



PowerPak

Power Distribution Unit
User Guide



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Introduction

The Pakedge PowerPak power distribution unit gives you unprecedented convenience and control, including on/off sequencing to power on and shut down sensitive equipment in a configurable order. The PDU has full monitoring capabilities including input voltage, frequency, individual outlet current and temperature (sensor sold separately). The user-defined alerts can trigger actions based on these measurements, sound an audible buzzer and notify interested parties.

This device has been tested to the specifications of UL1449 for protection against both current and voltage surges. Remote management of the PDU is easily accomplished with a BakPak Network Patroller which provides a tunnel to the PDU through the Internet and monitors all your network devices. See "Add the PowerPak to a BakPak Cloud account" on page 24 for more information on setting up the BakPak integration.

Key Features:

- Configurable power-up and shutdown: Configure the PowerPak to power on/off connected devices in any order for device-dependent hardware and to protect sensitive equipment against power flooding.
- Secure network control: The PowerPak is fully IP addressable using the built-in, secure Web interface.
- Web-based monitoring: Monitor the real-time and historical current and power usage of each PDU outlet, along with the input voltage and frequency.
- Configurable alerts: Define visual, audible, and email alarms with full logging.
- Surge protection: Provides up to 6kV surge protection to your devices.
- Manageable by Pakedge's Bakpak network management agent from any location.

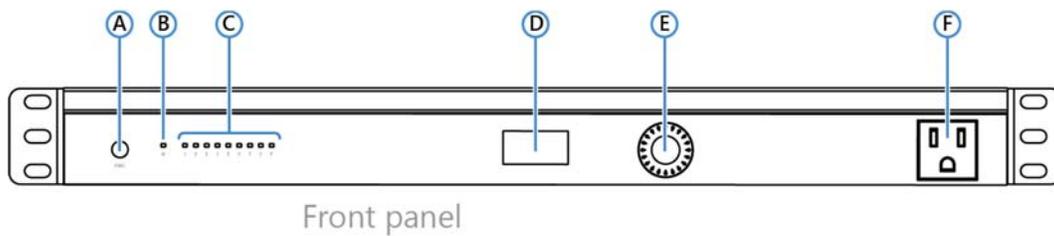
Overview

PowerPak 9

The PowerPak 9 power distribution unit comes with nine NEMA 5-15 outlets.

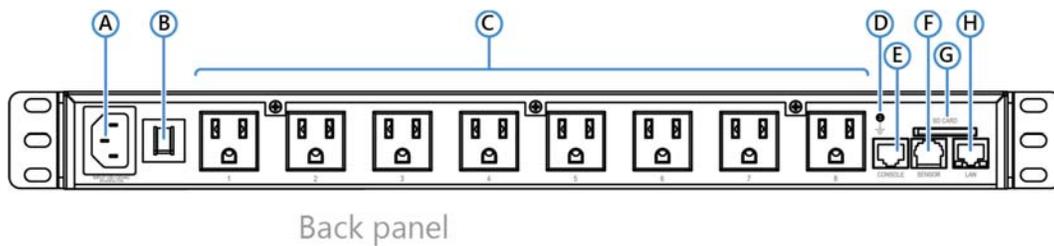
- Input: 100-120VAC, 50~60 Hz
- Output: 100-120VAC, 12A, 50~60 Hz, 1440W (total)

Front panel



- A. Power switch
- B. Surge protection indicator light
- C. Power outlet 1~8, F indicator light
- D. OLED display
- E. Circular selector switch
- F. Power outlet F

Back panel



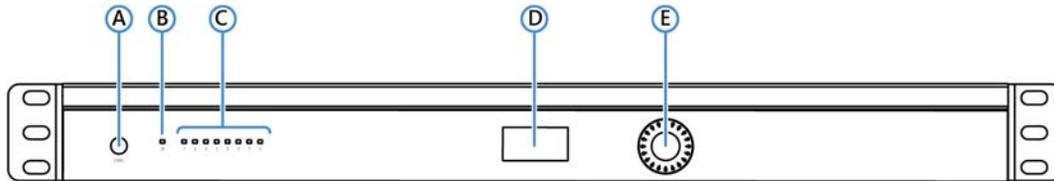
- A. Power inlet
- B. Circuit breaker
- C. Power outlet 1~8
- D. Ground lug
- E. Console port
- F. RJ11 port to connect the temperature sensor
- G. SD card slot
- H. Ethernet port for a network connection

PowerPak 8I

The PowerPak 8I power distribution unit comes with eight IEC C14-type outlets.

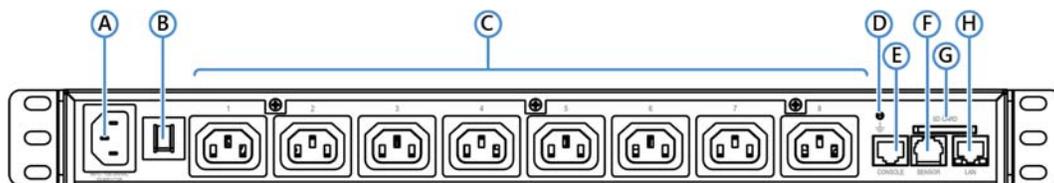
- Input: 100-240VAC, 50~60 Hz
- Output: 100-240VAC, 10A, 50~60 Hz, 2400W (total)

Front panel



- A. Power switch
- B. Surge protection indicator light
- C. Power outlet 1~8 indicator light
- D. OLED display
- E. Circular selector switch

Back panel



- A. Power inlet
- B. Circuit breaker
- C. Power outlet 1~8
- D. Ground
- E. Console port
- F. RJ11 port to connect the temperature sensor
- G. SD card slot
- H. Ethernet port for Internet connection

Display

The front panel of the PDU has an OLED display, which helps you quickly review information and control outlets while working at the rack without needing to log in to the web interface.

From the home screen, rotate the scroll wheel and press the center button to select from the menu options:

- **Local Reboot:** Press and hold the center button for two seconds to power cycle the outlets that have this feature enabled.
- **Measurements:** Display the voltage, current, or power consumption for the entire PDU or individual outlets.
- **Outlet Control:** Turn the selected outlet on/off.
- **Settings:**
 - Display the IP address, MAC address, or serial number of the PDU.
 - Turn off the OLED display or adjust the contrast.
 - Dim the LEDs or turn them on/off.
 - Display the date and time.
- **Messages:** When a user-defined alert condition occurs, a message displays showing the type of alert (options below), and the LED of the outlet will blink (all LEDs will blink for global alerts).
 - Voltage
 - Current
 - Power
 - Temperature

Note: If the buzzer feature is enabled, press the center button to turn the buzzer off.

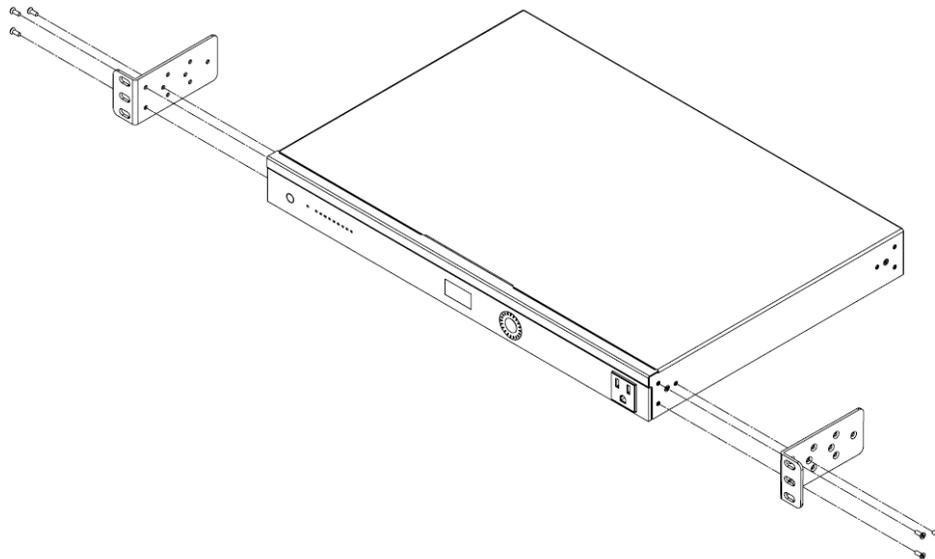
PowerPak Installation

Tools required:

- Phillips screwdriver (if using rack-mount brackets).
- Computer with an Ethernet interface and a web browser (an integrated DB-9 port or USB-to-Serial adapter may be necessary if you would like to use the console interface).
- Ethernet cable.

To install the PowerPak:

1. Open the box and remove the unit.
2. If mounting the PowerPak in a standard 19" AV rack, attach the rack-mounting brackets to the sides. If not rack-mounting, ensure that the PowerPak is mounted near power and network connections (i.e, a backbone switch or a firewall/router). The PowerPak must also be connected to a reliable ground connection.



3. To ensure the unit is properly grounded and remains safe, connect a ground wire (12 gauge minimum) from the back of the PowerPak's ground terminal to a reliable ground (such as metal on the rack or a floor ground lug).
4. Connect power to the device. The power outlet indicator light will light up.
5. Connect an Ethernet cable from your computer to the LAN port on the PowerPak. You are now ready to configure the PowerPak to an IP address that matches your network.

Warnings

Elevated Operating Ambient—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.

Reduced Air Flow—Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading—Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, via the use of power strips).

Using the hardware controls

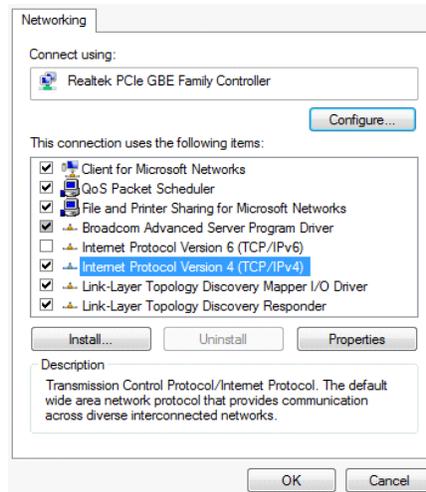
Task	Action	Result
Reset to factory defaults	Press and hold power button for 10 seconds.	Outlet LEDs blink during reset, but outlets remain enabled. User interface is reset to defaults.
Enter Sleep mode	Press and hold power button for two seconds.	Outlets turn off, based on user-defined power off delay times.
Wake from Sleep mode	Press and release power button.	Outlets turn on according to user-defined power-on delay times.
OLED menu options	Rotate scroll wheel and press center button	Toggles menu options and selects an action.

PowerPak startup

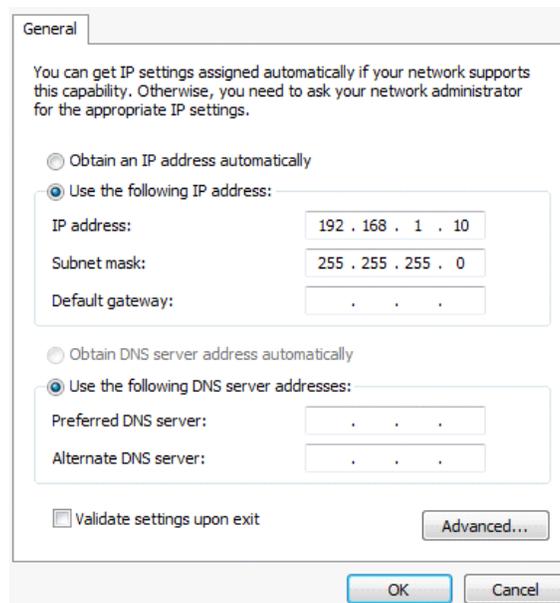
To log in to the PowerPak, you must first configure the TCP/IP settings of your computer.

To configure TCP/IP settings:

1. Under **Control Panel**, double-click **Network Connections** and double-click the connection of your Network Interface Card (NIC). The *Local Area Connection Properties* dialog appears:



2. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**. The Internet Protocol (TCP/IP) dialog appears where you can configure the TCP/IP settings of your PC.

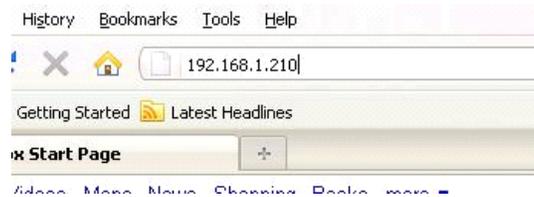


3. Select **Use the following IP Address** and type the IP address and subnet mask, as in the example below. Be sure the IP address and subnet mask are on the same subnet as the PowerPak. If the PowerPak has been connected directly to a network with an active router, then it will be assigned an IP address from the DHCP server instead of using the default 192.168.1.210 address. **Note:** Make sure the PowerPak and your computer are configured on the same subnet.

PowerPak IP address:	192.168.1.210
PC IP address:	192.168.1.10
PC subnet mask:	55.255.255.0

4. To configure the PowerPak through a web browser, type the IP address of the PowerPak (default **192.168.1.210**) and press **Enter**.

Default settings: The IP address will be automatically assigned by a router if a DHCP server is detected. Otherwise, the default IP address will be automatically set to **192.168.1.210**.



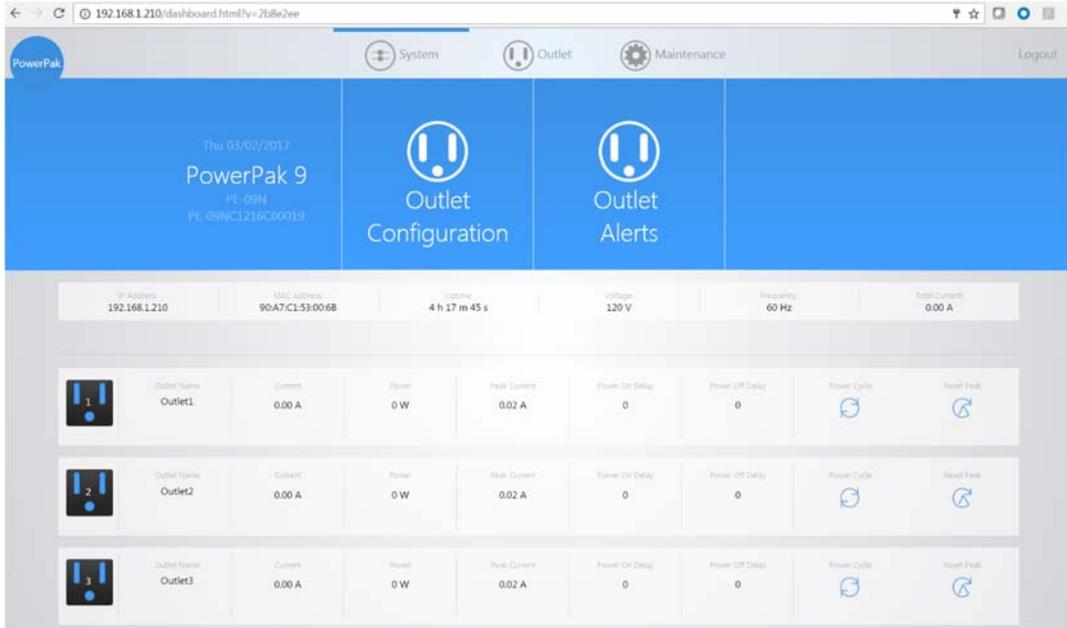
To log in:

1. In the username box, type **pakedge**. In the password box, type **pakedgep** and click **Login**.



PowerPak Power Distribution Unit

The PowerPak main menu appears. The main menu displays the status of PowerPak and general information such as the IP address, MAC addresses, voltage, and frequency. The outlet section displays the current, power consumption, power on delay etc.



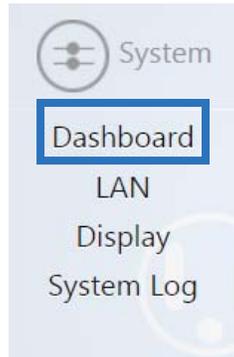
Menu Options



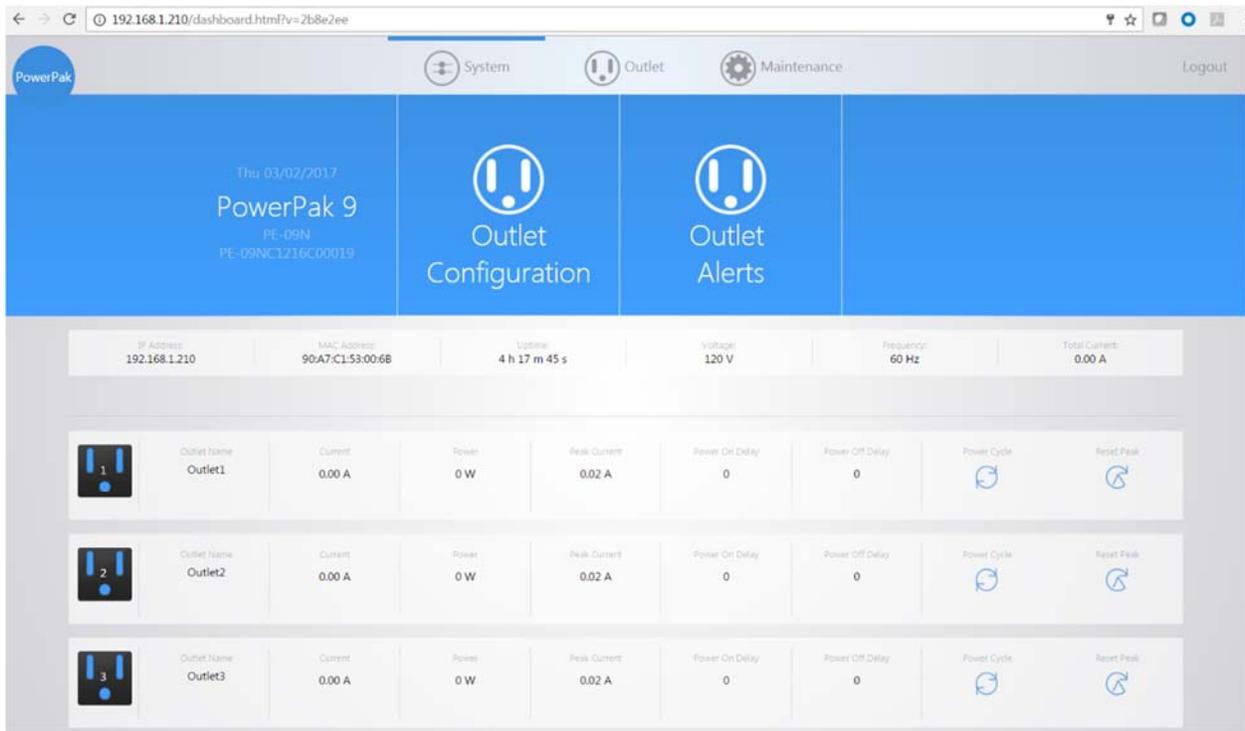
System

This section contains system-level menus like LAN and Display settings

Dashboard



The Dashboard is the default landing page of the PDU. You can also access this page by hovering over the **System** icon and clicking **Dashboard**. This page displays the MAC and IP addresses, current voltage/frequency/current, outlet status, and temperature/humidity with the temperature sensor.

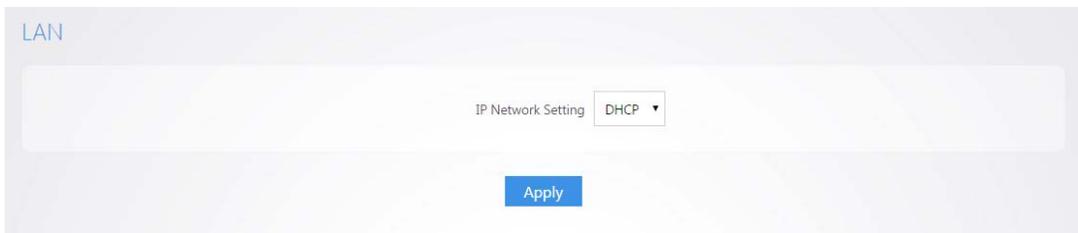


Dashboard for an individual outlet:



- **Outlet Status** Displays the outlet name, current, power, peak current measured since the last reset, and power on/off delay times. A red border will be displayed around the outlet if it is in an alert condition.
- **Power cycle** Power off/on the outlet.
- **Reset peak** Reset the measured peak current to 0.

LAN

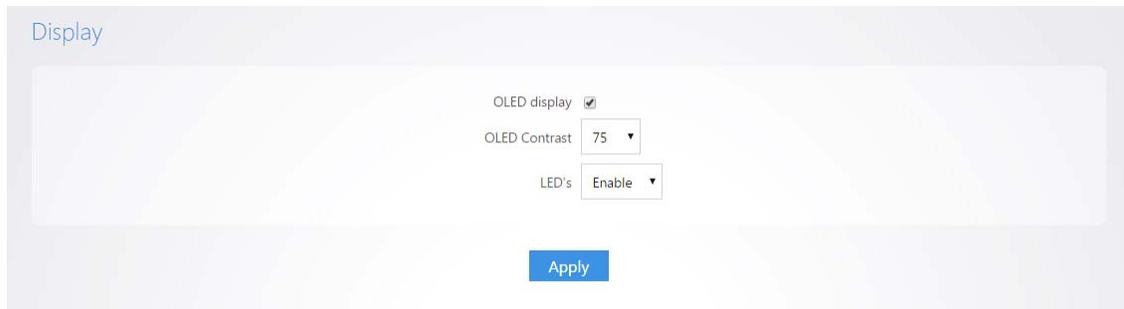


- **IP Network Setting** Configure the IP Network setting of your PDU to DHCP or static IP. The default setting is DHCP.

Display



Configure the display setting for your PDU.

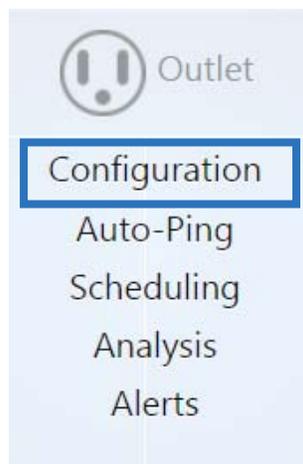


- **OLED display:** Enable/disable the OLED display
- **OLED Contrast:** Adjust the OLED contrast to 25, 50, 75, 100
- **LED:** Enable/disable/dim the LEDs

Outlet

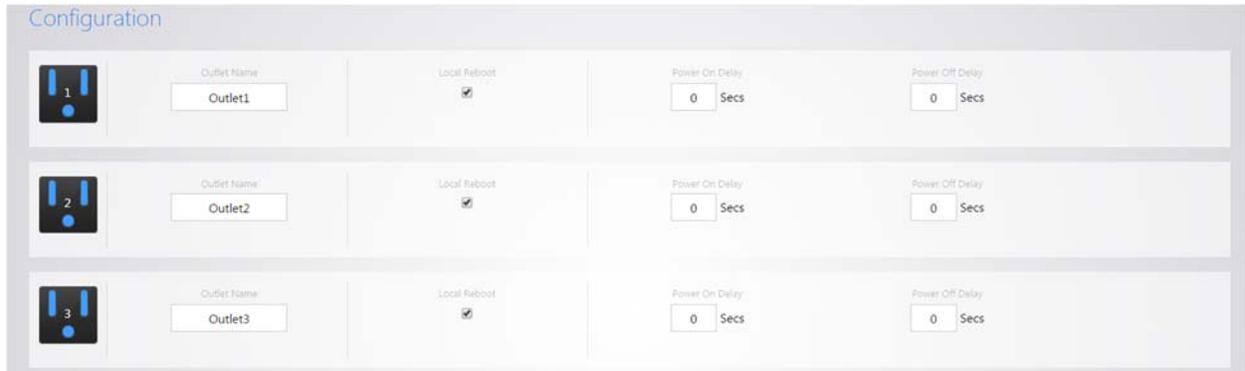
This section contains outlet configuration and management menus, including schedules and alerts.

Configuration



PowerPak Power Distribution Unit

Configure the name, local reboot, auto ping reboot, power on/off delay for each individual outlet.



- **Outlet name:** Specify an outlet name. For example, if you connect a 24-Port switch to Outlet1, you can rename Outlet1 to "24-Port-Switch".
- **Local reboot:** Enable/disable local reboot. When enabled, pressing the center button on the front of the PDU for 2 seconds will reboot this outlet.
- **Power on delay:** The time, in seconds, that the outlet will wait before powering on in order to ensure that not all the devices connected to the PowerPak will power on at once.
- **Power off delay:** The time, in seconds, that the outlet will wait before powering off.

Auto-Ping

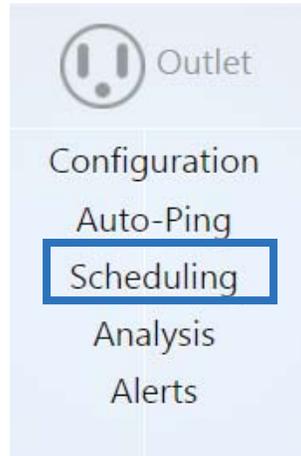
Configure the Auto-ping and reboot settings for each outlet



- **Auto ping & reboot:** Enable/Disable auto ping & reboot. If this feature is enabled, the PowerPak will ping the destination every 1 second. If the ping fails the specified number of attempts, the outlet will be power cycled.
- **IP Address:** Specify the IP address of the device connected to a specific outlet or a URL on the Internet.
- **Ping Test:** Click this button to manually ping the device.
- **Ping Interval:** Specify the time, in seconds, between ping attempts.
- **Interval Before Reboot:** Specify the time, in minutes, between a failed set of ping attempts and a power cycle of the outlet.
- **Reboot Limit:** Maximum number of times the outlet will be power cycled within the specified time period.

- **Time Period:** Specify the time, in hours, for the Reboot Limit above.
- **Ping Attempts:** Specify the number of failed ping attempts before the outlet is power cycled.
- **Email notification:** Select this option to automatically send an email whenever the outlet is power cycled as a result of failed auto-pings.

Scheduling

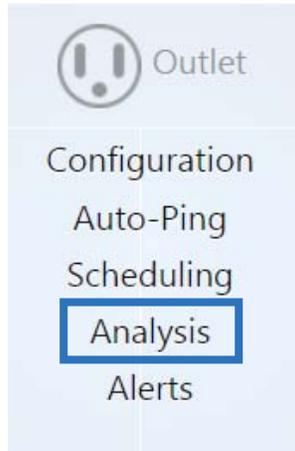


Configure the Power on/Power off/Reboot schedule for each outlet.



- **Action:** Select the action you want to schedule for this outlet. The options include Power off, Power on, and Power cycle.
- **Days:** Select the days to perform this action.
- **At:** Set the time to perform this action.
- **Add:** Click the "Plus" button to add more schedules. Up to 4 schedules are allowed per outlet.

Analysis



Analyze the current and power consumption for each outlet.

Analysis

Table Graph

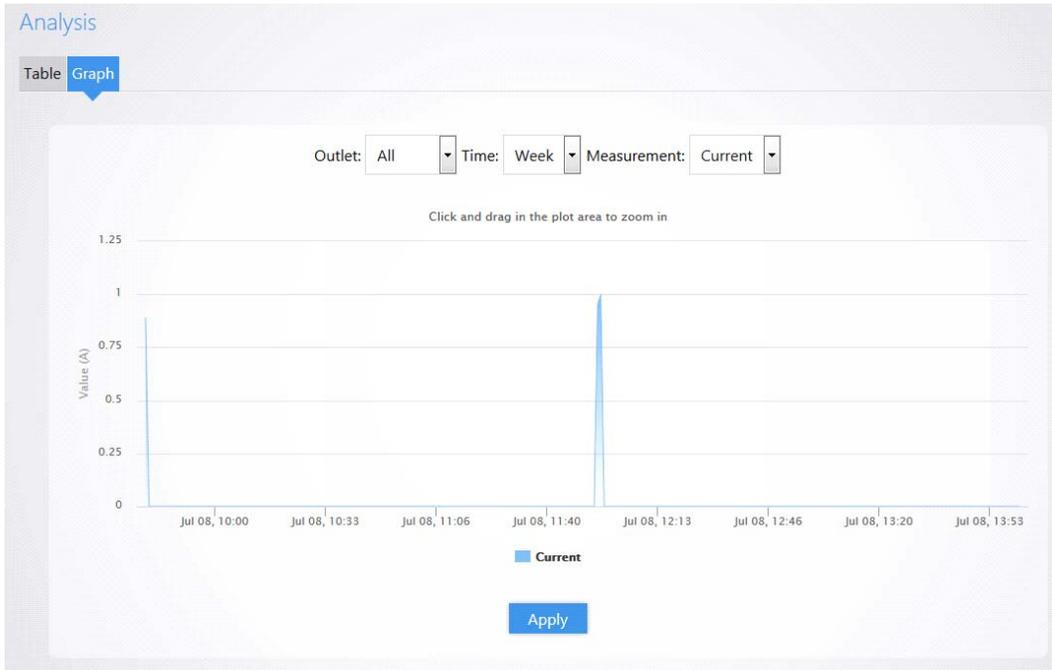
Voltage 118 V / 60 Hz

Outlet	Current (RMS)	Power	Energy Today
1	0.00 A	0 W	0.00 kWh
2	0.00 A	0 W	0.00 kWh
3	0.00 A	0 W	0.00 kWh
4	0.00 A	0 W	0.00 kWh
5	0.00 A	0 W	0.00 kWh
6	0.00 A	0 W	0.00 kWh
7	0.00 A	0 W	0.00 kWh
8	0.00 A	0 W	0.00 kWh
9	0.00 A	0 W	0.00 kWh
Total	0.00 A	0 W	0.00 kWh

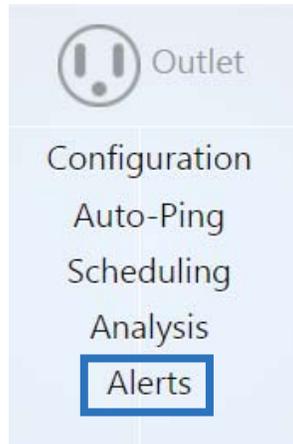
Apply Refresh

- **Current:** Displays the instantaneous RMS or peak current.
- **Power:** Displays the power consumption.
- **Energy:** Select the time duration in the drop-down menu to display the energy sourced by that outlet.

2. Switch to *Graph* view:



Alerts



Configure the alert settings and notification through a buzzer sound or e-mail.

The 'Global Alerts' configuration screen features a header and a sub-header: 'For each measurement, set the minimum and maximum allowable values. If the measurement goes beyond these values, select the Alert Type to be enabled for this alert.' Below this are three columns of settings:

- Voltage Range (V):** Min: 50, Max: 250. Alert Type: Buzzer, Email, Disable Outlets.
- Current Range (A):** Min: 0.0, Max: 15.0. Alert Type: Buzzer, Email, Disable Outlets.
- Power Range (W):** Min: 0, Max: 3900. Alert Type: Buzzer, Email, Disable Outlets.

For each measurement, set the minimum and maximum allowable values. If the measurement goes beyond these values, an alarm buzzer can be enabled and/or an email can be sent for this alert. You also have the option to disable all outlets if the alert condition occurs.

- **Input Range (V):** Configure the minimum and maximum allowable input voltages.
- **Current Range (A):** Configure the minimum and maximum allowable input currents.
- **Power Range (W):** Configure the minimum and maximum allowable power consumption.
- **Temp Range (C):** Configure the minimum and maximum allowable temperatures. **Note:** Only available if separate temperature sensor is used.

You can also set up alerts for each individual outlet.

The screenshot shows the 'Outlet Alerts' configuration page with a 'Basic' tab selected. It displays three rows of settings for 'Outlet1', 'Outlet2', and 'Outlet3'. Each row includes an outlet icon, the outlet name, a 'Current Range (A)' field with a range of 0.0 to 15.0, a 'Power Range (W)' field with a range of 0 to 3900, and an 'Alert Type' section with checkboxes for 'Buzzer', 'Email', and 'Disable Outlet'. All checkboxes are currently unchecked.

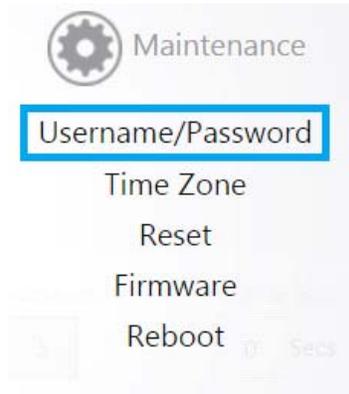
To set up the notification, select the **Notification Method**, recipient's contact information (as applicable), and any other settings, then click **Apply**.

The screenshot shows the 'Alert/Notification Settings' configuration page. It features a 'Notification Method' dropdown menu set to 'Email', a 'Recipient's Email' text input field, and an 'Email Subject' text input field. At the bottom, there are two buttons: 'Apply' and 'Clear Changes'.

Maintenance

This section contains menus to modify your personal account settings and update your firmware.

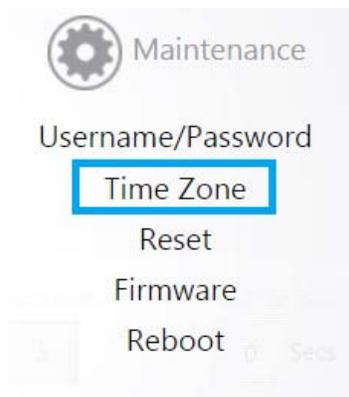
Username/Password



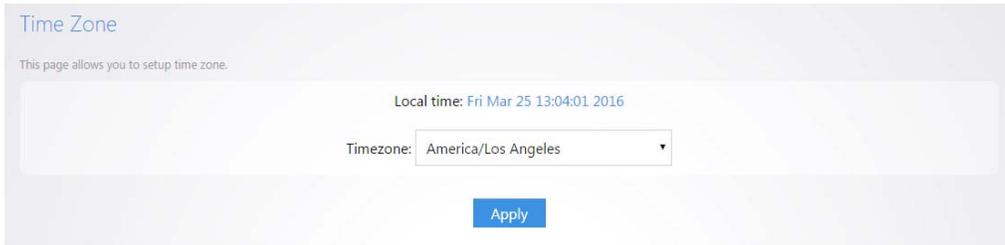
1. Hover over **Maintenance** and click **Username/Password**. You can change the username and password for the device here.

A screenshot of the 'Username/Password' configuration page. The title is 'Username/Password' and the subtitle is 'Change the administrative username/password for the device.' The form contains four input fields: 'Username' (with 'pakedge' entered), 'Current Password', 'New Password', and 'Verify Password'. To the right of the password fields are three small red square icons. At the bottom center is a blue 'Apply' button.

Time Zone



1. Hover over **Maintenance** and click **Time Zone**. This page allows you to set up the time zone.



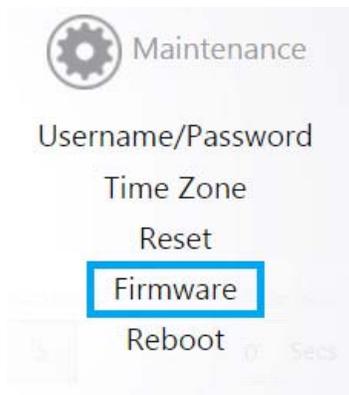
Reset



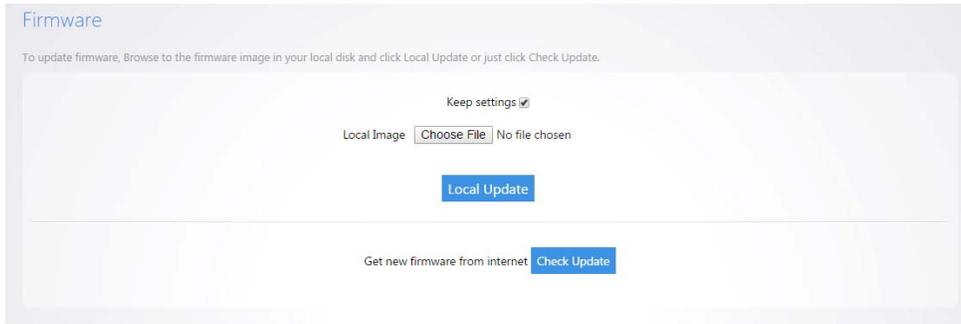
1. Click **Factory Default** to reset the PowerPak back to its factory default settings.



Firmware



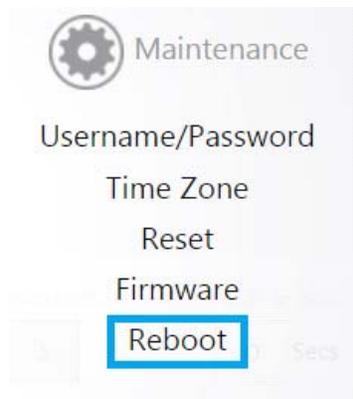
Allows you to update the firmware for the unit.



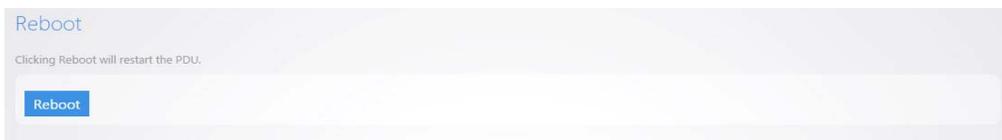
- **Keep Settings:** Selecting this will preserve your current configurations after the firmware update. Note: If this box is not checked, you will lose your settings.
- **Local Image:** Click Choose File to select the firmware file.
- **Local Update:** Updates the firmware with the file you selected.
- **Check Update:** This feature will only work if the PowerPak is connected to the internet.

Note that you may also upgrade the firmware via telnet from the SD card if it is present. The firmware file must be saved to the root directory of the SD card.

Reboot

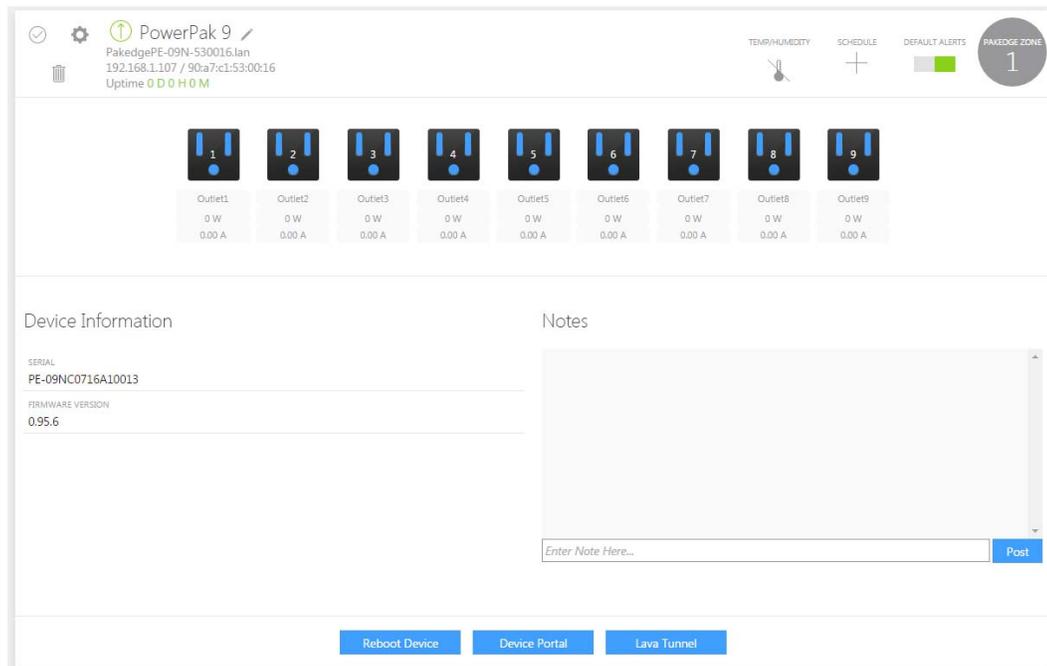


1. Click **Reboot** to reboot the PowerPak. If the default settings are active, then rebooting will turn off all connected devices at the same time, then power them back up at the same time.

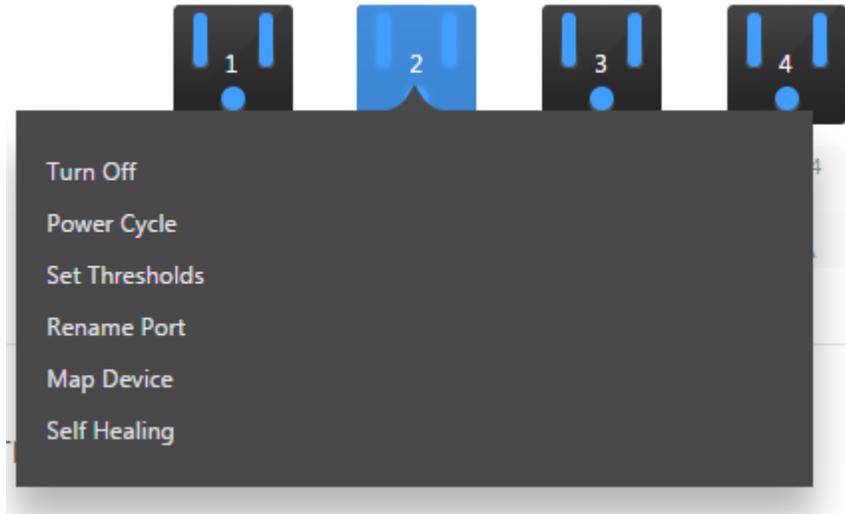


Add the PowerPak to a BakPak Cloud account

1. Make sure you have installed a BakPak Management Agent and have an active BakPak account. If you need help, please contact our sales team (650) 385-8702 or technical support team (650) 385-8703.
2. Connect your PowerPak to the same network as the BakPak Management Agent, then power on the PowerPak and make sure it has Internet access.
3. Log in to your BakPak account and run the device scan. You should be able to see the PowerPak and manage it.



4. Hovering over an outlet will show possible actions for that outlet. Clicking on the Device Portal button at the bottom of the page will take you directly to the login screen of the PowerPak.



5. For more information on setup, see the *Bakpak User Guide*.

Troubleshooting

Symptom	Possible causes	Solution
PowerPak has no power.	PowerPak is not turned on.	Press power button on front of the PowerPak. If the PowerPak is connected to wall outlet controlled by a light switch, make sure the light switch is on.
	An incompatible power supply is being used.	Use the power supply that came with the PowerPak.
Connected device not receiving power.	The device is connected to an outlet that may be turned off via the UI configuration.	Check status of the outlet from the UI Dashboard and click the outlet to turn it on if showing off. Verify the outlet is configured from the <i>Scheduling</i> page. Press the PowerPak's power button to make sure it is not in Sleep mode.

Symptom	Possible causes	Solution
Not receiving email notifications for outlets.	'Email Notification' check box from Auto Ping page is not selected.	If using auto ping, navigate to the <i>Auto-Ping</i> page and select Email Notification , then enter your email credentials on the <i>Alerts</i> page.
	'Email' check box is not selected from Alerts page.	If using an Alerts configuration, navigate to the <i>Alerts</i> page and verify that Email has been selected and that email credentials have been entered.
When plugging in the PowerPak, "Polarity" error message is displayed on the OLED	Inlet power cord has been connected with reverse polarity Line and neutral polarities are reversed in the wall outlet	Connect the inlet power cord with the correct polarity by rotating the plug 180 degrees. Polarity error message should not be displayed

Appendix A: Specifications

PowerPak Specifications	
Input voltage/current	PowerPak 9: Input: 100-120VAC, 50~60Hz, 12A PowerPak 8I: Input: 100-240VAC, 50~60Hz, 10A
Output voltage/current	PowerPak 9: Output: 100-120VAC, 12A total and per outlet, 50~60Hz, 1440W (total) PowerPak 8I: Output: 100-240VAC, 10A total and per outlet, 50~60Hz, 2400W (total)
Inlet type	IEC60320 C14
Outlet type	PowerPak 9: NEMA 5-15R PowerPak 8I: IEC60320 C13
Circuit breaker	PowerPak 9: 15A PowerPak 8I: 12A
Dimensions	17.15 x 11.48 x 1.75 W x L x H
Console port specs	Baud Rate: 115200, 8 Data bits, No parity, 1 stop bit, no flow control
SD Card reader	SD card must be formatted to FAT32
Network protocols	ICMP, IP, TCP/UDP, DHCP, Telnet, DNS, SMTP, HTTP
Display	OLED display, surge protection LED, outlet LED
Operating temperature	32°F - 122°F (0°C - 50°C)
Storage temperature	-13°F - 140°F (-25°C - 60°)
Humidity	10-90% RH

Appendix B: Package contents

- PowerPak Power Distribution Unit
- Power cord
- Rack mount brackets and screws
- Quick Start Guide
- Ethernet cable
- Console cable
- Rubber feet

Contact Us

The *Contact Us* page contains contact information for the various departments at Pakedge.



Limited Warranty

Congratulations on your purchase of a Pakedge Device & Software product! Pakedge designs and manufactures the finest home-networking products. With proper installation, setup, and care, you should enjoy many years of unparalleled performance. Please read this consumer protection plan carefully and safeguard it with your other important documents.

This is a LIMITED WARRANTY, as defined by the U.S. Consumer Product Warranty and Federal Trade Commission Improvement Act.

What Is Covered Under the Terms of This Warranty?

SERVICE LABOR: Pakedge will pay for service labor by an approved Pakedge service center when needed, as a result of a manufacturing defect. This is covered for a period of two (2) years, starting on the effective date of delivery to the end user.

PARTS: Pakedge will provide new or rebuilt replacement parts for parts that fail due to defects in materials or workmanship. This is covered for a period of one (3) year, starting on the effective date of delivery to the end user. Such replacement parts are then subsequently warranted for the remaining portion (if any) of the original warranty period.

What Is Not Covered Under the Terms of This Warranty?

This warranty only covers failure due to defects in materials and workmanship that occur during normal use and does not cover normal maintenance. This warranty does not cover any appearance item; any damage to living structures; failure resulting from accident (example: flood, electrical shorts, insulation); misuse, abuse, neglect, mishandling, misapplication, faulty or improper installation or setup adjustments; improper maintenance, alteration, improper use of any input signal and/or power, damage due to lightning or power line surges, spikes and brownouts; damage that occurs during shipping or transit; or damage that is attributed to Acts of God.

The foregoing limited warranty is the sole warranty of Pakedge and is applicable only to products sold as new by Authorized Dealers. The remedies provided herein are in lieu of a) any and all other remedies and warranties, whether expressed, implied or statutory, including but not limited to: any implied warranty of merchantability, fitness for a particular purpose or non-infringement, and b) any and all obligations and liabilities of Pakedge for damages including but not limited to incidental, consequential or special

damages, or any financial loss, lost profits or expense, or loss of network connection arising out of or in connection with the purchase, use or performance of the Product, even if Pakedge has been advised of the possibility of such damages.

CAUTION: DAMAGE RESULTING DIRECTLY OR INDIRECTLY FROM IMPROPER INSTALLATION OR SETUP IS SPECIFICALLY EXCLUDED FROM COVERAGE UNDER THIS WARRANTY. IT IS IMPERATIVE THAT INSTALLATION AND SETUP WORK BE PERFORMED ONLY BY AN AUTHORIZED PAKEDGE DEALER TO PROTECT YOUR RIGHTS UNDER THIS WARRANTY. THIS WILL ALSO ENSURE THAT YOU ENJOY THE FINE PERFORMANCE YOUR PAKEDGE PRODUCT IS CAPABLE OF PROVIDING.

Rights, Limits, and Exclusions

Pakedge limits its obligation under any implied warranties under state laws to a period not to exceed the warranty period. There are no express warranties. Pakedge also excludes any obligation on its part for incidental or consequential damages related to the failure of this product to function properly. Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages. In this case, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

Effective Warranty Date

This warranty begins on the effective date of delivery to the end user. For your convenience, keep the original bill of sale as evidence of the purchase date from your authorized dealer.

Important: Warranty Registration

Please register your product at www.pakedge.com. It is imperative that Pakedge knows how to reach you promptly if we should discover a safety problem or product update for which you must be notified. In addition, you may be eligible for discounts on future upgrades as new networking standards come about.

To Obtain Service, Contact Your Pakedge Dealer

Repairs made under the terms of the Limited Warranty covering your Pakedge product will be performed by an Authorized Pakedge Service Center. These arrangements must be made through the selling Pakedge Dealer. If this is not possible, contact Pakedge directly for further instructions. Prior to returning a defective Product directly to Pakedge, you must obtain a Return Material Authorization number and shipping instructions. Return shipping costs will be the responsibility of the owner.



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Visit Us At:

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