



 PowerNodes

**greenWAVE**  
REALITY™



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# Introduction

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The GreenWave Reality platform helps create a smart, energy-efficient home through the monitoring and controlling of your powered appliances and electronics. You can conserve energy with minimal impact to your lifestyle by using our products to easily manage your powered devices. Simply connect our Gateway to your home network, plug your devices into our PowerNodes, and then monitor and control the devices' power usage through a Web browser or smartphone.



## PowerNode Overview

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The GreenWave Reality PowerNode is a smart outlet adapter that connects your appliances and electronics to electrical outlets and your GreenWave Reality home network so that you can monitor and control your devices' power usage remotely through a Web browser or smartphone. The PowerNode is available as a single outlet node or as a six-outlet strip.

The PowerNode automatically connects to your GreenWave Reality Gateway (the device that connects to your home network). This connection enables the Gateway to securely connect the devices you have powered through your PowerNode to your home network. The PowerNode collects data on the energy consumption of the connected devices and transmits the data to the Gateway. You can then control the energy consumption of each connected device automatically using GreenWave Reality Smart Controls. These user-defined Smart Controls allow you to turn devices on or off remotely through a Web browser or smartphone or to set a schedule for automatically turning your devices on or off at pre-defined times.





1. PowerNode plug: Prongs that you plug into your power outlet.
2. PowerNode outlet: Outlet where you plug in your appliance or electrical device.
3. Room color selector: Wheel that you rotate you specify the associated room color.
4. Sync button: Button that you press to sync PowerNode with Gateway.
5. Indicator: Button that shows current activity and status of synced devices.

## Room Colors

Your PowerNode has a corner wheel with colored numbers to represent the room or device that the PowerNode is powering. Set the PowerNode to the colored number you want to use to identify the room or device (this is referred to as the “room color”). For example, you can set the room color to blue. Then, when you access your account through the Web or smartphone, the corresponding room is identified by the same blue color as your PowerNode.

You can set PowerNodes in different rooms to different colors to make those rooms easy to identify when managing the power sources on the Web or smartphone.



## Indicators

Your PowerNode has an indicator that displays any of the following patterns and colors to show you its current status:



**Off (no color):** All PowerNode ports connected to the Gateway are off.



**Steady white in the center on/off symbol:** All PowerNode ports connected to the Gateway are on.



**Steady green:** Some PowerNode ports connected to the Gateway are on (some are off).



**Flashing 2 green bars on both sides of the power button and the on/off symbol flashing white only:** PowerNode is out of range from the Gateway. You can move the PowerNode closer to the Gateway to improve reception. Or you can add additional PowerNodes closer to the Gateway so that the PowerNode can connect to the Gateway via the additional PowerNodes (PowerNodes can “piggy back” on each other’s network connection).



**Rotating green double bars:** PowerNode is in association mode to connect with Gateway. When inclusion of the Power Node is successful, the rotating bars turn off followed by steady green light from all green bars around the Power Button for five seconds.

When excluding/disconnecting a PowerNode (see how on page 12) and the exclusion is successful, all green bars will show steady green light for 5 seconds.

# Installation

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Before you install your PowerNode and powered devices, make sure that your GreenWave Reality Gateway is already connected to your home network and operating (refer to the instructions that came with your Gateway).

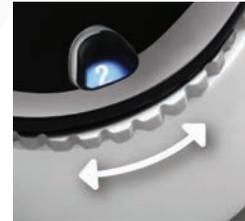
There are four basic steps to install your PowerNode and powered devices:

1. Set the PowerNode room color.
2. Choose the powered device to connect and its location.
3. Prepare the PowerNode for the powered device.
4. Plug in the powered device and turn on the PowerNode.

### 1. Set the PowerNode Room Color

Set the PowerNode to the colored number you want to use to identify the room or device (this is referred to as the “room color”).

The room color selection is strictly to help you identify the room when you monitor and control its power usage. Any color setting you use will work automatically with your Gateway. Refer to the section above on room colors.



### 2. Choose the Powered Device and Location

Choose the appliance or electronics device you would like to connect to your PowerNode. Turn the device off and unplug it from any power source. As discussed in the “Installation Tips” section, you should attach only one device to each PowerNode outlet (one device for a single-outlet PowerNode or six devices for a six-outlet PowerNode strip). Locate a suitable electrical outlet nearby where you would like to place the device.

### 3. Prepare the PowerNode for the Powered Device

Plug the PowerNode into the electrical outlet. Turn the PowerNode Off by pressing the power button, which will illuminate white to indicate the power is off.

### 4. Plug in the Powered Device and Turn on the PowerNode

Plug the device you want to power into the PowerNode outlet. Turn the PowerNode appliance power on by pressing the power button, which will illuminate green to indicate the power is on. Turn the device on.

The appliance is now part of your GreenWave home network.

### Installation Tips

Review the safety information. Be sure to review the information contained in the “Safety Information” chapter for important safety information you should follow.

Connect only one appliance per PowerNode outlet. For best results, attach only one powered device to each PowerNode outlet (one device for a single-outlet PowerNode or six devices for a six-outlet PowerNode strip). Do not connect power strips and extension cords (or other PowerNodes) to the PowerNode. The PowerNode can only reliably monitor and control one device connected to one outlet at the time. Connecting more devices to one outlet interferes with power consumption monitoring and may cause risk of malfunction and damage to your PowerNode from overloading. If you would like to control more devices, you can easily add more PowerNodes to your home network.

Keep radio signals clear. Your Gateway and PowerNodes have antennas built-in for radio communication with Internet services and other devices on your network. Just as you might experience reception problems on your mobile phone inside a building, your Gateway can have trouble communicating with PowerNodes if their radio signals are blocked by obstacles such as large metal panels or walls containing wire mesh. When placing these devices in your home, imagine invisible lines connecting between them. Try to keep these lines clear from obstruction as much as possible. Also place your PowerNodes at least 1.5-3 feet (.5-1 meters) above floor level to promote reception.

# Common Z-Wave Tasks

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The GreenWave Reality PowerNodes communicate wirelessly with the Gateway by use of Z-Wave mesh networking, which is a robust connection technology designed for home automation with security and privacy in mind. The more Z-Wave compatible devices installed in your home, the better coverage your private Green-Wave Reality Home Network will have.

## Network Inclusion Process

The process for adding a PowerNode to your home network is called “inclusion.” It must only be performed once, and you must have the Gateway plugged in and working first. You can start the inclusion process by pressing and holding the Gateway network button for two seconds so the rotating “inclusion mode” pattern appears on the Gateway activity Indicator. When this is completed, the Gateway is ready to perform the inclusion of the PowerNode. To complete the process you must perform the following steps:

1. Plug the PowerNode into a wall outlet.

2. Locate the network button on the PowerNode. It is a small round button on the side of the device, marked with the sync symbol.
3. Press and hold the network button for one second until the PowerNode activity indicator begins to display a clockwise-rotating pattern, which shows that the PowerNode is attempting inclusion.
4. After a few seconds, the rotating pattern should stop, and a rapidly flashing pattern should appear to indicate successful inclusion. The PowerNode is now part of your GreenWave Reality home network, and you can connect an appliance and electronic device (refer to the instructions that came with your PowerNode to plug in your appliance or electronic device).

*If the rotating pattern has stopped, but the rapidly flashing pattern did not appear, then the PowerNode inclusion process has failed, and you must start over.*

### Network Exclusion Process

*Note: If your PowerNode is new and has never been used before, then you should not need to perform the exclusion process.*

A PowerNode that has been previously used with a different Z-Wave network must have its association (homeID) with the other network removed before you can connect it to your GreenWave Reality home network.

This process is called “exclusion” and requires two steps: one that must be performed with the Gateway and then one that is performed with the PowerNode.

You can start the exclusion process through your Gateway user interface or by pressing and holding the Gateway network button for five seconds until the “exclusion mode” pattern appears on the Gateway activity indicator. When this is completed, the Gateway is ready to perform the exclusion of the PowerNode.

To complete the process you must perform the following steps:

1. Unplug the PowerNode from the wall socket.
2. Locate the network button on the PowerNode. It is a small round button on the side of the device, marked with the sync symbol.
3. Press and hold the network button while plugging the PowerNode into a wall socket. Keep the button pressed for five seconds until all green bars showing steady light for 5 seconds, indicating that the exclusion process has completed. Your PowerNode is now free of its former association, and you can perform an inclusion process to include it in your GreenWave Reality home network (refer to the “Network Inclusion Process” section above).

*If the network indicator and power button symbol flash together slowly for five seconds, then the exclusion process failed, and you must start over.*

# Safety Information

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**Indoor Use Only** - Your Gateway should be used only in dry, indoor locations. Do not use your Gateway in high-humidity locations such as greenhouses, saunas, washrooms, or patios. Do not use your Gateway in locations where it can get wet such as near aquariums or running water.

**Do Not Disassemble** - Your Gateway has no user-serviceable parts inside. In case of persisting malfunction, please contact Customer Service to arrange for repair at a certified service location. Do not attempt to disassemble the Gateway for any reason.

**Arrange for Service if Needed** - Should you encounter any problems with your Gateway, turn the device off by unplugging it from the electrical outlet. Contact Customer Service to arrange for repair at a certified service location under the following conditions:

1. When the power cable or plug is damaged or frayed
2. If the product has been exposed to rain or water
3. If the product casing has been damaged

## About GreenWave Reality

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GreenWave Reality is a global innovator in the emerging Home Energy Management market. GreenWave Reality provides an affordable, easy-to-use, standards-based platform that allows utilities enhance their relationship with consumers and better balance energy on the grid while consumers can conserve energy with a minimal impact to their lifestyle by easily monitoring and controlling their appliances and adding intelligent LED lighting. GreenWave Reality is led by a diverse team of proven leaders with global experience.

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## Model Number

NP160-F  
NP162-F

## Environmental Conditions

Operating Temperature: 0°C to +25°C  
Storage Temperature: -20°C to +60°C  
Maximum Humidity: 5% to 90% N/C  
IP-Class (Moisture Tolerance): IP20

## Power Rating

Maximum Load Current: 10A  
Maximum Load Power: 2400W (@240V)  
Load Monitoring Precision:  $\pm 0.1$ W  
Overcurrent Protection: 10A internal fuse  
Supply Power: 250V~ AC, 50Hz

Surge Protection: Yes

Standby Power Consumption: 0.4W

Appliance Receptacle: DIN49440 (Schuko)

Wall Plug: CEE 7/7 (Schuko)

## Wireless Network Features

Z-Wave Radio Frequency: 868.42MHz

Z-Wave Maximum Inter-node Range: 30m (measured with line of sight, no obstacles, and height of devices above floor >1m)

GreenWave Reality PowerDNA: v1.0

## Z-Wave Command Classes Certified

Binary Switch

Power Meter

Multichannel

Firmware Metadata