

# Installation & Operating Manual

Ver. 1.7

PowerLok Rack PDUs &  
EnviroLOK/SwitchLOK Accessories

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## Introduction

PowerLOK Rack PDUs are a next generation product for the mission critical industry. All PowerLOK PDUs are engineered, tested, and manufactured in the United States. Gateview Technologies automated manufacturing processes ensure that our customers' servers run reliably in the 24/7 mission critical industry. PowerLOK's Fast-Response and Select Model program makes it easy to get what you need when you need it.

## 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.

	<p style="text-align: center;"><b>DANGER</b></p> <p>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.</p>
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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

### Mechanical Specifications

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

PDU Size	Length	Width	Depth
1U	1.73 (43.9)	17.44 (443.0)	4.50 (114.3)
2U	3.44 (87.4)		
24L	23.98 (609)	2.18 (55.4)	2.00 (50.8)
36L	35.98 (914)		
41L	40.98 (1041)		
46L	45.98 (1168)		
72L	72.00 (1829)		
82L	82.00 (2083)		
72L	72.00 (1829)	2.90 (73.7)	2.70 (68.6)
78L	78.00 (1981)		
88L	88.00 (2235)		

### Electrical Specifications

PDU Utility Wiring Configuration	Line Current Rating	UL / CSA Line Current Rating*	Number of Wires	Wire Gauge	Operating Temperature
120V 1PH	20A	16A	3	12	0°C - 60°C (32°F - 148°F)
	30A	24A		10	
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	
	30A	24A		10	
	60A	48A		6	
	100A	80A		2	
	125A	100A		1	
208/240V DELTA 3PH	30A	24A	4	10	
	35A	30A		8	
	50A	40A		6	
	60A	48A		6	
	100A	80A		2	
	125A	100A		1	

\* 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-125A line current contain 20A circuit breakers for receptacle group protection. The circuit breakers are UL489 Listed and rated 5 or 10kAIC depending on model.



## Packaging

Vertical rack PDUs are shipped in molded 1.8 EPS foam and 200 double-wall corrugated cartons. 2U rack PDUs are shipped in 200 double-wall corrugated cartons.

2U Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 50" pallet
1-pack	20 x 18 x 5	10	No	88	55" (11 levels)
2-pack	20 x 18 x 4	20			

24/36/41L Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 49" pallet
4-Pack	49 x 22 x 5	56	Yes	80	55" (10 levels)

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	

72L & 78L Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 92" or 98" pallet
1-pack	86 x 16 x 8	26	No	24	64" (8 levels)
2-pack		52		48	

88L Package	Dimensions	Approx. Ship Weight	Lifting Handles	Maximum PDUs per pallet	Maximum height per 44" x 92" or 98" pallet
1-pack	96 x 16 x 8	30	No	24	64" (8 levels)
2-pack		60		48	

## Regulatory Compliance

### Product Safety

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

- USA UL 62368-1
- CAN/CSA 22.2 No. 62368-1
- 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.

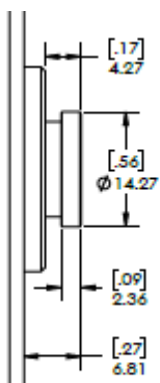
### Canadian Notification

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:



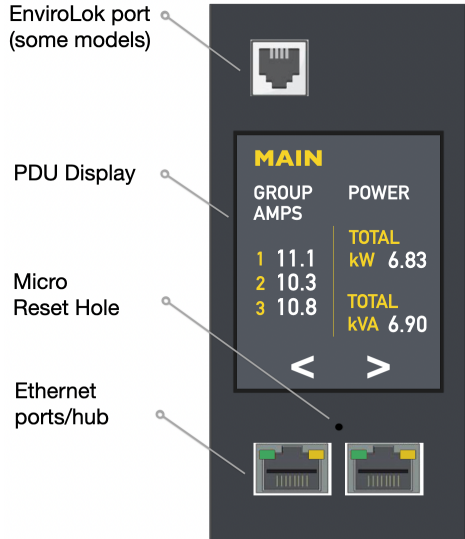
### Key slot example:



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".

## Power Monitoring

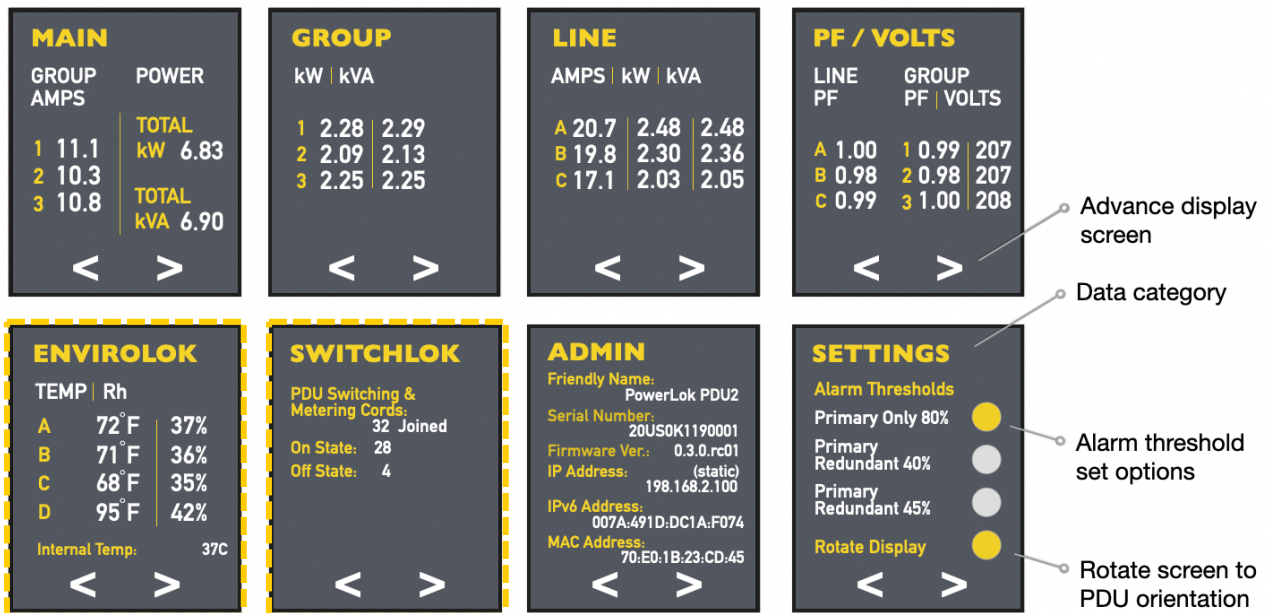
PowerLOK models with monitoring include a local touchscreen display and ethernet communication for accessing the PDU webpage.



### Monitoring accuracy

- Voltage:  $\pm 0.5\%$  at nominal
- Current:  $\pm 1.0\%$  of measurement from 250 mA – 1A
- Current:  $\pm 0.5\%$  of measurement from 1A – 30A

The touchscreen can rotate 180 degrees. The illustration below is a 30A 120/208V 3PH PDU example with EnviroLOK and SwitchLOK devices installed. Highlighted devices only appear on PDU display when installed.



## Understanding Power Monitoring & Grouping

LINE (phase) values are designated 1 / 2 /3 which is accepted North American nomenclature for LINE voltage / currents. Receptacle GROUPS are designated with letters A / B / C to differentiate from LINE nomenclature.

### **WYE PDUs: LINE NUMBER designator maps to the GROUP LETTER designator as follows:**

LINE 1 mapped to GROUP A

LINE 2 mapped to GROUP A

LINE 3 mapped to GROUP A

LINE 1 voltage is equal to GROUP 1 voltage with the five wire WYE.

LINE A current is equal to GROUP 1 current (or the sum of GROUP 1 currents if more than one receptacle sub-group) with the five wire WYE.

The voltage / current correspondence continues for LINE B & C and GROUP 2 & 3 respectively.

This works in this manner as all circuits (LINE & GROUP) are referenced to a common neutral.

### **WYE PDUs with more than one RECEPTACLE GROUP connected to a LINE: GROUPS are designated with the additional letter identifier suffix:**

GROUP 1-A / GROUP 1-B, GROUP 2-A / GROUP 2-B, GROUP 3-A / GROUP 3-B

See the PWR4 diagram below.

The letter designators in the GROUP names have nothing to do with LINE designators.

### **DELTA PDUs use the same convention as WYE with an exception:**

Uses the same conventions as WYE for designating LINE and GROUP. However, a direct correspondence between LINE and GROUP is no longer valid because LINE measurements (voltage and current) and GROUP voltage measurements are made differentially. There is no common "neutral" as with WYE PDUs.

Despite the need for differential measurements, the letter designator convention still applies for LINE although voltage is in terms of differentials. GROUP 1 voltage is  $V_A - V_B$ , GROUP 2 voltage is  $V_B - V_C$ , and GROUP 3 voltage is  $V_C - V_A$ .

7) As with the WYE PDUs, the DELTA GROUPS use letter suffixes when more than one receptacle GROUP is connected to the same LINE voltage points - in this case between the same LINE voltage differential pairs. Again, the letter designators in the GROUP names have nothing to do with LINE designators.

8) For the high current DELTA PDUs under development, I've kept the same GROUP naming conventions.

There will only be three major GROUPS, each with subgroup designations GROUP 1A / GROUP 1B / GROUP 1C / GROUP 1D, GROUP 2A / GROUP 2D.... etc. See the PWR? (120A DELTA) diagram below.

## 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. 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	<b>Default PDU network configuration</b> <b>IP address:</b> 192.168.1.254 <b>Subnet Mask:</b> 255.255.255.0 <b>Gateway:</b> 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 its 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	<b>Default</b> <b>2603:6011:8904:9900:7a:491d:dc1a:f074,</b> <b>Prefix 2603:6011:8904:9900, 48 bit length</b>	IPv6 address field takes the full address including prefix. This address may be changed in the web browser.

Web server address settings page:

The screenshot shows a 'Settings' page with two main sections: IPv4 Addressing Mode and IPv6 Addressing Mode.

**IPv4 Addressing Mode:** Three radio buttons are present: 'Linked Local' (disabled), 'DHCP' (disabled), and 'Static IP' (selected). Below this, there are input fields for 'IP Address', 'Subnet Mask', and 'Default Gateway'. To the right, under 'IPv4 DNS Servers', there are input fields for 'Primary DNS' and 'Secondary DNS'.

**IPv6 Addressing Mode:** A toggle switch is set to 'Enable'. Below it, 'IP Addresses' are listed as 'FE90::2D0:B8EE:ETC6:653C' and 'FE90::2D0:B8EE:ETC6:653C'. There are also radio buttons for 'SLAAC' (disabled) and 'Static' (disabled). At the bottom, there are input fields for 'IP Address', 'Prefix', 'Prefix Length', 'Primary DNS', 'Secondary DNS', and 'Default Gateway'.

## Connecting PowerLOK to a Network

Once the user is connected to the network, go to the touchscreen display to identify the factory 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.

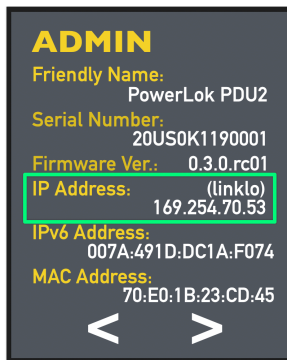
### Access to the Rack PDU's web server

Default credentials are:

**Username:** administrator

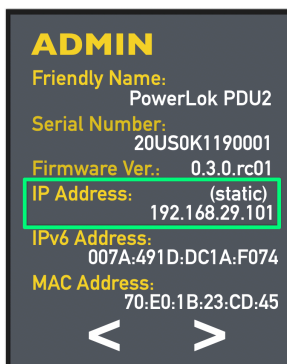
**Password:** password

Credentials may be changed in the admin section.



### 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:



## 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 plus historical graphing

POWERLOK

Rating: 20A 208V 3PH   Friendly Name: RACK D112-A PD

PowerLok   SwitchLok   EnviroLok   Admin ▾

### PowerLok Summary

Levels NOW

TOTAL kW / kVA	7.54 / 8.54
INTERNAL TEMP	41°C
SENSOR A TEMP / Rh	72°F / 38%
SENSOR B TEMP / Rh	71°F / 37%
SENSOR C TEMP / Rh	68°F / 35%
SENSOR D TEMP / Rh	95°F / 42%

GROUP AMPS	1	12.2
	2	10.3
	3	10.8
LINE AMPS	A	22.2
	B	20.3
	C	20.8

GROUP kW / kVA	1	2.51 / 2.63
	2	2.42 / 2.58
	3	2.54 / 2.64
LINE kW / kVA	A	3.20 / 3.33
	B	3.31 / 3.45
	C	3.83 / 3.88

GROUP PF / VOLTS	1	0.98 / 208
	2	0.97 / 207
	3	0.94 / 207
LINE PF	A	0.98
	B	0.97
	C	0.94

### PowerLok Historical Graphs / Log

Levels over past two week period

TOTAL kW / kVA ▾
GROUP kW / kVA ▾
GROUP AMPS ▾
GROUP PF / VOLTS ▾

PEAK 5.94 kW 9.45 kVA

NOW 5.76 kW 5.54 kVA

Time Interval: 8 hrs.

### INTERNAL PDU TEMP ▾

Levels over past two week period

PEAK 45C

NOW 41C

Set Alarm  °C 
○ Fahrenheit  
● Celsius

Time Interval: 8 hrs.

### PowerLok Settings ▾

Amperage Alarm Setting

Primary Only 80%

Primary Redundant 40%

Primary Redundant 45%

Enable Custom

Set Custom %

Manage SwitchLok  ⓘ

### SwitchLok Master Control ▾

Master Switch:  ⓘ

On/Off

Master Reboot:  ⓘ

kVAh Reset:  ⓘ

Start Delay (s):  ⓘ

Sequence Delay (s):  ⓘ

Off-On Delay (s):  ⓘ

Utility Apply Delay (s):  ⓘ

Sequence Actions Explained ▾

### Events

✓ 2021-10-14 3:40 PM Line A Over-current cleared (34.5%, 40%)

Software version: 2.1.0 PowerLok 2021 All Rights Reserved.

## Real time plus historical logs

POWERLOK

Rating: 20A 208V 3PH   Friendly Name: RACK D112-A PD

PowerLok   SwitchLok   EnviroLok   Admin ▾

### PowerLok Summary

Levels NOW

TOTAL kW / kVA	7.54 / 8.54
INTERNAL TEMP	41°C
SENSOR A TEMP / Rh	72°F / 38%
SENSOR B TEMP / Rh	71°F / 37%
SENSOR C TEMP / Rh	68°F / 35%
SENSOR D TEMP / Rh	95°F / 42%

GROUP AMPS	1	12.2
	2	10.3
	3	10.8
LINE AMPS	A	22.2
	B	20.3
	C	20.8

GROUP kW / kVA	1	2.51 / 2.63
	2	2.42 / 2.58
	3	2.54 / 2.64
LINE kW / kVA	A	3.20 / 3.33
	B	3.31 / 3.45
	C	3.83 / 3.88

GROUP PF / VOLTS	1	0.98 / 208
	2	0.97 / 207
	3	0.94 / 207
LINE PF	A	0.98
	B	0.97
	C	0.94

### PowerLok Historical Graphs / Log

Levels over past two week period

TEMPERATURE ▾

Graph	A	B	C	D	Log Scale
NOV	62 F	62 F	82 F	106 F	<input checked="" type="checkbox"/> 10 sec. <input type="checkbox"/> 1 min. <input type="checkbox"/> 10 min. <input type="checkbox"/> 30 min. <input type="checkbox"/> 1 hr. <input type="checkbox"/> 8 hr. <input type="checkbox"/> 1 day
TODAY -00:00:10	82 F	62 F	82 F	106 F	
TODAY -00:00:20	82 F	62 F	82 F	106 F	
TODAY -00:00:30	82 F	62 F	82 F	106 F	
TODAY -00:00:40	82 F	62 F	82 F	106 F	
TODAY -00:00:50	82 F	62 F	82 F	106 F	
TODAY -00:01:00	82 F	62 F	82 F	106 F	
.....					
-1 DAY -00:00:10	82 F	62 F	82 F	106 F	
-1 DAY -00:00:20	82 F	62 F	82 F	106 F	
-1 DAY -00:00:30	82 F	62 F	82 F	106 F	

HUMIDITY (Rh) ▾

Graph	A	B	C	D	Log Scale
NOW	38	35	36	32	<input checked="" type="checkbox"/> 10 sec. <input type="checkbox"/> 1 min. <input type="checkbox"/> 10 min. <input type="checkbox"/> 30 min. <input type="checkbox"/> 1 hr. <input type="checkbox"/> 8 hr. <input type="checkbox"/> 1 day
TODAY -00:00:10	38	35	36	32	
TODAY -00:00:20	38	35	36	32	
TODAY -00:00:30	38	35	36	32	
TODAY -00:00:40	38	35	36	32	
TODAY -00:00:50	38	35	36	32	
TODAY -00:01:00	38	35	36	32	
.....					
-1 DAY -00:00:10	38	35	36	32	
-1 DAY -00:00:20	38	35	36	32	
-1 DAY -00:00:30	38	35	36	32	

### PowerLok Settings ▾

Amperage Alarm Setting

Primary Only 80%

Primary Redundant 40%

Primary Redundant 45%

Enable Custom

Set Custom %

Manage SwitchLok  ⓘ

### SwitchLok Master Control ▾

Master Switch:  ⓘ

On/Off

Master Reboot:  ⓘ

kVAh Reset:  ⓘ

Start Delay (s):  ⓘ

Sequence Delay (s):  ⓘ

Off-On Delay (s):  ⓘ

Utility Apply Delay (s):  ⓘ

Sequence Actions Explained ▾

### Events

✓ 2021-10-14 3:40 PM Line A Over-current cleared (34.5%, 40%)

11



**Admin section of the web browser**

Admin ▾

### Network Admin ✕

**PDU Friendly Name:**

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

**FTP Enabled**

### Settings

**IPv4 Addressing Mode**

Linked Local   
  DHCP   
  Static IP

<b>IP Address</b> <input type="text"/>	<b>IPv4 DNS Servers</b>
<b>Subnet Mask</b> <input type="text"/>	<b>Primary DNS</b> <input type="text"/>
<b>Default Gateway</b> <input type="text"/>	<b>Secondary DNS</b> <input type="text"/>

**IPv6 Addressing Mode**  Enable

**IP Addresses:** FE90::2D0:B8EE:ETC6:653C  
FE90::2D0:B8EE:ETC6:653C

**SLAAC**     **Static**

<b>IP Address</b> <input type="text"/>	<b>Primary DNS</b> <input type="text"/>
<b>Prefix</b> <input type="text"/>	<b>Secondary DNS</b> <input type="text"/>
<b>Prefix Length</b> <input type="text"/>	<b>Default Gateway</b> <input type="text"/>

**Time Servers**

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

**Web Access Settings**

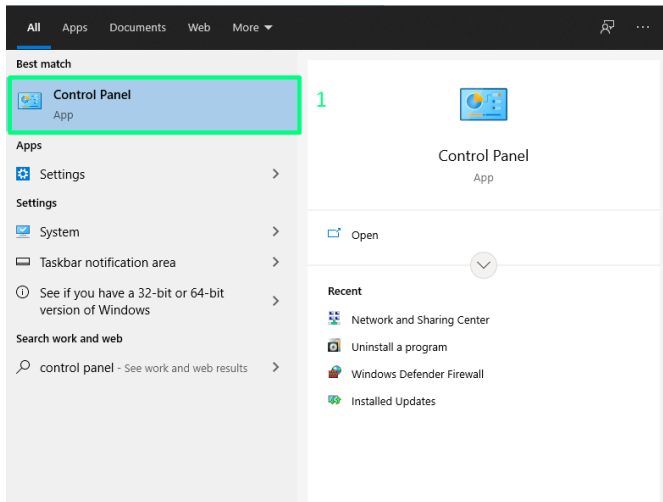
**Enable HTTP**  Port:  AUTO

**Enable HTTPS**  Port:  FE90::2D0:B8EE:ETC6:653C

Enabled when HTTPS is enabled

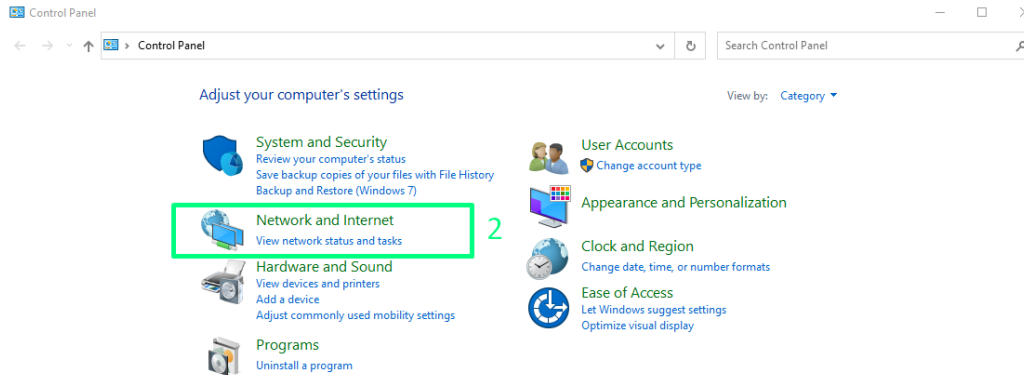
## PC Settings for Static IP on a Network

### Step 1: Go to Control Panel

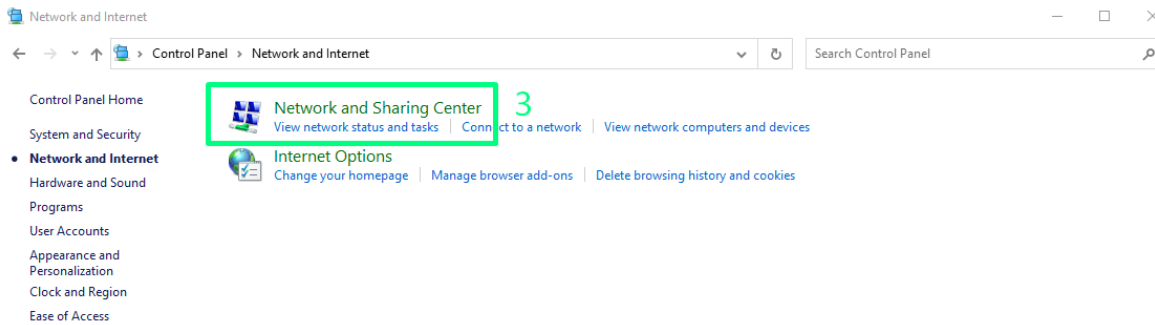




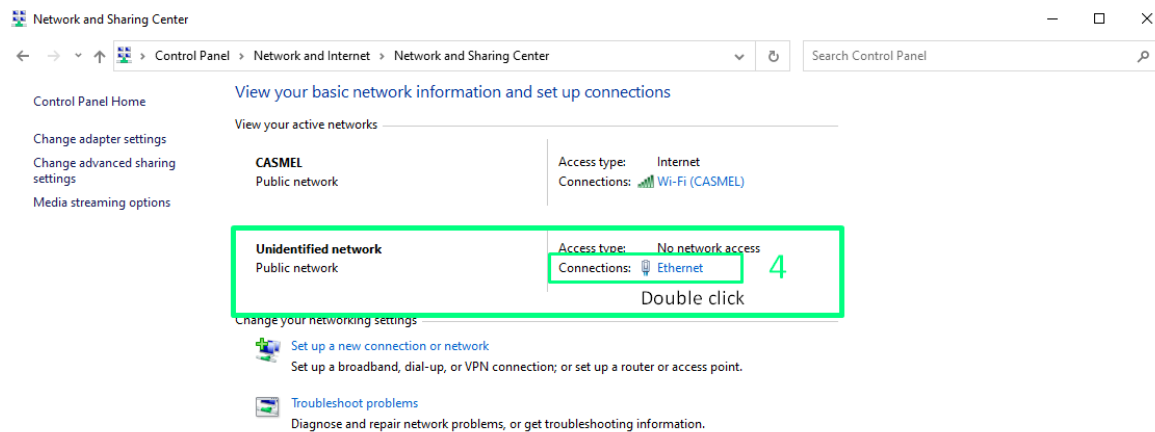
## Step 2: Select Network and Internet



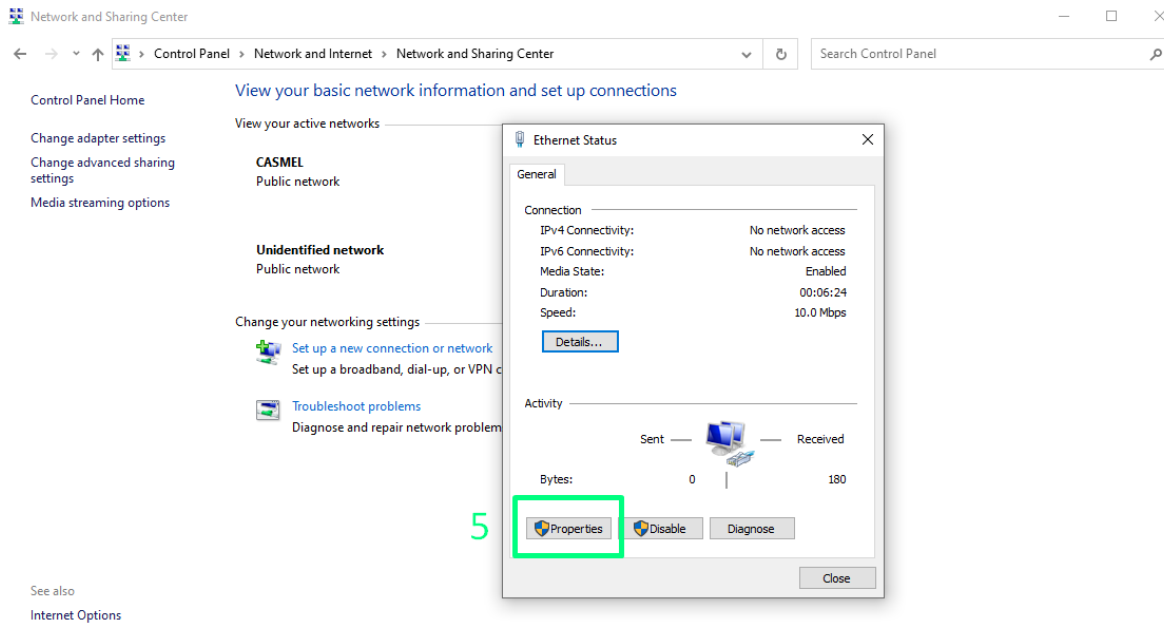
## Step 3: Select Network and Sharing Center



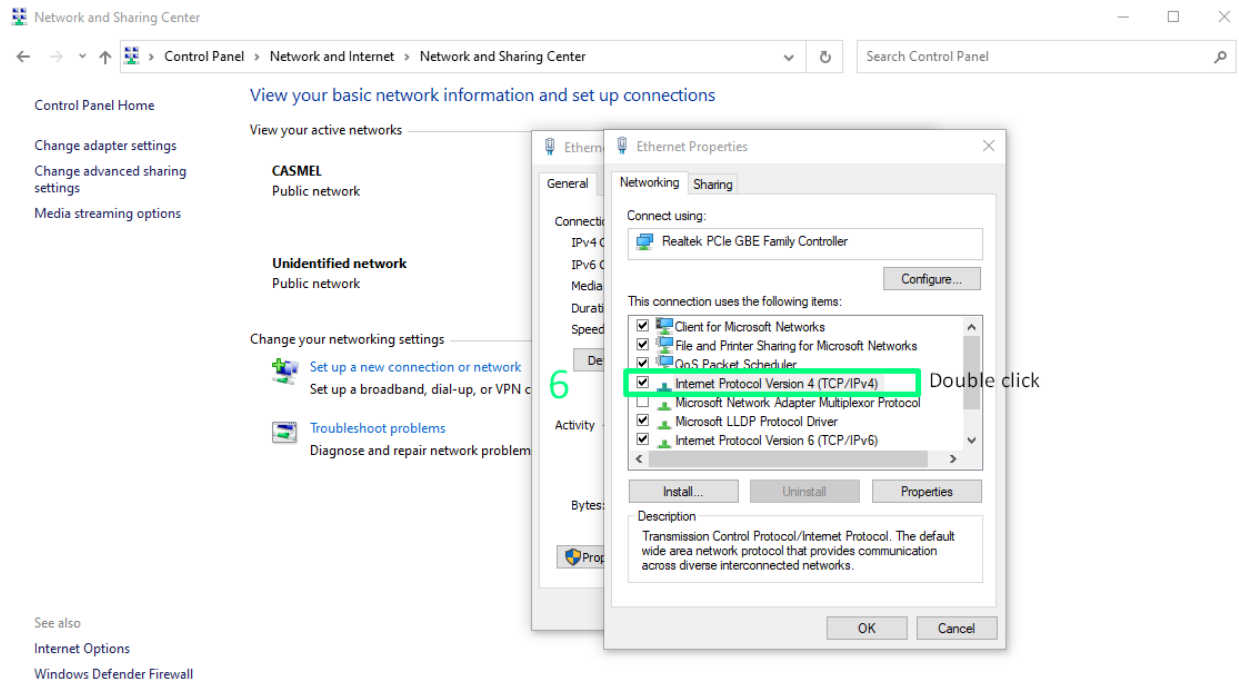
## Step 4: Select Ethernet



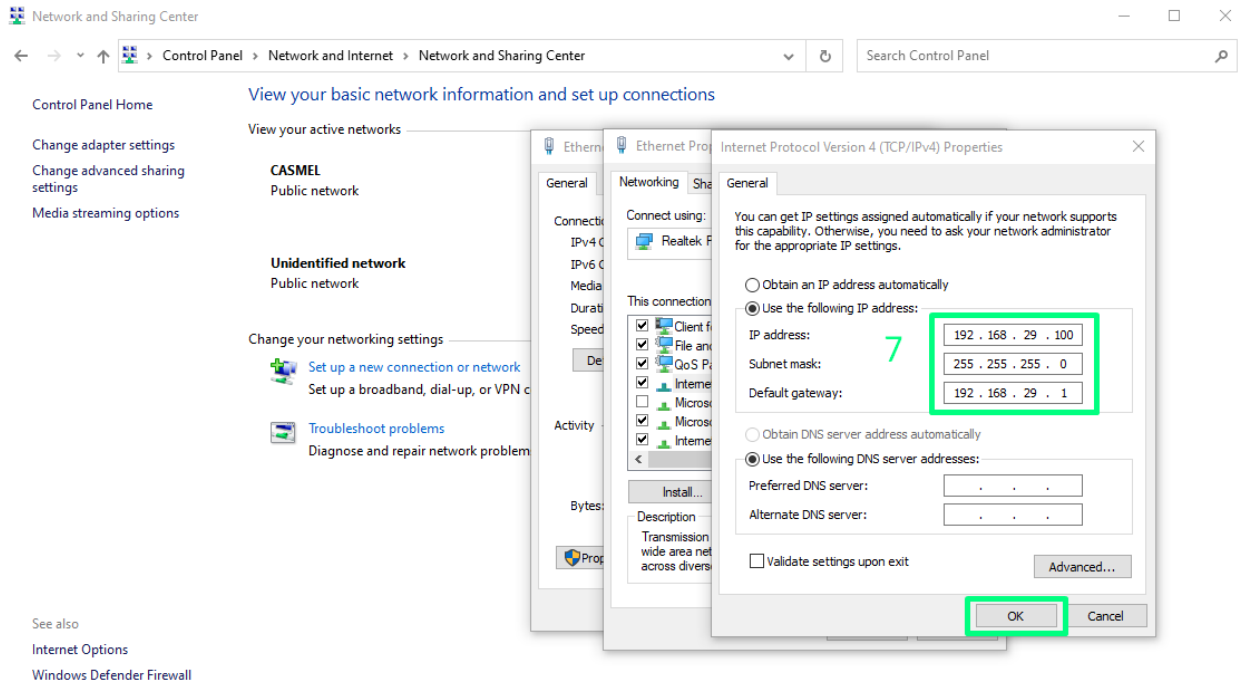
### Step 5: Select Properties and then Options



### 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 all the necessary steps to configure for static IP.

## 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.

```

Command Prompt
Microsoft Windows [Version 10.0.19042.928]
(c) Microsoft Corporation. All rights reserved.

C:\Users\juant>ipconfig 1

Windows IP Configuration

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : tigoone.com.co
    IPv6 Address. . . . . : 2800:e2:27f:f8a2::3
    IPv6 Address. . . . . : 2800:e2:27f:f8a2:dce9:3afb:85db:8cbc
    Temporary IPv6 Address. . . . . : 2800:e2:27f:f8a2:c18d:e522:a940:7539
    Link-local IPv6 Address . . . . . : fe80::dce9:3afb:85db:8cbc%17
    IPv4 Address. . . . . : 192.168.1.54
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::c627:95ff:fe31:15d%17
                                192.168.1.254

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::2184:4447:d98d:d2cb%18
    IPv4 Address. . . . . : 192.168.29.99
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.29.0
    
```

### 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 not in use, type arp-a command as shown below:

```

Command Prompt

Default Gateway . . . . . : 192.168.29.0

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

C:\Users\juant>arp -a 2

Interface: 192.168.1.54 --- 0x11
Internet Address      Physical Address      Type
192.168.1.254        c4-27-95-31-01-5d    dynamic
192.168.1.255        ff-ff-ff-ff-ff-ff    static
224.0.0.22           01-00-5e-00-00-16    static
224.0.0.251          01-00-5e-00-00-fb    static
224.0.0.252          01-00-5e-00-00-fc    static
239.255.255.250     01-00-5e-7f-ff-fa    static
255.255.255.255     ff-ff-ff-ff-ff-ff    static

Interface: 192.168.29.99 --- 0x12
Internet Address      Physical Address      Type
192.168.29.100       70-b3-d5-a7-0f-ac    dynamic
192.168.29.255       ff-ff-ff-ff-ff-ff    static
224.0.0.22           01-00-5e-00-00-16    static
224.0.0.251          01-00-5e-00-00-fb    static
224.0.0.252          01-00-5e-00-00-fc    static
239.255.255.250     01-00-5e-7f-ff-fa    static
255.255.255.255     ff-ff-ff-ff-ff-ff    static

C:\Users\juant>
    
```

## Step 3: Open the web server using your IP address and open the Admin section to select Edit.

**POWERLOK** Model: POWERLOK / Rating: 30A 240/415V 3PH

**PowerLok Summary**  
Levels NOW (Real-time)

TOTAL KW / kVA	0.00 / 0.02
INTERNAL TEMP	23°C
GROUP AMPS	1A 0.0 1B 0.0
LINE AMPS	2A 0.0 2B 1.4 3A 0.0 3B 0.8
GROUP KW / kVA	A 0.0 / 0.0 B 0.0 / 0.0 C 0.0 / 0.0
LINE KW / kVA	A 0.00 / 0.00 B 0.00 / 0.01 C 0.00 / 0.00
GROUP PF / VOLTS	1A 1.00 / 139.7 1B 1.00 / 121.5 2A 1.00 / 0.1 2B 0.01 / 9.4 3A 1.00 / 140.4 3B 1.00 / 7.9

**Power Graphs / Log**  
Levels within each 3 hour time

**Network Admin**

PDU Friendly Name: PowerLokPDU2  
Model Number: POWERLOK  
Serial Number: 20US0K15190001  
Firmware Version: 0.3.0.rc1  
FTP Enabled:

MAC Address: 70-B3-D6-A7-0F-AC  
Port Speed: 100 Mbps  
Hardware Version: PDU1.2

**Settings**

IPv4 Addressing Mode:  DHCP  Static IP

Linked Local:  IP Address: 192.168.29.100  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.29.100

IPv4 DNS Servers: Primary DNS: 209.18.47.62  
Secondary DNS: 209.18.47.61

IPv6 Addressing Mode:  SLAAC  Static

IP Addresses: fe80::72b3:d5ff:fea7:fac  
2603:6011:8904:9900:7a:491d:dc1a:f075

IP Address: 2603:6011:8904:9900:7a:491d:dc1a:f075  
Prefix: 2603:6011:8904:9900  
Prefix Length: 48  
Primary DNS: 2001:4860:4660:8888  
Secondary DNS: 2001:4860:4660:8844  
Default Gateway: fe80::1

Time Servers: NTP: 216.239.35.0 UTC 11-08-2021 19:57:04

Web Access Settings: Enable HTTP:  Port: 80  
Enable HTTPS:  Port: 443

**PowerLok Settings**

Amperage Alarm Setting: Primary Only 80%   
Primary Redundant 40%   
Primary Redundant 48%   
Enable Custom:   
Set Custom %: 20  
Internal PDU Alarm °C: 60

**Events**

- 2021-11-08 2:55 PM Power up - No Events
- 2000-01-01 7:14 PM Power up - No Events
- 2000-01-01 7:11 PM PDU Over-temperature (2514 C, 0 C)

Clear History

## Step 4: Enter your IP address, subnet mask and default gateway and then select Apply Settings.

**POWERLOK** Model: POWERLOK / Rating: 30A 240/415V 3PH

**PowerLok Summary**  
Levels NOW (Real-time)

TOTAL KW / kVA	0.00 / 0.02
INTERNAL TEMP	23°C
GROUP AMPS	1A 0.0 1B 0.0
LINE AMPS	2A 0.0 2B 1.4 3A 0.0 3B 0.8
GROUP KW / kVA	A 0.0 / 0.0 B 0.0 / 0.0 C 0.0 / 0.0
LINE KW / kVA	A 0.00 / 0.00 B 0.00 / 0.01 C 0.00 / 0.00
GROUP PF / VOLTS	1A 1.00 / 139.7 1B 1.00 / 121.5 2A 1.00 / 0.1 2B 0.01 / 9.4 3A 1.00 / 140.4 3B 1.00 / 7.9

**Power Graphs / Log**  
Levels within each 3 hour time

**Network Admin**

PDU Friendly Name: PowerLokPDU2  
Model Number: POWERLOK  
Serial Number: 20US0K15190001  
Firmware Version: 0.3.0.rc1  
FTP Enabled:

MAC Address: 70-B3-D6-A7-0F-AC  
Port Speed: 100 Mbps  
Hardware Version: PDU1.2

**Settings**

IPv4 Addressing Mode:  DHCP  Static IP

Linked Local:  IP Address: 192.168.1.10  
Subnet Mask: 255.255.255.0  
Default Gateway: 192.168.1.254

IPv4 DNS Servers: Primary DNS: 209.18.47.62  
Secondary DNS: 209.18.47.61

IPv6 Addressing Mode:  SLAAC  Static

IP Addresses: fe80::72b3:d5ff:fea7:fac  
2603:6011:8904:9900:7a:491d:dc1a:f075

IP Address: 2603:6011:8904:9900:7a:491d:dc1a:f075  
Prefix: 2603:6011:8904:9900  
Prefix Length: 48  
Primary DNS: 2001:4860:4660:8888  
Secondary DNS: 2001:4860:4660:8844  
Default Gateway: fe80::1

Time Servers: NTP: 216.239.35.0 UTC 11-08-2021 19:57:04

Web Access Settings: Enable HTTP:  Port: 80  
Enable HTTPS:  Port: 443

**PowerLok Settings**

Amperage Alarm Setting: Primary Only 80%   
Primary Redundant 40%   
Primary Redundant 48%   
Enable Custom:   
Set Custom %: 20  
Internal PDU Alarm °C: 60

**Events**

- 2021-11-08 2:55 PM Power up - No Events
- 2000-01-01 7:14 PM Power up - No Events
- 2000-01-01 7:11 PM PDU Over-temperature (2514 C, 0 C)

Clear History

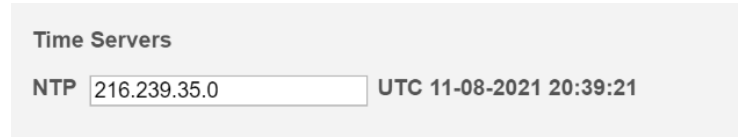
Apply Settings    Do Not Apply & Revert to Prior Settings

Revert to Factory Default 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

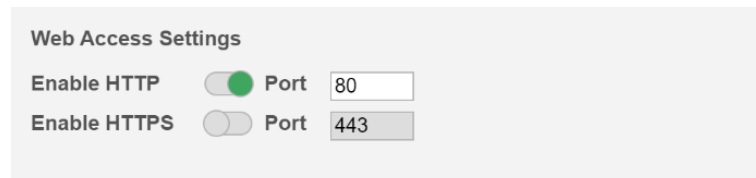
The Rack PDU may be configured to retrieve the UTC time value from an NTP time server. It does this once upon bootup and displays the value in the admin section. The IP address 216.239.35.0 is set as default.



**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**

## 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", "IPV4_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": "2001:4860:4860::8844", "IPV6_ROUTER": "fe80::1", "TIME_SERVER_NTP": "216.239.35.0", "HTTPS_ENABLED": "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_IPV4": "0.0.0.0", "SNMP_HOST1_LIMIT_IPV6": ":", "SNMP_HOST2_LIMIT_IPV4": "192.168.0.6", "SNMP_HOST2_LIMIT_IPV6": ":", "SNMP_HOST3_LIMIT_IPV4": "0.0.0.0", "SNMP_HOST3_LIMIT_IPV6": ":", "SNMP_USER": "user", "SNMP_CONTEXT_NAME": "gateview", "SNMP_AUTH_ALGORITHM": "1", "SNMP_AUTH_PASSWORD": "passauth", "SNMP_PRIV_ALGORITHM": "0", "SNMP_PRIV_PASSWORD": "passpriv", "WEBUI_USERNAME": "administrator", "WEBUI_PASSWORD": "password"}, "alarm": {"AMP_ALARM_CUSTOM_PERCENT": "20", "TEMP_ALARM_THRESHOLD": "60", "AMP_ALARM_THRESHOLD": "4"}}
                
```

APPLY

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

### Duplicate Settings within admin

## SwitchLOK

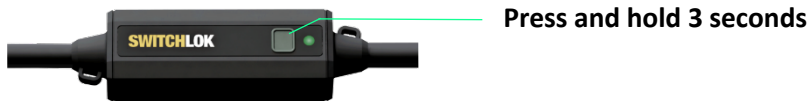
SwitchLOK devices allow electronic switching and monitoring capabilities of PDU outlets. They communicate wirelessly with associated PDUs equipped with SwitchLOK support.



LED meaning

LED Action	LED Color	Meaning
Fast Blink	Green	Not associated or joined with PDU
Slow Blink	Green	SwitchLOK is in joining mode, ready to be accepted from PDU Web interface
Continuous	Green	SwitchLOK is successfully joined with PDU
Continuous	Red	SwitchLOK relay is open

For PDUs equipped with SwitchLOK support, SwitchLOK devices may be joined, or associated with a PDU using the web interface. To join PDU and SwitchLOK, connect the SwitchLOK device to AC power. Press and hold the SwitchLOK pushbutton for 5 seconds, then release. LED should enter a slow blink state whereby it is ready to connect to the PDU. Access the PDU's web interface, activating the 'Manage SwitchLOK' slider.



The screenshot shows the PowerLok web interface. On the left is a 'PowerLok Summary' table. In the center is a 'PowerLok Historical Graphs / Log' chart. On the right is a 'PowerLok Settings' panel with various controls. A green arrow points to the 'Manage SwitchLok' toggle switch, which is currently turned on.

Levels NOW	
TOTAL kW / KVA	7.54 / 8.54
INTERNAL TEMP	41°C
SENSOR A TEMP / Rh	72°F / 38%
SENSOR B TEMP / Rh	71°F / 37%
SENSOR C TEMP / Rh	68°F / 35%
SENSOR D TEMP / Rh	95°F / 42%
GROUP AMPS	1 12.2 2 10.3 3 10.8
LINE AMPS	A 22.2 B 20.3 C 20.8

Amperage Alarm Setting	
Primary Only 80%	<input type="checkbox"/>
Primary Redundant 40%	<input checked="" type="checkbox"/>
Primary Redundant 45%	<input type="checkbox"/>
Enable Custom	<input type="checkbox"/>
Set Custom %	nil
Manage SwitchLok	<input checked="" type="checkbox"/>
SwitchLok Master Control	
Master Switch: On/Off	<input checked="" type="checkbox"/>
Master Reboot:	RUN



SwitchLOK in the join state will appear in this list. Select 'Add' to join SwitchLOK with this PDU. At this time, a friendly label, RU, and ID may be assigned. A 'Test Reboot' may be done to prove the SwitchLOK is joined with the PDU.

Notes:

- SwitchLOK devices will remain in the join-ready state for up to 1 hr after which it will exit this state.
- Joined SwitchLOK devices may be 'removed' at any time from the PDU web interface

Once SwitchLOK is joined, selecting the SwitchLOK link at the top of the page will show a list of joined devices. They may be controlled by the Master control on the right pane, individually selected for group actions using the orange circles in the Control column or expanded individually to reveal detailed controls.

### PowerLok Summary

Levels NOW

TOTAL kW / kVA	7.54 / 8.54
INTERNAL TEMP	41 C
SENSOR A TEMP / Rh	72 F / 38%
SENSOR B TEMP / Rh	71 F / 37%
SENSOR C TEMP / Rh	68 F / 35%
SENSOR D TEMP / Rh	95 F / 42%

GROUP AMPS	1 12.2
	2 10.3
	3 10.8

LINE AMPS	A 22.2
	B 20.3
	C 20.8

GROUP kW / kVA	1 2.51 / 2.63
	2 2.42 / 2.58
	3 2.54 / 2.64

LINE kW / kVA	A 3.20 / 3.33
	B 3.31 / 3.45
	C 3.83 / 3.88

GROUP PF / VOLTS	1 0.98 / 208
	2 0.97 / 207
	3 0.94 / 207

LINE PF	A 0.98
	B 0.97
	C 0.94

### SwitchLok Historical Graphs & Control

Levels for past two weeks period, peak and now.  
Graphing interval is 8 hours.

RU	ID	Friendly Name	State	Seq.	Delay (s)	kVAh	Control
47	1A	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	1	4	2880	○
45	1A	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	2	4	2880	●
43	1A	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	3	4	2880	●
41	1A	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	4	4	2880	●
39	1A	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	5	4	2880	○
37	1B	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	6	4	2880	○
35	1B	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	7	4	2880	●
33	1B	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	8	4	2880	○
31	1B	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	9	4	2880	○
29	1B	BAE SYSTEMS, DELL R730, INSTALLED: 4/10/20 DR18 S. FLYNN	On	10	4	2880	○

### PowerLok Settings ▾

Amperage Alarm Setting

Primary Only 80%	<input type="checkbox"/>
Primary Redundant 40%	<input checked="" type="checkbox"/>
Primary Redundant 45%	<input type="checkbox"/>
Enable Custom	<input type="checkbox"/>
Set Custom %	n/a

Manage SwitchLok  ⓘ

### SwitchLok Master Control ▾

Master Switch: On/Off	<input checked="" type="checkbox"/> ⓘ
Master Reboot:	<input type="button" value="RUN"/> ⓘ
kVAh Reset:	<input type="button" value="CLEAR"/> ⓘ

Start Delay (s):	<input type="text" value="0"/> ⓘ
Sequence Delay (s):	<input type="text" value="2"/> ⓘ
Off-On Delay (s):	<input type="text" value="4"/> ⓘ
Utility Apply Delay (s):	<input type="text" value="140"/> ⓘ

### Sequence Actions

Explained ▾

### Events

- 2021-10-14 3:40 PM Line A Over-current cleared (34.5%, 40%)

## Firmware Updating

For firmware update, please contact tech support: [support@gateview.com](mailto: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 seven (7) 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.

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