Installation & Operating Manual
Ver. 1.5.1

POWERLOK®

RACK POWER DISTRIBUTION

upsite technologies®

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Contents

Introduction

The PowerLok Rack PDU is a next generation offering for the mission critical industry. All PowerLok Rack PDUs are engineered, designed, tested, and manufactured in the United States. Our automated processes ensure that our customers' servers run reliably and efficiently in the highly competitive, 24/7 mission critical industry. PowerLok's Select Model program makes specifying a Rack PDUs seamless and easy.

Safety Precautions

Specific safety precautions for this product are as follows:

- All precautions should be taken to guarantee a safe work and operational environment. General safety precautions must be observed during all aspects of operation of equipment described in this document. Failure to comply with the safety warnings, procedures, and guidelines presented in this document is in violation of the safety standards of design, manufacture, and intended use of this equipment.
- You are responsible for following the safety guidelines and warnings presented in this document for this equipment. Individuals using Gateview Rack PDUs are expected to follow all the noted warnings and safety precautions necessary for safe operation of the equipment in your environment. Gateview Technologies assumes no liability for failure to comply with these requirements.
- Rack PDUs are intended for indoor use only in a controlled environment that adhere to the operating temperatures within this manual. Any use outside of these constraints may void the warranty.
- Rack PDUs rated for 240/415VAC may be fitted with a NEMA L22-20 or L22-30 plug that is rated for a higher voltage. Caution must be taken to assure that the rating of the Rack PDU and the supply voltage match.
- **The total capacity of equipment connected to the Rack PDU CANNOT EXCEED the maximum load rating of the Rack PDU.**

DANGER

HAZARDOUS VOLTAGE, CURRENT, AND ENERGY LEVELS ARE PRESENT IN THIS PRODUCT. INTERNAL CIRCUITS CAN HAVE HAZARDOUS VOLTAGES PRESENT EVEN WITH PDU CIRCUIT BREAKERS IN THE OFF POSITION. DO NOT OPERATE THE PRODUCT WITH THE COVER REMOVED.

Professionals installing and operating Rack PDUs are advised of the following:

- Do not try to modify the Rack PDU in anyway, including the input plug, power whip and receptacles.
- Do not drill into or attempt to open any part of the Rack PDU enclosure. There are no serviceable parts inside the Rack PDU.
- Do not attempt to use the Rack PDU if any part of it is damaged.
- Rack PDUs rated 30A and greater contain magnetic-hydraulic circuit breakers. Circuit breaker equipped PDUs must be mounted vertically.
- Do not mount the Rack PDU to an unstable enclosure or surface.

Equipment grounding

To minimize electrical shock hazard, the Rack PDU chassis/enclosure is connected to the electrical earth ground pin of the Rack PDU plug. The input power cable must be plugged into an industry electrical code compatible receptacle which provides connection to the facility electrical safety ground.

Product Specifications

The following section gives the mechanical and electrical specifications of the Rack PDU.

Mechanical Specifications

Chassis dimensions in inches and (mm). See specifications for complete outline drawings.

Vertical PDU	Length	Width	Depth
24L	23.98 (609)		
36L	35.98 (914)		
41L	40.98 (1041)	2.18 (55.37)	2.00 (50.80)
46L	45.98 (1168)		
72L	72.00 (1829)		
82L	82.00 (2083)		

Electrical Specifications

PDU Utility Wiring Configuration	Line Current Rating	UL / CSA Line Current Rating*	Number of Wires	Wire Gauge	Operating Temperature
208V 1PH	20A	16A	3	12	
	30A	24A		10	
120V/208V WYE 3PH	20A	16A	5	12	
	30A	24A		10	
240V/415V WYE 3PH	20A	16A	5	12	0°C - 60°C (32°F - 148°F)
	30A	24A		10	
	60A	48A		6	
208/240V DELTA 3PH	30A	24A	4	10	
	35A	30A		8	
	50A	40A		6	
	60A	48A		6	

* Per the National Electrical Code (NEC) and Canadian Electrical Code (CEC) requirements, when in service, the line current is to be limited to 80% of the PDU's plug rating.

Rack PDUs rated 30A-60A line current contain 20A circuit breakers for receptacle group protection. The circuit breakers are UL-489 Listed and rated 5 or 10kAIC depending on model.

Packaging

Rack PDUs are shipped in molded 1.8 EPS foam and 200 double-wall corrugated cartons.

72L Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 82" pallet
1-pack	79 x 11 x 5	17	No	48	65" (12 levels)
2-pack		35		96	
3-pack	79 x 22 x 5	52	Yes	72	
4-pack		68		96	

82L Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 92" pallet
1-pack	89 x 11 x 5	19	No	48	65" (12 levels)
2-pack		37		96	

72" PDU packaging example:
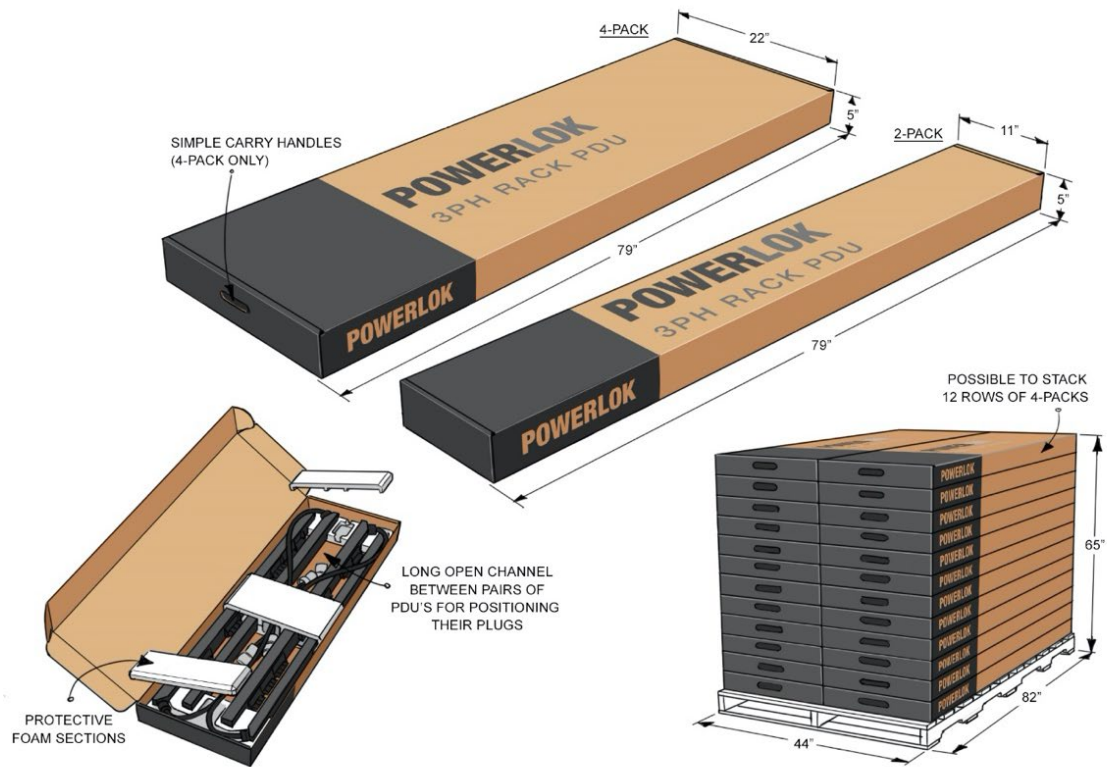
Regulatory Compliance

Product Safety

Rack PDUs have been safety tested and certified to the following standards:

- USA UL 60950-1
- CAN/CSA 22.2 No. 60950-1
- Canada ICES-003 (A) / NMB-003 (A)
- FCC Part 15 Class A compliant
- RoHS compliant
- NOM Addendum

USA Notification

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Canadian Notification

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Installation

Installation of Rack PDUs into a server rack is performed by using the buttons that are already attached to the back surface of the Rack PDU. These buttons mate with keyhole slots located in the server rack.

Mounting button detail: **Key slot example:**
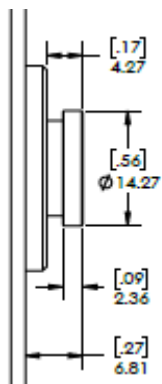
Alternately, Rack PDU mounting buttons may be removed (attached with #6-32 screws) and a customer supplied bracket designed for Rack PDU mounting may be attached. The attachment screws can be re-used. A customer supplied #6-32 screw should not penetrate the Rack PDU chassis more than 1/8".

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Power Monitoring

PowerLok models with monitoring include a local touchscreen display and ethernet communication.
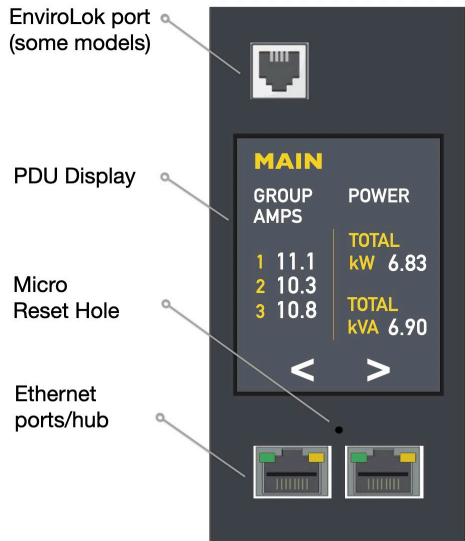
Monitoring accuracy
- Voltage: ± 0.5% at nominal
- Current: ± 1.0% of measurement from 250 mA – 1A
- Current: ± 0.5% of measurement from 1A – 30A

The touchscreen can rotate 180 degrees. The illustration below is a 30A 120/208V 3PH Rack PDU example with EnviroLok and SwitchLok devices installed. Dotted line screens are only present with associated hardware options:

Ethernet Communication

The Rack PDU is equipped with two RJ45 10/100Base-T Ethernet ports to attach to an existing local area TCP/IP network. This connection allows access to the Rack PDU via a web browser or SNMP manager. The two RJ45 connectors that are bidirectional; therefore, the user can connect to either port to set up the PDU on the network. Furthermore, 12 PDUs can be connected in series by daisy chaining.

PDU Addressing Modes

The Rack PDU supports the following methods of **IPv4 addressing**:

Mode	Description	Comment
Linked local	IPv4 link-local addresses are assigned to address block 169.254.0.0 - 169.254.255.255	This addressing mode supports attaching a host PC/laptop directly to the Rack PDU without requiring a switch, router or DHCP server.
DHCP	The Rack PDU network configuration is provided by the DHCP server.	The local touchscreen display will publish the IP address assigned to the Rack PDU by the DHCP server.
Static IP	**Default PDU network configuration** **IP address:** 192.168.1.254 **Subnet Mask:** 255.255.255.0 **Gateway:** 192.168.1.1	The static IP can be changed using the web browser.

The Rack PDU supports the following methods of **IPv6 addressing**:

Mode	Description	Comment
SLAAC	StateLess Address Auto Configuration. The PDU sends a request to the router for a prefix, then uses it's own MAC address and prefix to generate an IP address.	Router must be capable of Router Advertisements. Alternatively, an independent router advertisement daemon on the network may respond to the PDU while in SLAAC mode. For Linux boxes, refer to 'RADVD'
Static	**Default 2603:6011:8904:9900:7a:491d:dc1a:f074, Prefix 2603:6011:8904:9900, 48 bit length**	IPv6 address field takes the full address including prefix. This address may be changed in the web browser.

Web server address settings page:

Web Browser

The Rack PDU is equipped with a web browser accessible over IP. To access, open a browser window and enter the PDU IP address. If the PowerLok web page does not appear, the PDU is not connected, or the network does not recognize the PDU. See section: How to connect your PC/laptop with Linked local and Static IP option or call your network administrator. For each data type, historical graphing or historical logs can be viewed.

Real time and historical graphing

Historical logs

Admin ∨

Network Admin

PDU Friendly Name:

Model Number: PL8204D-10C   MAC Address: 70-B3-D5-A7-0F-AC
Serial Number: 20USK15190001   Port Speed: 100 Mbps
Firmware Version: 0.0.3.rc02   Hardware Version: 1.1.2
FTP Enabled

Settings

IPv4 Addressing Mode

Linked Local   DHCP   Static IP

IP Address   **IPv4 DNS Servers**
Subnet Mask   Primary DNS
Default Gateway   Secondary DNS

IPv6 Addressing Mode   Enable
IP Addresses: FE90::2D0:B8EE:ETC6:653C
                 FE90::2D0:B8EE:ETC6:653C

SLAAC   Static

IP Address   Primary DNS
Prefix   Secondary DNS
Prefix Length   Default Gateway

Time Servers
NTP   MON, 11 OCT 2021 3:28:40 PM EDT

Web Access Settings
Enable HTTP   Port: AUTO
Enable HTTPS   Port: FE90::2D0:B8EE:ETC6:653C
Download Certificate   Enabled when HTTPS is enabled

Admin section of the web browser

Sign in
http://192.168.0.200
Your connection to this site is not private

Username   administrator
Password   ••••••••
                                Sign in   Cancel

Access to the Rack PDU's web server requires a login. Default credentials are:
User: administrator
Pass: password

Credentials may be changed under the admin section

Password section within admin
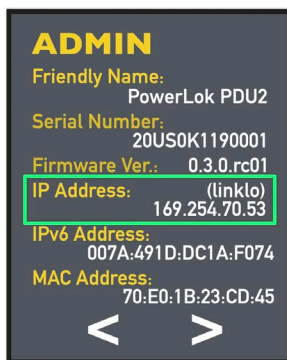

Change User Name & Password
User Name   administrator
Password   password

# How to connect your computer with Linked local and Static IP option
Linked local

Once the user is connected to the network, go to the touchscreen display to identify the assigned linklo IP address. IPv4 link-local addresses are assigned to address block 169.254.0.0 - 169.254.255.255. Open a new browser tab and enter the linklo IP address: 169.254.70.53, as an example, to access the web browser.


ADMIN
Friendly Name:
        PowerLok PDU2
Serial Number:
        20US0K1190001
Firmware Ver.:   0.3.0.rc01
IP Address: (linklo)
        169.254.70.53
IPv6 Address:
        007A:491D:DC1A:F074
MAC Address:
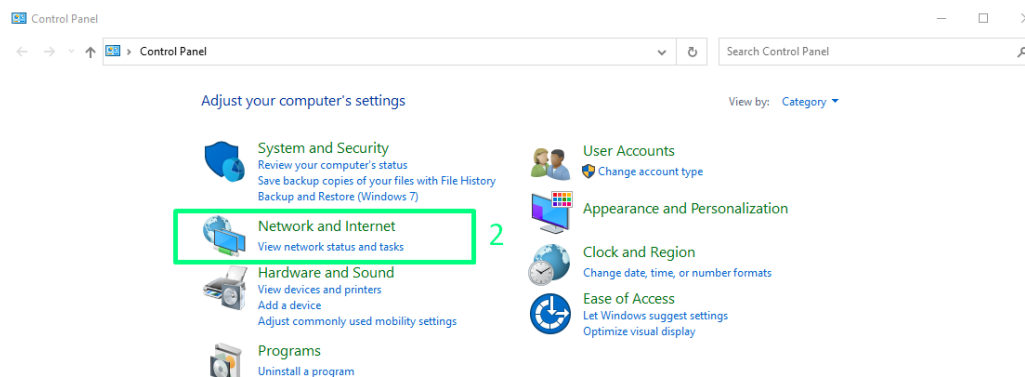   70:E0:1B:23:CD:45
        <   >

Static IP

The following section describes how to set the user's computer for a static IP. The PDU has a static IP of 192.68.29.101 as shown in the touchscreen example below:
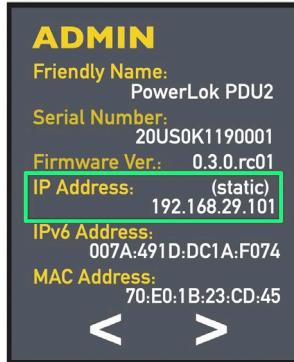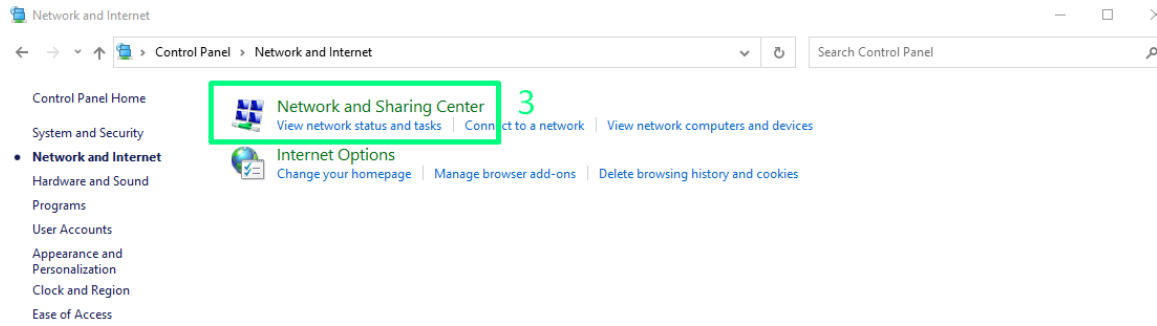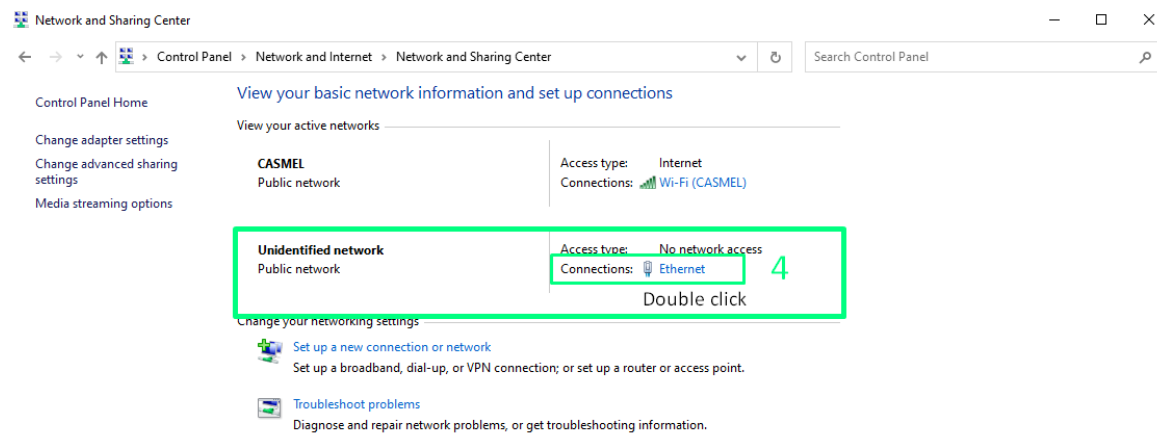

Step 1: Go to control Panel
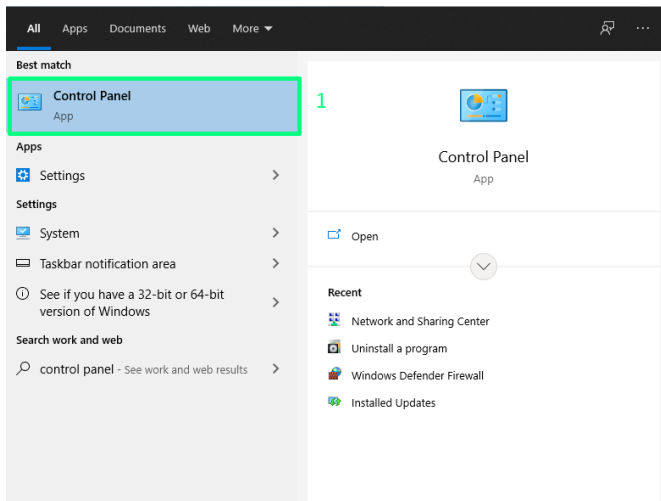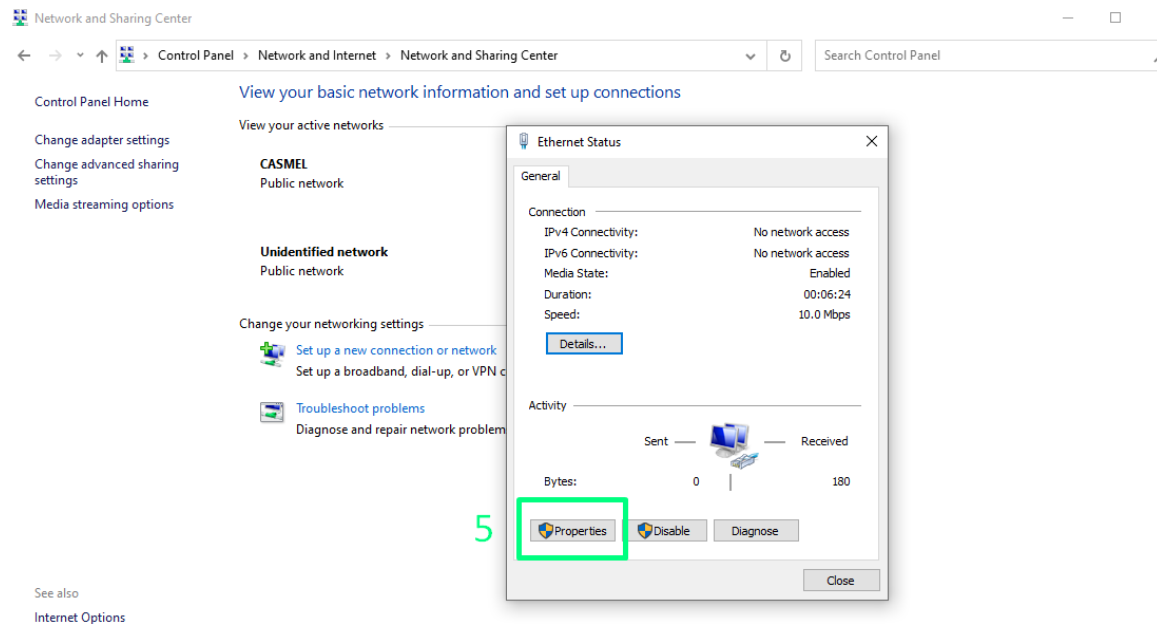

Step 2: Select network and internet

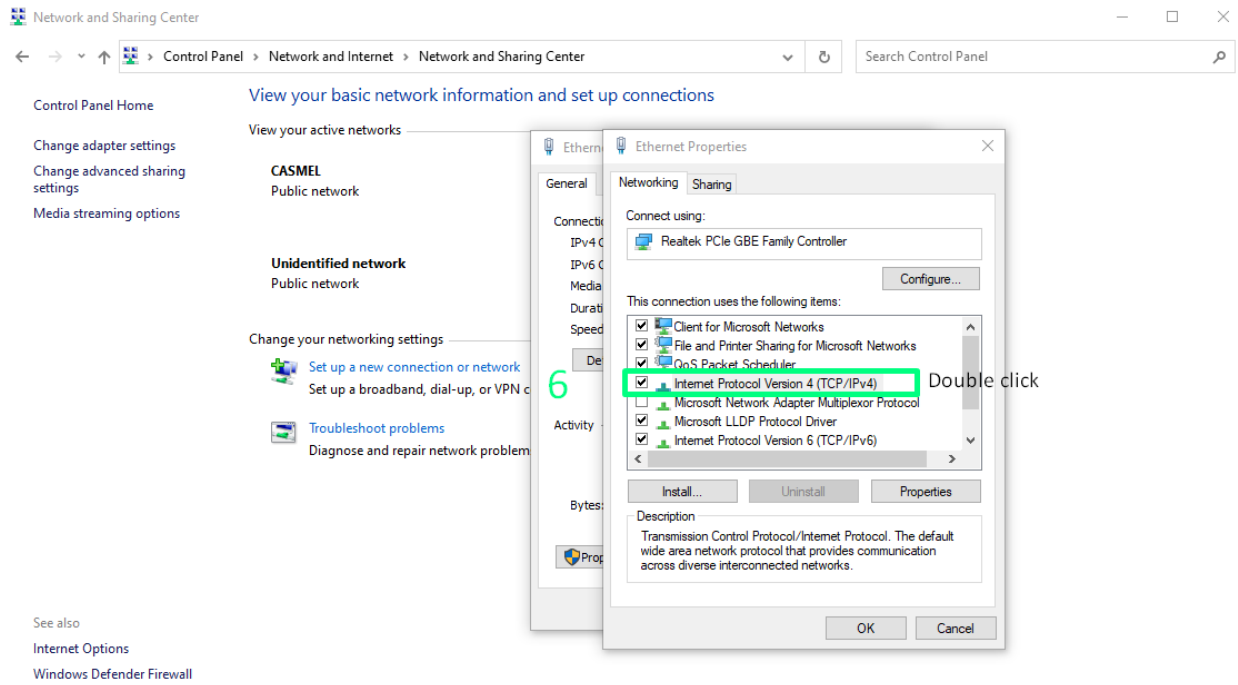11

Step 3: Select Network and Sharing Center

Step 4: Select Ethernet

Step 5: Select Properties and then Options

Step 6: Select Internet Protocol Version 4 (TCP/IPv4)

Step 7: Enter IP address, Subnet mask and Default gateway with numbers as shown and select OK.
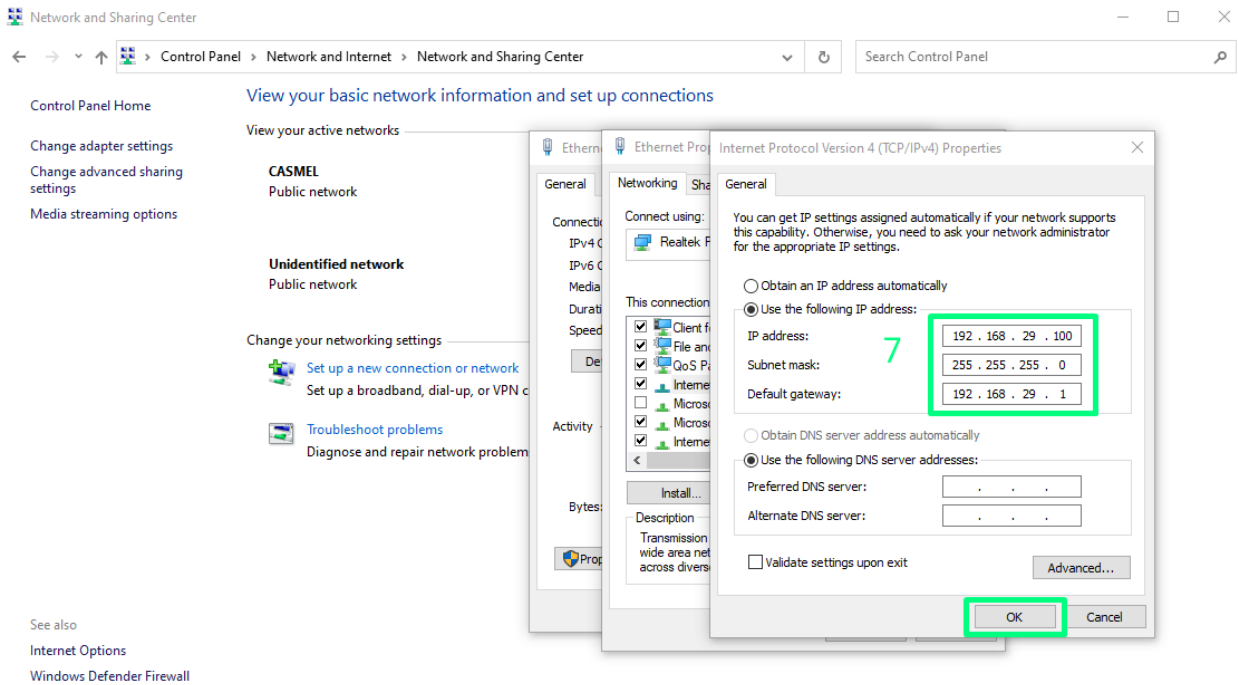
This completes the necessary steps to configure for static IP. Open a browser and enter the static IP address to access the PowerLok web server as shown below:

How to setup the PDU with the Static IP to the router ———————

To setup the PDU for your router follow these steps:

Step 1: Use the command prompt and type ipconfig to view the assigned IP address.

Step 2: To setup the PDU with the IP address in the address block, I used: 192.168.1.10. To determine if the IP address in not in use, type arp-a command as shown below:

Step 3: Open the web server using your IP address and open the Admin section to select Edit.
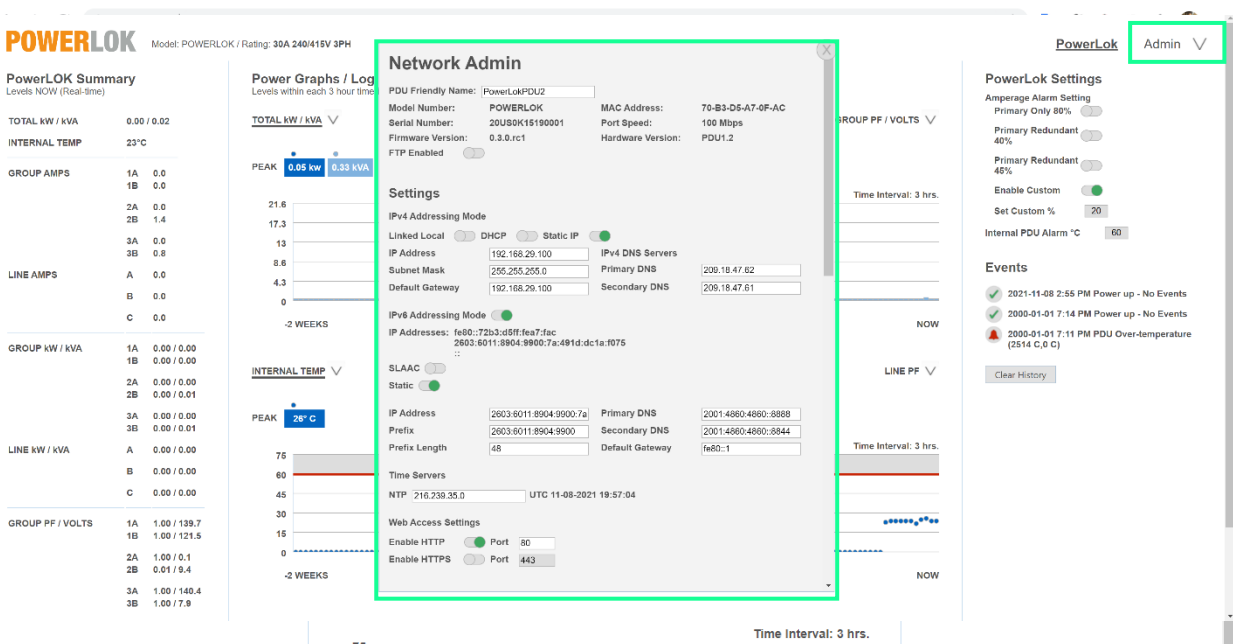
Step 4: Enter your IP address, subnet mask and default gateway and then select Apply Settings.
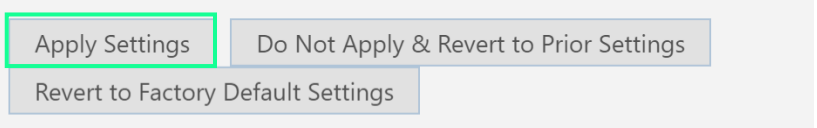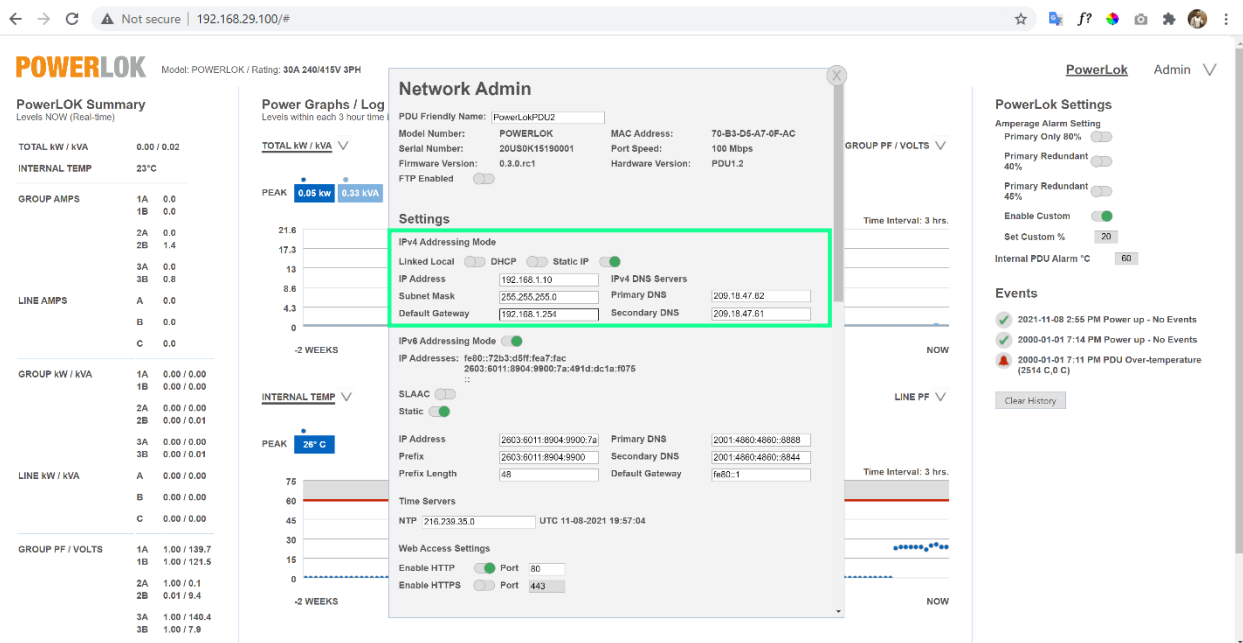
This should complete the necessary steps to configure for the router. Connect the PDU to the router, open a browser and enter the static IP address to access the PowerLok web server.

Time Server

The Rack PDU may be configured to retrieve the UTC time value from an NTP time server. It does this once upon bootup and displays the value in the admin section. The IP address 216.239.35.0 is set as default.

Time Server configuration in admin settings.

HTTP \ HTTPS

The web user interface may be configured to use standard HTTP or TLS (HTTPS). HTTPS loads slower but makes encrypted connections. Browser clients may display a warning about an invalid certificate, but data is still encrypted. Port settings may be changed here as well, but this should be done with caution as non-default ports may be forgotten. Changes to HTTP\HTTPS require a reboot to take effect.

HTTP \ HTTPS configuration in admin.

SNMP

The Rack PDU provides an SNMP interface for the purpose of monitoring data externally. These data can be used to respond to events such as over current, over temperature, and other critical conditions. All three versions of SNMP are supported by this device and are configured via admin section of the web interface.

'Host Access Limited' allows you to allow only access from particular IP addresses. Enable it and configure the IP address to use this function.

Authorization and Privacy are specific to SNMPv3. Authorization options are SHA-1 or MD5-95 while Privacy options are DES-CBC and AES-128-CFB.

SNMP defaults are shown in the image.

SNMP configuration within admin

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Duplicating Rack PDU Configurations

Rack PDU configurations may be easily duplicated by copying values to the clipboard and pasting in other PDU admin sections. Editing the text directly is not recommended.

Duplicate Settings

Copy Settings   COPY TO CLIPBOARD

Before copying settings to the clipboard first apply all setting updates using the APPLY SETTINGS button above. All Admin, PDU, SwitchLok and EnviroLok settings will be copied.

Paste Settings Copy & Apply

APPLY

All PDU settings including SwitchLok and EnviroLok settings in their entirety will be applied.

Duplicate Settings within admin

Duplicate Settings

Copy Settings   COPY TO CLIPBOARD

Before copying settings to the clipboard first apply all setting updates using the APPLY SETTINGS button above. All Admin, PDU, SwitchLok and EnviroLok settings will be copied.

Paste Settings Copy & Apply

{"admin":
{"PDU_CONFIG_FRIENDLY_NAME":"PowerLokPDU2","IP_MODE":"0","IPV4_ADDR":"192.168.0.200","IP
V4_SUBNET_MASK":"255.255.255.0","IPV4_GATEWAY":"192.168.0.1","IPV4_PRIMARY_DNS":"209.18.
47.62","IPV4_SECONDARY_DNS":"209.18.47.61","IPV6_ENABLED":"1","IPV6_USE_SLAAC":"0","IPV6
_ADDR":"2603:6011:8904:9900:7a:491d:dc1a:f075","IPV6_PREFIX":"2603:6011:8904:9900","IPV6
_PREFIX_LENGTH":"48","IPV6_PRIMARY_DNS":"2001:4860:4860::8888","IPV6_SECONDARY_DNS":"200
1:4860:4860::8844","IPV6_ROUTER":"fe80::1","TIME_SERVER_NTP":"216.239.35.0","HTTPS_ENABL
ED":"0","HTTP_PORT":"80","HTTPS_PORT":"443","SNMP_VERSION":"1","SNMP_LISTEN_PORT":"161",
"SNMP_COMMUNITY_READ":"gateview","SNMP_COMMUNITY_WRITE":"gateview","SNMP_HOST1_LIMIT_IPV
4":"0.0.0.0","SNMP_HOST1_LIMIT_IPV6":"::","SNMP_HOST2_LIMIT_IPV4":"192.168.0.6","SNMP_HO
ST2_LIMIT_IPV6":"::","SNMP_HOST3_LIMIT_IPV4":"0.0.0.0","SNMP_HOST3_LIMIT_IPV6":"::","SNM
P_USER":"user","SNMP_CONTEXT_NAME":"gateview","SNMP_AUTH_ALGORITHM":"1","SNMP_AUTH_PASSW
ORD":"passauth","SNMP_PRIV_ALGORITHM":"0","SNMP_PRIV_PASSWORD":"passpriv","WEBUI_USERNAM
E":"administrator","WEBUI_PASSWORD":"password"},"alarm":
{"AMP_ALARM_CUSTOM_PERCENT":"20","TEMP_ALARM_THRESHOLD":"60","AMP_ALARM_THRESHOLD":"4"}}

Control-V paste or right-click, select 'paste'

APPLY

Duplicate Settings within admin

Firmware Updating

For firmware update, please contact tech support: **support@gateview.com** or visit our website and contact the support team from the live chat: http://www.gateview.com/

Firmware is upgraded locally through the ethernet port on the PDU.

For a current SNMP MIB (Management Information Base) list, please contact your PowerLok reseller.

Limited Warranty

Warranty Replacement Procedure: All product warranty procedures are conditional upon the warranty information set forth in Gateview Technologies Terms and Conditions for a term of three (3) years from the shipment of the product. Gateview Technologies will provide a replacement product if it is defective in accordance with the following: This warranty does not apply to normal wear and tear or damage resulting from misuse, abuse, or neglect. No service or maintenance is required and there are no serviceable parts inside of the product. Do not attempt to open the Rack PDU or the customer will void the warranty.

The customer should ensure prior to use whether this product is suitable, adequate, or safe for the use intended. Since individual applications are subject to great variation, Gateview Technologies makes no representation or warranty as to the suitability or fitness of these products for any specific application and Gateview Technologies is not responsible for equipment damaged by incorrect communication on the part of the customer between the customer and Gateview Technologies.

The customer will incur the cost of shipping the defective product to Gateview Technologies, and, if a replacement is necessary, Gateview Technologies will reimburse the customer for shipping and subsequently ship a replacement product within fourteen (14) days of receipt of the defective product. If replacement of the product is not necessary, Gateview Technologies reserves the right to deny reimbursement for the shipping of the product returned from the customer.

Notices

All Rights Reserved