Figure 4-9***. The load will start after the delay time expires.

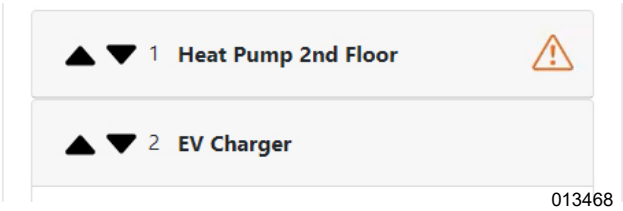

Figure 4-9. Minimum off Time Warning Icon

Finish Circuit by Circuit Configuration

View the list of circuits to see if a circuit is incorrectly configured. A warning icon will appear in the bar to indicate more needs to be done for that circuit.

Configure Load Priorities

See ***Figure 4-10***. If the categories have been set appropriately for all circuits, then tapping on the Default Priorities button will set the priorities.

NOTE: Tap Save to store the priorities configured. To abandon all changes, click the refresh button in the header of the page.

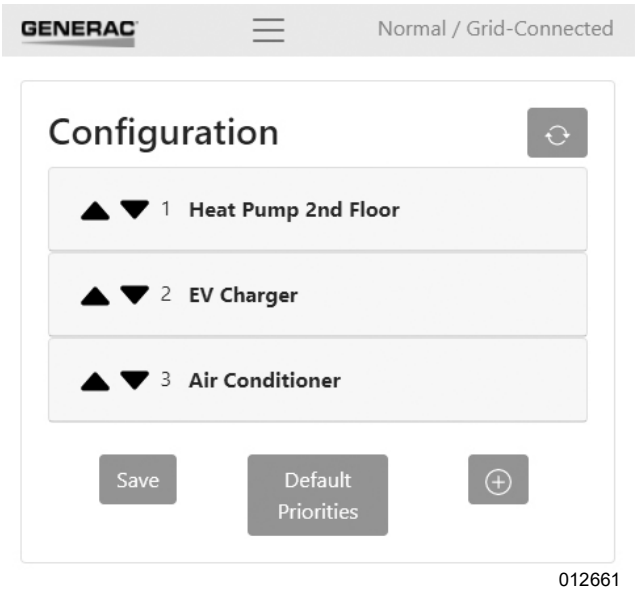

Figure 4-10. Configure Load Priorities

See ***Figure 4-11*** and ***Figure 4-12***. Review the priority sequence with the homeowner. Adjust the priorities by reordering loads in the list using the Up and Down arrows beside each load's label. Other circuits will be re-assigned priorities to accommodate the change made. The order the circuits display in the web interface tool will reflect the priority order. The highest priority loads (lowest priority number) will appear at the top, and lower priority loads toward the bottom.

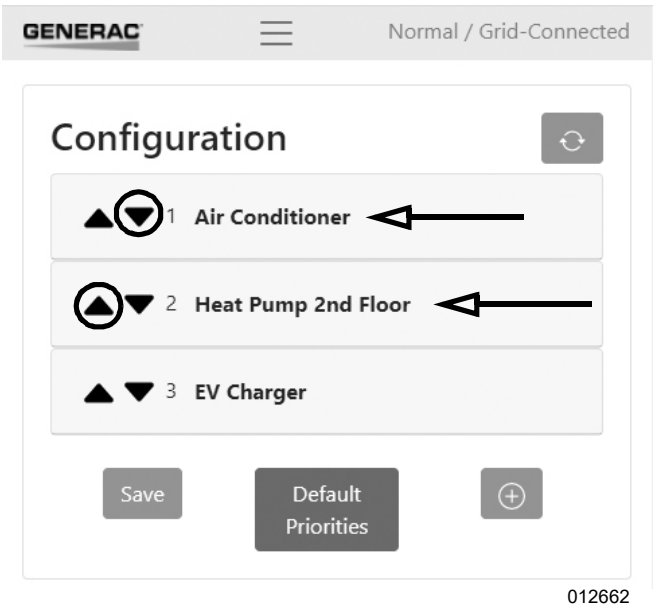

Figure 4-11. Initial Priority Sequence

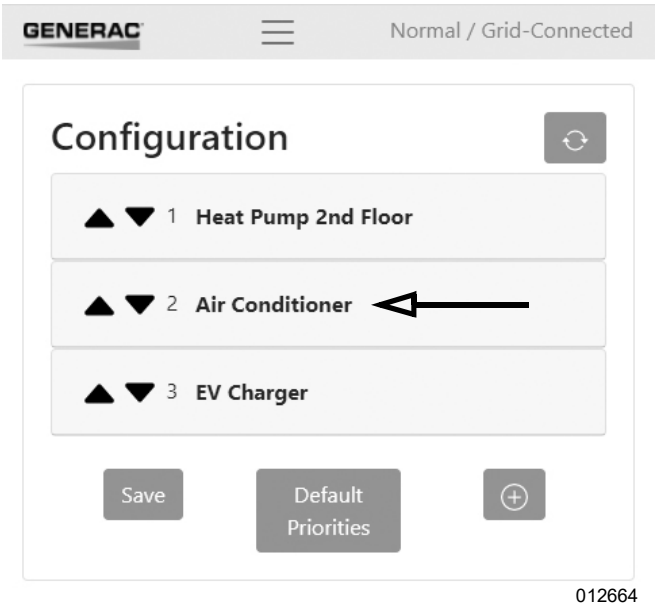

Figure 4-12. Changed Priority Sequence

Loads configured for Lockout will appear at the bottom of the list.

Advanced Considerations

This section includes considerations about which circuits to include and which to exclude when designing.

When wiring loads up to the PWRmanager remember the main panel in the home is now the protected loads panel. During an outage these loads will be maintained by the back up power source.

The loads wired through the PWRmanager are the loads which the homeowner accepts to shed to protect the inverter from overloading, and to conserve battery power.

Lockout Loads

Loads which use significant power and are not high importance during an outage should be routed through the PWRmanager and configured as Lockout. They will be shed immediately on entering an outage and will not be enabled again until the outage ends. The homeowner can always manually override the circuit from the app if desired. Loads to configure this way might include:

- Dryer
- Pool Pump
- Hot Tub
- Electric Vehicle

Direct Wired Loads

Loads in the breaker panel that are not wired through the PWRmanager unit will still draw power from the inverter during an outage. The highest priority loads are best to wire up in this way. Loads suitable for this include:

- Refrigeration and freezer loads
- Modem, telephone, and security systems
- Navigation or hallway lighting
- Sewage, sump, or water supply pumps.

Even if the PWRmanager sheds all the loads under its control, these other loads continue to draw. If these other loads exceed the inverter's capacity, then the system will shut down. As such, the number of direct wired loads should be kept to a minimum by wiring as many loads as possible through the PWRmanager.

Prioritized Loads

These loads are wired through the PWRmanager and are configured to run if they do not overload the inverter. If the total load exceeds the power capacity of the inverter, these will be shed in priority order to ensure the inverter continues to run. For best impact, the higher wattage loads should be used here:

- Stove, Oven
- Miscellaneous lighting and plug loads
- Heating and Air Conditioning equipment

NOTE: In the case of a stove, it may not be using power when an outage occurs. It will be shed, but may not impact the loading. Heating and Air Conditioning equipment will run regularly and so are good choices to turn on if possible.

Connect to Home Network

NOTE: Ensure that the home WiFi router is on a circuit direct wired to the breaker panel.

See ***Figure 4-13***. When all configurations are done and tested, the last but most important step is to connect the unit to the homeowner's network.

Connect via WiFi

In the PWRmanager's web interface on your device, tap on the WiFi Tab. In the screen that appears:

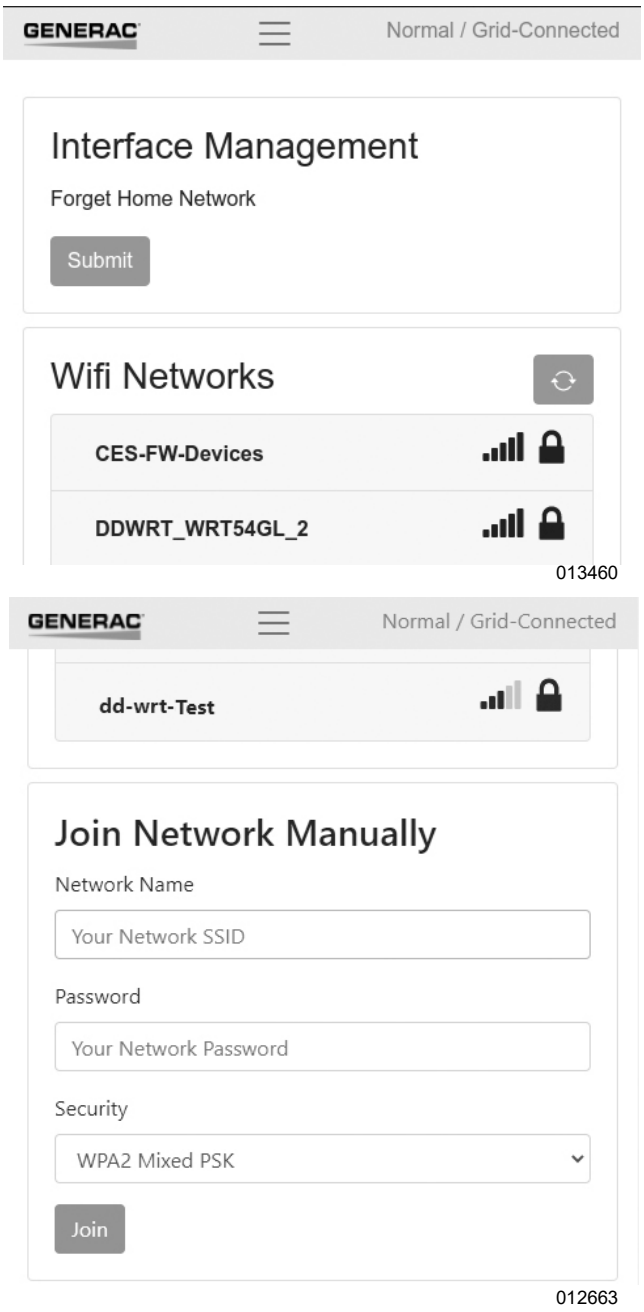

Figure 4-13. Connect Via WiFi

1. Find the WiFi SSID of the homeowner's router.
2. Tap to select it.
3. In the dialog that appears, enter the password for that connection.

If the home network router SSID is not visible, you can connect explicitly to it:

1. Type in the WiFi SSID of the homeowner's router.
2. Enter the password for that connection.
3. Click Join to join the network.

If successful, a message will appear in the web interface, and your local session with the device will be disconnected. Close the browser on your device and confirm the WiFi LED indicates connection.

Connect your device to the internet once more, and connect to the PWRmanager via the home network. See the ***Connect to PWRmanager by Home Network*** section below.

Connect via Ethernet

If WiFi is not strong enough in the installation area, you have the option to wire Ethernet using a CAT5 cable to the homeowner's router.

See ***Figure 2-1***. Run a cable with an RJ45 connector from the Ethernet connector (H) out though one of the smaller conduit knockouts. Connect it to the homeowner's internet router.

When connected this way, the WiFi is dormant. Press the Wifi Broadcast button in the PWRmanager to trigger the AP mode network if needed.

If successful communication has occurred with the Generac servers over the Ethernet cable, the WiFi / Network LED will indicate that the unit is connected to the internet even though it is not connected via WiFi.

Connect to PWRmanager by Home Network

When the PWRmanager is connected to the home network via WiFi or Ethernet, a local connection can be made through that network. In a web browser on your mobile device, enter: http://PWRmanager-xxxxx.local, where xxxxx is the Short ID from the label on the Touch-safe cover. Provided there aren't any blocking protocols in the router, this should access the same web interface.

Configure Inverter for Load Management

IMPORTANT NOTE: For the automatic behaviors to execute in the PWRmanager, it is important to configure the inverter to enable load shedding.

On the inverter's front panel screen select to modify the EnaLoadShed set point.

Select 1 if using SMMs and/or PWRmanager only.

For more detail on setting parameters on the inverter front panel, please refer to the PWRcell Inverter Installation Manual.

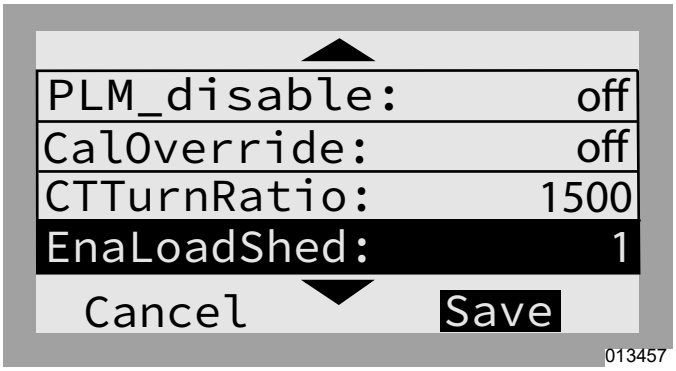

Figure 4-14. Configure Inverter for Load Management

Registration of PWRmanager

Associate with the system in PWRfleet

Registration of the PWRmanager unit is mandatory to qualify for the warranty. It is also necessary so the load control data appears in the PWRview app.

Ensure the inverter is set up and user account is established in PWRfleet before registering the PWRmanager.

In PWRfleet:

1. Navigate to the site in which the PWRmanager is connecting.
2. Click on the "Add Equipment" button.
3. In the dialog, enter the unit's serial number and the registration code found on the product label.

Once registration is complete, confirm that the PWRmanager icon appears for the system in PWRfleet's devices page.

Serial Number Location

See ***Figure 4-15***. The product label (A), containing the serial number, is found on the right side flange of the of the PWRmanager.

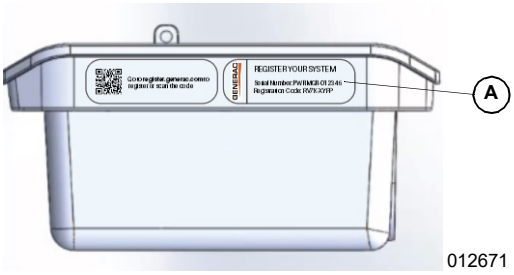

Figure 4-15. Serial Number Location

Hand over to Homeowner

Steps to follow in handing the system over to the homeowner:

1. Once the registration is complete, confirm that they can log in to the PWRview App and see the circuits page in the app.
2. Explain the loads which have been configured for Lockout and with priorities.
3. Show the ability to turn a load on and off. To download the PWRview App, please visit the link below.

https://www.generac.com/pwrview-apps

Backup System Capacity

Under normal operation, the PWRmanager will manage the load on and off as needed to ensure that the back up system can supply enough power to the circuits remaining without shutting down. NEC Article 702.4 requires that the backup power supply be sized for the connected load. By using load management, a reduced size back up system can satisfy this need.

IMPORTANT NOTE: When operating the Override Switch in the All-ON position, the load management mechanism will not operate and the potential to overload the back up system exists. To meet the NEC Article 702.4 requirements, never operate the PWRmanager while in backup power mode with the switch in the All-ON position.

Section 5: Testing & Troubleshooting

Reset a PWRmanager Unit

To reset the PWRmanager, press and hold the reset button for 3 seconds. The unit will return to its initial state but will remember all configuration settings.

Factory Reset

To reset the unit to factory settings, press and hold the reset button for 10 seconds.

Important: This will require that you re-enter WiFi information. All relay and load configurations will be lost. The firmware version will be unchanged.

All relays will return to the open state when this reset has been requested. It is recommended that the Mode Selector switch is put into the All Off position before triggering the factory reset.

The unit will begin broadcasting its WiFi AP channel again until it is configured.

Troubleshooting

Symptom	Cause / Corrective Action
Status LED not lit. No LED's lit.	Power to the unit is off. a) Neutral wire terminated? Check continuity and rewire if necessary. b) Is breaker on channel 1 circuit tripped? Reset the breaker. c) Check voltage on the channel 1 Line terminal. If zero, follow back to the disruption.
Relay LED is Red.	a) Relay may be wired in reverse. Confirm that the wire from the breaker is attached to the Line terminal for the relay and the load wire is connected to the load terminal on the relay. b) Power from the upstream breaker to the relay power terminal is off. Confirm that the breaker is not tripped. c) Relay has failed. Contact service and note which relay has failed.
WiFi / Ethernet Status LED is Red.	WiFi connection lost or not able to connect to homeowner's network. Follow the Steps in ***Connect to Home Network***.
WiFi / Ethernet Status LED is Flashing Green.	WiFi AP mode is broadcasting. Connect directly with mobile device. See section: ***Connection to PWRmanager***.
All relays are off. The Web interface and app cannot change any of them.	a) Mode Selector is in "All Off" position. Return to normal for the functions to work. b) Inverter has full overload from the direct wired loads. Turn off breakers on direct wired loads, if needed, for your inverter to continue supplying power.
Cannot find the PWRmanager-xxxxx broadcast WiFi network.	Unit may already have home network WiFi configured. Press the WiFi button to start the AP broadcast. 20 minute AP mode timer may have expired. To trigger the local AP network, press on the WiFi button, and confirm the WiFi LED begins to flash green.
Power readings are incorrect.	a) Breaker on Channel 2 is tripped. Reset the breaker. b) Channel 2 is not wired. Ensure that channel 2 is wired to a breaker in the panel. c) Channel 2 is wired to the same phase as channel 1. Ensure that Channel 1 and Channel 2 are wired to different phases in the panel. d) Channel 2 has no power to it. Check voltage on the channel 2 Line terminal. If zero, follow back to the disruption.
All shedding configurations appear in the Web interface but entering an outage nothing changes and the inverter shuts down.	Load Shedding not enabled on the PWRcell Inverter. Need the EnaLoadShed register set to 1 or 2 for Load Management to function. See section: ***Configure Inverter for Load Management***.

Firmware Update

As needed, automatic firmware updates will be delivered to the PWRmanager. Anytime firmware is updated, the unit will stop managing loads for a short period of time. The power relays will not change state during that time and the unit status LED will flash as the update progresses.

No configuration data will be deleted in this process and the unit will return to normal operation.

Local Firmware Download

If it is necessary to update the firmware in a PWRmanager, you can follow the process below to load a firmware image into it. In the Web Interface, go to the General Tab. There, tap to select the firmware file and choose to send it to the unit.

Contact technical support to obtain the necessary file.

Section 6: Specifications

Environmental Specifications

Description	Value
Mounting Options	Indoor, Outdoor, Flush Mount, and Surface Wall Mount
Operating Temperature Range	- 40°F to 122°F (- 40°C to 50°C)
IP Rating	3R Outdoor Mounting

Physical Specifications

Description	Value
Dimensions	Width 14 in x Height 9 in x Depth 5 in (35.56 cm x 22.86 cm x 12.7 cm)
Weight	14.3 lb (6.5 kg)
Wire sizes	14 through 6 AWG

Performance Specifications

Description	Value
Per-circuit Current Capacity	60 A Resistive / newline AC / 2HP motor load at 120 V, 4HP motor at 240 V
Number of Controllable Relays	12
Number of HVAC-control Relays (no metering)	2
Power Consumption	<20 W
Maximum Total Current	450 A
Warranty	10 Years

Connectivity, Security

Description	Value
WiFi Frequency Band	2.4 GHz
IP Addressing	DHCP, Static
Encryption	TLSv1.2

Compliance

Description	Value
UL	UL916

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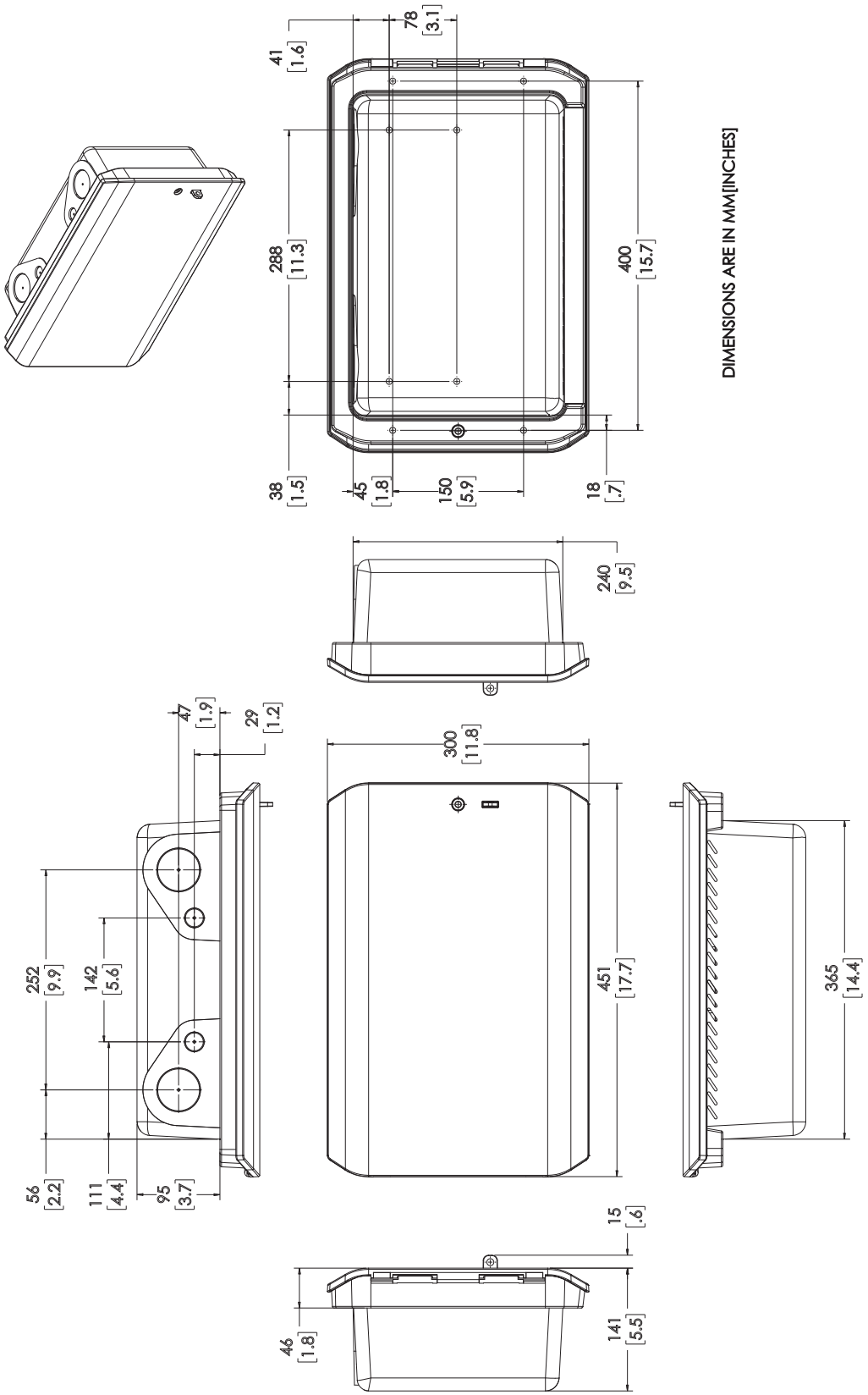
Section 7: Dimensions and Drawings

Enclosure Base



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Section 8: Applications

Introduction

This section contains a Single Line Drawing for the wiring configuration.

Normal configurations are based on circuits from a single breaker panel through a single PWRmanager.

New PWRcell Installation Including Load Management

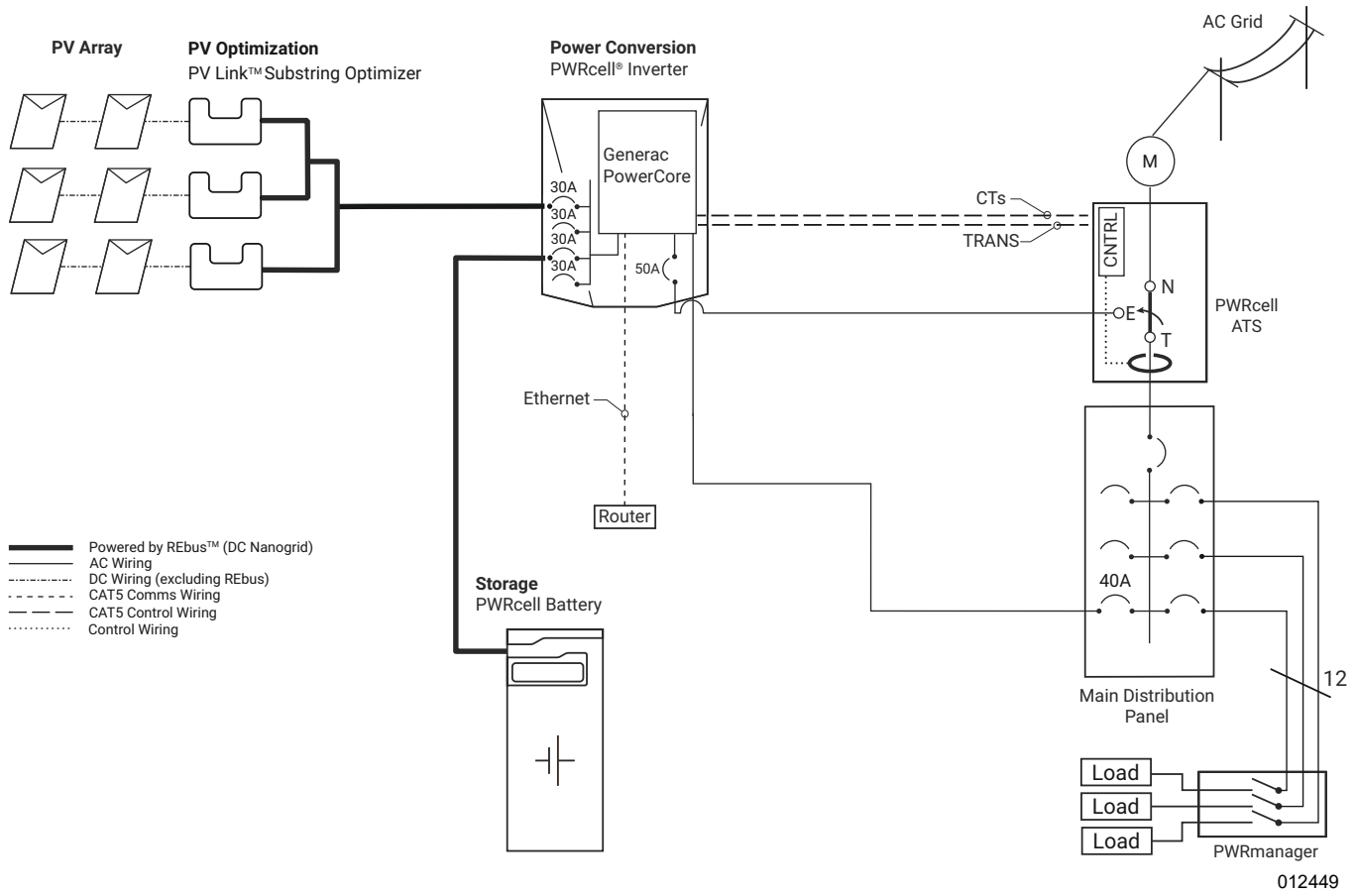

Figure 8-1. New PWRcell Installation Including Load Management

Caution must be used to not run circuits through the PWRmanager at a sub-circuit level, and then run single circuits from that same sub-panel again. The measurement of power will end up being doubled on any circuits wired this way.

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Generac Power Systems, Inc.
S45 W29290 Hwy. 59
Waukesha, WI 53189
1-888-GENERAC (1-888-436-3722)
www.generac.com