Leviton

Switched Power Distribution Unit
- SH081-x, EH081-x
- SH082-x, EH082-x
- SV161-x, EH161-x
- SV162-x, EH162-x

Installation and Operations Manual
Instructions
This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Dangerous Voltage
This symbol is intended to alert the user to the presence of un-insulated dangerous voltage within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Protective Grounding Terminal
This symbol indicates a terminal that must be connected to earth ground prior to making any other connections to the equipment.

Life-Support Policy
As a general policy, Leviton does not recommend the use of any of its products in the following situations:
• life-support applications where failure or malfunction of the Leviton product can be reasonably expected to cause failure of the life-support device or to significantly affect its safety or effectiveness.
• direct patient care.
Leviton will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Leviton that:
• the risks of injury or damage have been minimized,
• the customer assumes all such risks, and
• the liability of Leviton is adequately protected under the circumstances.
The term life-support device includes but is not limited to neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief or other purposes), auto-transfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators (for adults or infants), anesthesia ventilators, infusion pumps, and any other devices designated as “critical” by the U.S. FDA.

Please Recycle
Shipping materials are recyclable. Please save them for later use, or dispose of them appropriately.
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Chapter 1: Introduction

Quick Start Guide

The following instructions will help you quickly install and configure your Switched PDU for use in your data center equipment cabinet. For detailed information on each step, go to the page number listed to the right.

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7. Connect the Switched PDU to the network.

Technical Support

Leviton understands that there are often questions when installing and/or using a new product. Free Technical Support is provided from 6:00 AM to 4:30 PM, Monday-Friday, Pacific Time.

Leviton Voice & Data Division
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Equipment Overview

1. The power inlet/cord(s) connects the PDU to the electrical power source.
2. The Input Current LED(s) displays the current load for each infeed or electrical phase per infeed.
3. Two RJ45 connectors for Serial (RS-232) and Ethernet connection.
4. Two mini RJ11 connectors for Temperature/Humidity sensors.

Each Branch Circuit / electrical phase is clearly labeled for easy identification.

A number is printed above each outlet. These numbers may be used in commands that require an outlet name. See Outlet Naming and Grouping in Chapter 3: Operations for more information.

Figure 1. Power Distribution Unit Views
Chapter 2: Installation

Before installing your Leviton Switched Power Distribution Unit (PDU), refer to the following lists to ensure that you have all the items shipped with the unit as well as all other items required for proper installation.

Standard Accessories

- Mounting hardware
  - Vertical models - two removable flanges with four M4 screws and two mounting L-brackets with nut plates, four sets of screws and washers and optional button mounts.
  - Horizontal models – two removable flanges with M4 screws.
- RJ45 to RJ45 crossover cable
- RJ45 to DB9F serial port adapter (for connection to standard DB9M DTE serial port)
- Outlet retention clips (208-240V models)

Additional items for xxxxx -1D1 models:

- Separate power input cord.
- Power input retention bracket hardware.
  - Two removable T-brackets with two 40mm screws.

Please call Technical Support from 6:30 AM to 4:30 PM, Monday – Friday, Pacific Time, for additional information: Tel: (800) 722.2082.

Optional Accessories

- Temperature/Humidity sensors

Additional Required Items

- Flathead and Phillip screwdrivers
- Screws, washers and nuts to attach the PDU to your rack

Safety Precautions

This section contains important safety and regulatory information that should be reviewed before installing and using the Leviton Switched Power Distribution Unit. For input and output current ratings, see Power Ratings in Appendix C: Technical Specifications.

Only for installation and use in a Service Access Location in accordance with the following installation and use instructions.

Destiné à l'installation et l'utilisation dans le cadre de Service Access Location selon les instructions d'installation et d'utilisation.

Nur für Installation und Gebrauch an Anschlusszugriffspunkten gemäß der folgenden Installations- und Gebrauchsanweisungen.

This equipment is designed to be installed on a dedicated circuit.

Cet équipement est conçu à être installé sur un circuit spécialisé.

Diese Ausrüstung ist zur Installation in einem festen Stromkreis vorgesehen.

Dedicated circuit must have circuit breaker or fuse protection.

PDUs have been designed without a master circuit breaker or fuse to avoid becoming a single point of failure. It is the customer's responsibility to provide adequate protection for the dedicated power circuit. Protection of capacity equal to the current rating of the PDU must be provided and must meet all applicable codes and regulations. In North American, protection must have a 10,000A interrupt capacity.

Le circuit spécialisé doit avoir un disjoncteur ou une protection de fusible. PDUs ont été conçus sans disjoncteur général ni fusible pour éviter que cela devient un seul endroit de panne. C'est la responsabilité du client de fournir une protection adéquate pour le circuit-alimentation spécialisé. Protection de capacité équivalant à la puissance de l'équipement, et respectant tous les codes et normes applicables. Les disjoncteurs ou fusibles destinés à l'installation en Amérique du Nord doivent avoir une capacité d'interruption de 10.000 A.


The plug on the power supply cord shall be installed near the equipment and shall be easily accessible.

La prise sur le cordon d'alimentation sera installée près de l'équipement et sera facilement disponible.

Der Stecker des Netzkabels muss in der Nähe der Ausrüstung installiert werden und leicht zugänglich sein.

Installation Orientation: xVxxx-xxx units are design to be installed in vertical orientation.

Installation Orientation : Les unités xVxxx-xxx sont conçues pour être installées dans une orientation verticale.

Installationsausrichtung: xVxxx-xxx Einheiten sind zur vertikalen Installation vorgesehen.

Always disconnect the power supply cord before opening to avoid electrical shock.

Toujours déconnecter le cordon d'alimentation avant d'ouvrir pour éviter un choc électrique.

Ziehen Sie vor dem Öffnen immer das Netzkabel heraus, um die Gefahr eines elektrischen Schlags zu vermeiden.

WARNING! High leakage current! Earth connection is essential before connecting supply!

ATTENTION ! Haut fuite très possible ! Une connection de masse est essentielle avant de connecter l'alimentation !

ACHTUNG! Hoher Ableitungstrom! Ein Erdungsanschluss ist vor dem Einschalten der Stromzufuhr erforderlich!
Installing the Power Input Retention Bracket

For units with a total maximum output <30A, it may be necessary to install the power input retention bracket prior to mounting the unit within the rack.

**To install the power input retention bracket:**

1. Remove the two screws attaching the IEC 60320 C19 inlet to the enclosure.
2. Assemble and attach the retention bracket to the enclosure as shown.

![Figure 2.1 Retention Bracket assembly](image)

Mounting

**Horizontal/Rack**

1. Select the appropriate bracket mounting points for proper mounting depth within the rack.
2. Attach the brackets to these mounting points with two screws for each bracket.
3. Install the enclosure into your rack, using the slots in each bracket. The slots allow about ¼ inch of horizontal adaptability to align with the mounting holes of your rack.

**Vertical**

1. Attach the removable flanges to the mount points on the rear of the enclosure using M4 screws.
2. Attach the mounting L-brackets to the flanges with the supplied screws, washers and nut plates. The slots allow about 1½ inches of vertical adaptability.
3. Attach the top and bottom brackets to your rack.

**NOTE:** A mounting bracket kit for 23” wide racks or cabinets is available. Contact your Leviton distributor for more information.

**NOTE:** Contact your Leviton Sales Representative for information regarding custom bracket design and fabrication services if you are unable to find a suitable manner for utilizing the included mounting brackets.

Optionally, the supplied button mounts may be used for mounting the PDU into cabinets supporting this method of equipment mounting.
Attaching the Expansion Module

Connect the Expansion Module PDU with the provided RJ11 crossover cable at the at the Link port on the Switched PDU.

NOTE: The overall length of the RJ11 crossover cable should not exceed 10 feet.

Connecting to the Power Source

On 30A units, the input power cord is attached to the base of the unit. On units with a total maximum output <30A, you must first attach the power cord to the unit before connecting the unit to the power source.

To attach a power cord to the unit:
1. Plug the female end of the power cord firmly into its connector at the base.
2. Use a screwdriver to tighten the two screws on the retention bracket.

To connect to the power source:
Plug the male end of the power cord into the AC power source.

Connecting Devices

To avoid the possibility of noise due to arcing:
1. Keep the device’s on/off switch in the off position until after it is plugged into the outlet.
2. Connect devices to the PDU outlets.

NOTE: Leviton recommends even distribution of attached devices across all available outlets to avoid exceeding the outlet, branch or phase limitations. See Power Ratings on page 53 for more information.

Always disconnect both power supply cords before opening to avoid electrical shock.
Afin d’éviter les chocs électriques, débranchez les câbles électrique avant d’ouvrir.
Immer beiden Netzleitungen auskuppeln vor den Aufmachen um elektrischen Schlag zu vermeiden.

Connecting the Sensors

The Switched PDU is equipped with two mini RJ11 T/H ports for attachment of the included Temperature/Humidity sensor. Attach the mini RJ11 plug of the sensor(s) to the appropriate T/H port.

Connecting to the Unit

Serial (RS232) port

The Switched Power Distribution Unit is equipped with an RJ45 Serial RS-232 port for attachment to a PC or networked terminal server using the supplied RJ45 to RJ45 crossover cable and RJ45 to DB9F serial port adapter as required. See Data Connections in Appendix C: Technical Specifications for more information on the Serial RS-232 port.

Ethernet port

The Switched Power Distribution Unit is equipped with an RJ45 10/100Base-T Ethernet port for attachment to an existing network. This connection allows access to the Switched PDU via Telnet or HTML.

The Switched Power Distribution Unit is configured with the following network defaults to allow unit configuration out-of-the-box through either Telnet or HTML:

- IP address: 192.168.1.254
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.1.1

The local PC network connection must be configured as noted below:

NOTE: Contact your system administrator for instructions in reconfiguring the network connection. Reconfiguration of your network connection may require a restart to take effect.

- IP address: 192.168.1.x (where x is 2-253)
- Subnet Mask: 255.255.255.0
**Chapter 3: Operations**

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Interfaces

The Switched Power Distribution Unit has two interfaces: the HTML interface accessed via the HTTP enabled Ethernet connections and the command line for serial and Telnet connections.

Outlet Naming and Grouping

For commands requiring an outlet name, you may specify it in one of two ways: a predefined absolute name or a descriptive name assigned by an administrator.

Absolute names are specified by a period (.) followed by a tower letter and outlet number. The tower letter for the Switched PDU is A and the tower letter for the optional Expansion Module PDU is B.

Outlets may also be included in one or more named groups of outlets, enabling you to issue a command that affects all outlets in a named group.

Usernames and Passwords

The Switched Power Distribution Unit has one predefined administrative user account (username/password: admn/admn) and supports a maximum of 128 defined user accounts

NOTE: For security, Leviton recommends removal of the predefined administrative user account after a new account with administrative rights has been created.

Only an administrative-level user may perform operations such as creating/removing user accounts and command privileges, changing passwords and displaying user information. An administrator may also view the status of all sensors and power inputs.

Usernames may contain from 1-16 characters and are not case sensitive; spaces are not allowed.

Passwords may contain up to 16 characters, and are case sensitive.
**HTML Interface**

The HTML interface is constructed of three major components: the System Location bar, the User/Navigation bar and the Control Screen. The System Location bar displays the Leviton’s location and IP address as well as the current Control Screen title. The User/Navigation bar displays the current user and privilege level and provides access to all HTML pages. And the Control Screen is used to display current data and allow changes to outlet states or system configuration.

The following sections describe each interface section/page and their use.

---

**Logging In**

Logging in through HTML requires directing the HTML client to the configured IP address of the unit.

**To log in by HTML:**

In the login window, enter a valid username and password and press **OK**.

If you enter an invalid username or password, you will be prompted again.

You are given three attempts to enter a valid username and password combination. If all three fail, the session ends and a protected page will be displayed.

---

**NOTE:** The default Leviton username/password is admn/admn.
Outlet Control

The Outlet Control section offers access to the Individual and Group outlet control pages. From the Individual and Group pages, the user can review and manipulate power control functions for all outlets and groups assigned to the current user. Both pages include the outlets absolute and descriptive names, the Outlet Status reported to the Leviton PDU by the outlet, the current Control State being applied by the Leviton PDU and the outlet load in amperes.

Available outlet and group power states may be set to on, off or reboot.

Individual

The Individual outlet control page displays all outlets assigned to the current user. The user may apply on, off or reboot actions to individual, multiple or all accessible outlets.

To apply actions to individual or multiple outlets:

In the Individual Outlet Control section, select the desired action from the Control Action drop-down menu for each individual outlet to be changed and press Apply.

To apply an action to all outlets:

In the Global Control section, select the desired action from the Control Action drop-down menu and press Apply.

Group

The Group outlet control page displays all groups assigned to the current user as well as the outlets for each group.

To select a group:

Select the group name from the drop-down menu and press Select. The page will refresh to display all outlets associated to the selected group name.

To apply an action to a group:

Select the desired action from the drop-down menu and press Apply.

Outlet State/Control State Field Values

<table>
<thead>
<tr>
<th>Outlet State</th>
<th>Control State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>On</td>
<td>Outlet is on</td>
</tr>
<tr>
<td>Off</td>
<td>Off</td>
<td>Outlet is off</td>
</tr>
<tr>
<td>Off</td>
<td>Pend On</td>
<td>Outlet is off and about to turn on in response to a sequence timer</td>
</tr>
<tr>
<td>Off</td>
<td>Reboot</td>
<td>Outlet is off and a Reboot action has been initiated</td>
</tr>
<tr>
<td>On</td>
<td>Idle On</td>
<td>A restart has occurred – Last Control State has been maintained</td>
</tr>
<tr>
<td>Off</td>
<td>Idle Off</td>
<td>A restart has occurred – Last Control State has been maintained</td>
</tr>
<tr>
<td>On</td>
<td>Wake On</td>
<td>A power-loss has occurred – Wakeup State has been applied</td>
</tr>
<tr>
<td>Off</td>
<td>Wake Off</td>
<td>A power-loss has occurred – Wakeup State has been applied</td>
</tr>
<tr>
<td>On/Wait</td>
<td>Off</td>
<td>Outlet state in transition – Requery of outlet status required</td>
</tr>
<tr>
<td>Off/Wait</td>
<td>On</td>
<td>Outlet state in transition – Requery of outlet status required</td>
</tr>
<tr>
<td>On/Error</td>
<td>varies</td>
<td>Error State – Outlet should be off but current is sensed at the outlet</td>
</tr>
<tr>
<td>Off/Error</td>
<td>varies</td>
<td>Error State – Outlet should be on but no current is sensed at the outlet</td>
</tr>
<tr>
<td>Off/Fuse</td>
<td>On</td>
<td>Outlet should be on but a blown fuse has been detected</td>
</tr>
<tr>
<td>No Comm</td>
<td>varies</td>
<td>Communication to the outlet has been lost*</td>
</tr>
</tbody>
</table>

* Control State will be applied when communication is re-established
Environmental Monitoring

Input Load

The Input Load page displays the tower(s) absolute and descriptive name and the cumulative input load in amperes of all devices attached to the Leviton PDU at the time the page was loaded. This page will refresh automatically every 10 seconds.

Sensors

The Sensors page displays:

- Temperature/humidity sensor’s absolute and descriptive names
- Temperature/humidity sensor readings in degrees Celsius and percent relative humidity

Configuration

The Configuration section offers access to all unit configuration options including Network, Telnet/SSH, HTTP/SSL, Serial Ports, Users, FTP, Proxy/SNTP and SNMP. This section is available to administrative level users only.

System

The System configuration page is used for reference of system information such as Ethernet NIC Serial Number, Ethernet MAC address and system firmware and hardware revisions as well as assignment and maintenance of the system location and tower descriptive names.

For description names, up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal – spaces are not allowed) are allowed.

NOTE: Spaces may be used for the location description only.

Creating a descriptive system location name:

Enter a descriptive name and press Apply.

Configuring the Input Current LED display orientation:

Select Normal or Inverted from the drop-down menu and press Apply.

Creating a descriptive unit name:

Click on the Tower Names link.

On the subsequent Tower Names page, enter a descriptive name and press Apply.

Creating a descriptive input feed name:

Click on the Input Feed Names link.

On the subsequent Input Feed Names page, enter a descriptive name and press Apply.

Creating a descriptive outlet name:

Click on the Outlet Names link which will open the Outlets configuration page. See Outlets on page 15 for additional information on creating descriptive outlet names.

Creating a descriptive serial port name:

Click on the Serial Port Names link which will open the Serial Ports configuration page. See Serial Ports on page 15 for additional information on creating descriptive serial port names.

Creating a descriptive Environmental Monitor name:

Click on the Environmental Monitor Names link.

On the subsequent Environmental Monitor Names page, enter a descriptive name and press Apply.

Creating descriptive sensor names:

Click on the Sensor Names link.

On the subsequent Sensor Names page, enter a descriptive name and press Apply.
Network

The Network configuration page is used for maintenance of the network interface. From this page an administrator may configure the IP address, subnet mask, gateway address, DNS addresses as well as view the link status, speed and duplex value.

The PDU is configured with the following network defaults to allow unit configuration out-of-the-box through either Telnet or HTML:

- IP address: 192.168.1.254
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.1.1

The initial local PC network connection must be configured as noted below:

NOTE: Contact your system administrator for instructions in reconfiguring the network connection. Reconfiguration of your network connection may require a restart to take effect.

- IP address: 192.168.1.x (where x is 2-253)
- Subnet Mask: 255.255.255.0

NOTE: The unit must be restarted after network configuration changes. See Performing a warm boot: on page 19.

Setting the IP address, subnet mask, gateway or DNS address:

In the appropriate field, enter the IP address, subnet mask, gateway address or DNS address and press Apply.

Telnet/SSH

The Telnet/SSH configuration page used to enable or disable Telnet and SSH support and configure the port number that the Telnet or SSH server watches. For more information on SSH see page 43 in Chapter 4: Advanced Operations.

Enabling or disabling Telnet or SSH support:

Select Enabled or Disabled from the appropriate Server drop-down menu and press Apply.

Changing the Telnet or SSH server port number:

In the appropriate Port field, enter the port number and press Apply.

HTTP/SSL

The HTTP/SSL configuration page used to enable or disable HTTP and SSL support, configure the port number that the HTTP server watches and responds to, selection of the method of authentication used and SSL access level. For more information on SSL see page 41 in Chapter 4: Advanced Operations.

Enabling or disabling HTTP or SSL support:

Select Enabled or Disabled from the appropriate Server drop-down menu and press Apply.

Changing the HTTP server port number:

In the HTTP Port field, enter the port number and press Apply.

Setting the HTTP authentication method:

The Leviton HTTP server supports two authentication methods for security and validation of the username-password – Basic and MD5 digest.

The Basic method utilizes Base64 encoding to encode and deliver the username-password over the network to the HTTP server for decoding and authentication. This basic method is supported by all web browsers and offers a minimum level of security.

NOTE: The Base64 algorithm is widely-known and susceptible to packet-sniffer attack for acquisition of the encoded username-password string.

The MD5 digest method provides stronger protection utilizing one-way encoded hash numbers, never placing the username-password on the network. Instead, the sending browser creates a challenge code based on the hash algorithm, provided username-password and unique items such as the device IP address and timestamp, which is compared against the HTTP server internal user database of valid challenge codes. The MD5 digest method offers a higher level of security than the Basic method but at present is not supported by all browsers.

NOTE: MD5 is known to be fully supported by Internet Explorer 5.0+

Select Basic or MD5 from the Authentication drop-down menu and press Apply.
Setting SSL access level
Leviton SSL supports configuration of SSL connections as being either optional or required. The default access level is set to optional.

- Optional – Both non-secure (HTTP) and SSL encrypted connections (HTTPS) are allowed access.
- Required – ONLY SSL encrypted connections (HTTPS) are allowed access.

Select **Optional** or **Required** from the Secure Access drop-down menu and press **Apply**.

**Serial Ports**
The Serial Ports configuration page is used for maintenance of the serial port.

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**Setting the data-rate for all serial ports:**
Select the serial port data-rate from the drop-down menu and press **Apply**.

**Setting the serial port timeout value:**
Enter the timeout value (in minutes) in the Connection Timeout field and press **Apply**.

**Creating a descriptive serial port name:**
Click on the **Edit** link in the Action column next to the port to be configured.

On the subsequent Serial Port Edit page, enter the descriptive name. Up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal, spaces are not allowed) are allowed. Press **Apply**.

**Enabling or disabling serial port active signal checking:**
Click on the **Edit** link in the Action column next to the port to be configured.

On the subsequent Serial Port Edit page, select **On** or **Off** from the DSR Check drop-down menu and press **Apply**.

**Outlets**
The Outlets configuration page is used for assignment and/or editing of outlet sequence and reboot timers, descriptive names and wakeup states.

**Setting the outlet sequencing interval:**
Enter the sequencing interval (in seconds) in the Sequence Interval field and press **Apply**.

**Setting the outlet reboot delay:**
Enter the reboot interval (in seconds) in the Reboot Delay field and press **Apply**.

**Editing the outlet descriptive name:**
Click on the **Edit** link in the Action column next to the outlet to be configured.

On the subsequent Outlet Edit page, enter the descriptive name. Up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal, spaces are not allowed) are allowed. Press **Apply**.

**Changing the outlet wakeup state:**
Click on the **Edit** link in the Action column next to the outlet to be configured.

On the subsequent Outlet Edit page, select **On**, **Off** or **Last** from the Wakeup State drop-down menu and press **Apply**.

**Setting the outlet Post-On delay:**
Click on the **Edit** link in the Action column next to the outlet to be configured.

On the subsequent Outlet Edit page, enter the outlet Post-On delay (in seconds) in the Post-On Delay field and press **Apply**.

For more information on outlet Post-On delays, see Outlet Administration on page 29.
Groups

The Groups configuration page is used for creation and deletion of group and assignment of outlets to groups.

Creating a group:

Enter a descriptive group name in the Group Name field. Up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal, spaces are not allowed) are allowed. Press Apply.

Removing a group:

Click on the Remove link in the Action column for the group to be removed and press Yes on the subsequent confirmation window.

Adding and Deleting outlets from a group:

Press the Edit link in the Action column for the group to be added or deleted. On the subsequent Group Edit page, select or deselect outlets to be included in that group. Press Apply.

Users

The Users configuration page is used for creation and removal of usernames, assignment of accessible outlets and group, assignment of privilege levels and the changing of user passwords.

Creating a new user:

Enter a user name in the Username field. Up to 16 alphanumeric and other typeable characters (ASCII 33 to 126 decimal, spaces are not allowed) are allowed.

Enter a password for the new user and verify in the Password and Verify Password fields. For security, password characters are not displayed. Press Apply.

Removing a user:

Click on the Remove link in the Action column for the user to be removed and press Yes on the subsequent confirmation window.

Changing a user password:

Click on the Edit link in the Action column for the associated user.

On the subsequent User Edit page, enter a password and verify the new password for the new user in the Password and Verify Password fields. For security, password characters are not displayed. Press Apply.

Changing a user’s access privilege level:

The PDU has four defined access privilege levels; Admin, User, On-Only and View-Only:

- **Admin:** Full-access for all configuration, control (On, Off, Reboot), status and Pass-Thru.
- **User:** Partial-access for control (On, Off, Reboot), status and Pass-Thru of assigned outlets, groups and serial/Pass-Thru ports.
- **On-Only:** Partial-access for control (On), status and Pass-Thru of assigned outlets, groups and serial/Pass-Thru ports.
- **View-Only:** Partial-access for status and Pass-Thru of assigned outlets, groups and serial/Pass-Thru ports.

The administrator may also grant administrative privileges to other user accounts allowing the PDU to have more than one administrative-level user.

NOTE: You cannot remove administrative privileges from the Admin user unless another user has already been given administrative access level privileges created.

Click on the Edit link in the Action column for the associated user.

On the subsequent User Edit page, select **Admin, User, On-only** or **View-only** from the Access Level drop-down menu and press Apply.
Granting or removing Environmental Monitoring viewing privileges:

Click on the **Edit** link in the Action column for the associated user.

On the subsequent User Edit page, select **Yes** or **No** from the Environmental Monitoring drop-down menu and press **Apply**.

**Adding and Deleting outlet access:**

Click on the **Outlets** link in the Access column for the associated user.

On the subsequent User Outlets page, select or deselect outlets to be accessed by the user and press **Apply**.

**Adding and Deleting group access:**

Click on the **Groups** link in the Access column for the associated user.

On the subsequent User Groups page, select or deselect group to be accessed by the user and press **Apply**.

**Adding and Deleting serial port access:**

Click on the **Ports** link in the Access column for the associated user.

On the subsequent User Ports page, select or deselect ports to be accessed by the user and press **Apply**.

**FTP**

The FTP configuration page is used for setup and maintenance of all settings required to perform an FTP firmware upload. See Appendix B: Uploading Firmware for more information on uploading firmware.

**Setting the FTP Host IP Address:**

Enter the IP address in the Host IP Address field and press **Apply**.

**Setting the FTP username:**

Enter the FTP server username in the Username field, and press **Apply**.

**Setting the FTP password:**

Enter the FTP server password in the Password field, and press **Apply**.

**Setting the filepath:**

Enter the path of the file to be uploaded in the Directory field, and press **Apply**.

**Setting the filename for upload:**

Enter the filename of the file to be uploaded in the Filename field, and press **Apply**.

**Testing the FTP upload configuration:**

This test validates that the unit is able to contact and log onto the specified FTP server, download the firmware file and verify that the firmware file is valid for this unit.

Press **Test**.

**SNTP**

The SNTP configuration page is used for setup and maintenance of SNTP support.

**Setting the SNTP Server Address:**

Enter the IP address in the primary and/or secondary address field and press **Apply**.
SNMP

The SNMP configuration page is used for setup and maintenance of all settings required to enable SNMP support as well as access to the trap configuration pages. For additional information on SNMP support and detailed descriptions of available traps, see SNMP on page 44.

NOTE: Traps are generated according to a hierarchical architecture; i.e. if a Tower Status enters a trap condition, only the Tower Status trap is generated. Infeed and Outlet Status traps are suppressed until the Tower Status returns to Normal.

Enabling or disabling SNMP support:
Select Enabled or Disabled from the drop-down menu and press Apply.

Setting the community strings:
Enter the community string in the appropriate field and press Apply. Community strings may be 1 to 24 characters.

Setting the trap timer:
Enter a trap timer value in the Error Trap Repeat Time field and press Apply. The Error Trap Repeat Time value may be 1 to 65535 (in seconds).

Setting trap destinations:
Enter an IP address in the appropriate Trap Destination field and press Apply.

Enabling or disabling tower traps:
Click on the Tower Traps link. On the subsequent Tower Traps page, select or deselect the desired traps and press Apply.

Configuring input feed traps:
Click on the Input Feed Traps link. On the subsequent Input Feed Traps page, select or deselect the desired traps and press Apply.
For Load traps, enter a maximum load value for the infeed in the High Load Threshold field and press Apply. The High Load Threshold value may be 0 to 255 (in amperes).

Enabling or disabling Environmental Monitor traps:
Click on the Environmental Monitor Traps link. On the subsequent page, select or deselect the desired traps and press Apply.

Configuring the Temperature-Humidity sensor traps:
Click on the Sensor Traps link. On the subsequent page, select or deselect the desired traps and press Apply.
For Temp traps, enter a minimum and maximum threshold value for the sensor in the appropriate field and press Apply. The threshold value may be 0 to 127 (in degrees Celsius).
For Humid traps, enter a minimum and maximum threshold value for the sensor in the appropriate field and press Apply. The threshold value may be 0 to 100 (in percent relative humidity).

Configuring outlet traps:
Click on the Outlet Traps link. On the subsequent Outlet Traps page, select or deselect the desired traps and press Apply.
Tools

The Tools section contains access to rebooting the unit, uploading new firmware as well as resetting the unit to factory defaults. This section is available to administrative level users only.

Restart

Performing a warm boot:

Select the Restart from the Action drop-down menu and press Apply.

Note: System user/outlet/group configuration or outlet states are NOT changed or reset with this command.

Resetting to factory defaults:

See Chapter 5: for more information on resetting a PDU to factory defaults from the HTML interface.

Uploading new firmware:

See Appendix B: for more information on uploading new firmware from the HTML interface.

Ping

The Ping feature may be used to test the PDU’s ability to contact another Ethernet enabled device’s IP address. For LDAP support, it may also be used to test the configuration of the Domain Name server IP address by testing for proper name resolution.
Command Line Interface

Logging In

Logging in through Telnet requires directing the Telnet client to the configured IP address of the unit.

Logging in through the Console (RS232) port requires the use of a terminal or terminal emulation software configured to support ANSI or VT100 and a supported data rate (300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 BPS) - 8 data bits-no parity-one stop bit and Device Ready output signal (DTR or DSR).

To log in by RS-232 or Telnet:

1. Press Enter. The following appears, where x.xx is the firmware version:

   Leviton Version x.xx
   Username: 

   NOTE: Logging in by Telnet will automatically open a session. It is not necessary to press Enter.

2. At the Username: and Password: prompts, enter a valid username and password. And press Enter.

   You are given three attempts to enter a valid username and password combination. If all three fail, the session ends.

   NOTE: The default Leviton username/password is admn/admn.

When a valid username and password is entered, the command prompt appears. If a location identifier was defined, it will be displayed before the prompt. See Creating a location description on page 33 for more information.

Commands may be entered in any combination of uppercase and lowercase. All command characters must be entered correctly; there are no command abbreviations. A user must have administrative privileges to use the administration commands. The following tables list and briefly describe each command.

Operations Command Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td>Turns one or more outlets on</td>
</tr>
<tr>
<td>Off</td>
<td>Turns one or more outlets off</td>
</tr>
<tr>
<td>Reboot</td>
<td>Reboots one or more outlets</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the on/off status of one or more outlets</td>
</tr>
<tr>
<td>ILoad</td>
<td>Displays the total cumulative input load</td>
</tr>
<tr>
<td>Istat</td>
<td>Displays the status of the infeeds</td>
</tr>
<tr>
<td>Connect</td>
<td>Connects to a serial/Pass-Thru port</td>
</tr>
<tr>
<td>Login</td>
<td>Ends the current session and brings up the Username: prompt</td>
</tr>
<tr>
<td>Logout</td>
<td>Ends a session</td>
</tr>
<tr>
<td>Quit</td>
<td>Ends a session</td>
</tr>
<tr>
<td>List Outlets</td>
<td>Lists all accessible outlets for the current user</td>
</tr>
<tr>
<td>List Ports</td>
<td>Lists all accessible serial/Pass-Thru ports for the current user</td>
</tr>
<tr>
<td>List Group</td>
<td>Lists all assigned outlets for a group name</td>
</tr>
<tr>
<td>List Groups</td>
<td>Lists all accessible groups for the current user</td>
</tr>
</tbody>
</table>

Administrative Command Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Grouptouser</td>
<td>Grants a user access to one or more groups</td>
</tr>
<tr>
<td>Add Outlettogroup</td>
<td>Adds an outlet to a group name</td>
</tr>
<tr>
<td>Add Outlettouser</td>
<td>Grants a user access to one or all outlets</td>
</tr>
<tr>
<td>Add Porttouser</td>
<td>Grants a user access to one or all serial/Pass-Thru ports</td>
</tr>
<tr>
<td>Create Group</td>
<td>Adds a group name</td>
</tr>
<tr>
<td>Create User</td>
<td>Adds a user account</td>
</tr>
<tr>
<td>Delete Grouptuser</td>
<td>Removes access to one or more groups for a user</td>
</tr>
<tr>
<td>Delete Outletfromgroup</td>
<td>Deletes an outlet from a group name</td>
</tr>
<tr>
<td>Delete Outlettuser</td>
<td>Removes access to one or all outlets for a user</td>
</tr>
<tr>
<td>Delete Portfromuser</td>
<td>Removes access to one or all serial/Pass-Thru ports</td>
</tr>
</tbody>
</table>
### Administrative Command Summary (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>List User</td>
<td>Displays all accessible outlets/groups/ports for a user</td>
</tr>
<tr>
<td>List Users</td>
<td>Displays privilege levels for all users</td>
</tr>
<tr>
<td>Remove Group</td>
<td>Deletes a group name</td>
</tr>
<tr>
<td>Remove User</td>
<td>Deletes a user account</td>
</tr>
<tr>
<td>Restart</td>
<td>Performs a warm boot</td>
</tr>
<tr>
<td>Set Display</td>
<td>Sets the LED orientation for external Input Current displays</td>
</tr>
<tr>
<td>Set DNS</td>
<td>Sets the IP address of the Domain Name server</td>
</tr>
<tr>
<td>Set Envmon Name</td>
<td>Specifies a descriptive field fro the integrated Environmental Monitor</td>
</tr>
<tr>
<td>Set Envmon THS Name</td>
<td>Specifies a descriptive field for a temperature-humidity sensor</td>
</tr>
<tr>
<td>Set FTP Filename</td>
<td>Specifies the file to be uploaded via FTP</td>
</tr>
<tr>
<td>Set FTP Filepath</td>
<td>Specifies the filepath for the file to be uploaded</td>
</tr>
<tr>
<td>Set FTP Host</td>
<td>Sets the FTP Host IP address</td>
</tr>
<tr>
<td>Set FTP Password</td>
<td>Sets the password for the FTP Host</td>
</tr>
<tr>
<td>Set FTP Username</td>
<td>Sets the username for the FTP Host</td>
</tr>
<tr>
<td>Set Gateway</td>
<td>Sets the Gateway</td>
</tr>
<tr>
<td>Set HTTP</td>
<td>Enables or disables HTTP access</td>
</tr>
<tr>
<td>Set HTTP Port</td>
<td>Specifies the target port for HTTP access</td>
</tr>
<tr>
<td>Set HTTP Security</td>
<td>Specifies the HTTP server authentication method</td>
</tr>
<tr>
<td>Set Infeed Name</td>
<td>Specifies a descriptive field for the infeed</td>
</tr>
<tr>
<td>Set Ipaddress</td>
<td>Sets the IP address</td>
</tr>
<tr>
<td>Set Location</td>
<td>Specifies a descriptive field for the HTML control screen and login banner</td>
</tr>
<tr>
<td>Set Outlet Name</td>
<td>Specifies a descriptive field for a device attached to an outlet</td>
</tr>
<tr>
<td>Set Outlet PostOnDelay</td>
<td>Sets the Post-On delay for an outlet</td>
</tr>
<tr>
<td>Set Outlet RebootDelay</td>
<td>Sets the reboot delay for all outlets</td>
</tr>
<tr>
<td>Set Outlet SeqInterval</td>
<td>Sets the sequencing interval for all outlets</td>
</tr>
<tr>
<td>Set Outlet Wakeup</td>
<td>Sets the wakeup state for an outlet</td>
</tr>
<tr>
<td>Set Subnet Mask</td>
<td>Sets the Subnet Mask</td>
</tr>
<tr>
<td>Set Telnet Port</td>
<td>Sets the Telnet server port number</td>
</tr>
<tr>
<td>Set Telnet</td>
<td>Enables or disables Telnet access</td>
</tr>
<tr>
<td>Set Tower Name</td>
<td>Specifies a descriptive field for the PDU</td>
</tr>
<tr>
<td>Set User Access</td>
<td>Sets the access level for a user</td>
</tr>
<tr>
<td>Set User Envmon</td>
<td>Grants or removes privileges to view input and environmental monitoring status</td>
</tr>
<tr>
<td>Set User Password</td>
<td>Changes the password for a user</td>
</tr>
<tr>
<td>Set Port Name</td>
<td>Specifies a descriptive field for a serial/Pass-Thru port</td>
</tr>
<tr>
<td>Set Port Dsrchk</td>
<td>Sets the DSR active signal checking for a serial/Pass-Thru port</td>
</tr>
<tr>
<td>Set Port Speed</td>
<td>Set the connection speed for all serial/Pass-Thru ports</td>
</tr>
<tr>
<td>Set Port Timeout</td>
<td>Sets the inactivity timer for Pass-Thru sessions</td>
</tr>
<tr>
<td>Show FTP</td>
<td>Displays FTP configuration information</td>
</tr>
<tr>
<td>Show Infeeds</td>
<td>Displays infeed configuration information</td>
</tr>
<tr>
<td>Show Network</td>
<td>Display network configuration information</td>
</tr>
<tr>
<td>Show Outlets</td>
<td>Displays configuration information for all outlets</td>
</tr>
<tr>
<td>Show Ports</td>
<td>Displays serial/Pass-Thru port configuration information</td>
</tr>
<tr>
<td>Show System</td>
<td>Displays system configuration information</td>
</tr>
<tr>
<td>Show Towers</td>
<td>Displays tower configuration information</td>
</tr>
<tr>
<td>Version</td>
<td>Displays the Leviton firmware version</td>
</tr>
</tbody>
</table>

**To display the names of commands that you may execute:**

At the command prompt, press **Enter**. A list of valid commands for the current user appears.
**Operations Commands**

Operations commands manage outlet states, provide information about the PDU environment and control session operations.

**Turning outlets on**

The On command turns on one or more outlets. When the command completes, a display indicating all outlets affected and their current states will be displayed.

**To turn outlets on:**

At the Switched PDU: prompt, type `on`, followed by an outlet name, and press `Enter`, or

Type `on all` and press `Enter`.

**Examples**

The following command turns the second outlet on, using the outlet’s absolute name:

```
Switched PDU: on .a2<Enter>
```

The following command turns on all the outlets in the group named ServerGroup_1:

```
Switched PDU: on ServerGroup_1<Enter>
```

**Turning outlets off**

The Off command turns off one or more outlets. When the command completes, a display indicating all outlets affected and their current states will be displayed.

**To turn outlets off:**

At the Switched PDU: prompt, type `off`, followed by an outlet name, and press `Enter`, or

Type `off all` and press `Enter`.

**Examples**

The following command turns off the outlet named FileServer_1:

```
Switched PDU: off FileServer_1<Enter>
```

The following command turns off all outlets:

```
Switched PDU: off all<Enter>
```

**Rebooting outlets**

The Reboot command reboots one or more outlets. This operation turns the outlet(s) off, delays for a user configurable period and then turns the outlet(s) on. When the command completes, a display indicating all outlets affected and their current states will be displayed.

**NOTE:** It is necessary to reissue the Status command to verify that the outlets have rebooted. See *Displaying outlet status* for more information.

**To reboot one or more outlets:**

At the Switched PDU: prompt, type `reboot`, followed by an outlet name, and press `Enter`, or

Type `reboot all` and press `Enter`.

**Example**

The following command reboots all the outlets in the group named ServerGroup_1:

```
Switched PDU: reboot ServerGroup_1<Enter>
```
Displaying outlet status

The Status command displays the on/off status of one or more outlets. The command displays the status of only those outlets for which the current username has power control access.

This display includes the outlet absolute and descriptive names, the Outlet State reported to the PDU by the outlet and the current Control State being applied by the PDU. If you do not specify any parameter with this command, the status of all accessible outlets is displayed.

NOTE: If the user has access to more than 16 total outlets, the Status command will display the first 16 outlets with a prompt to view the remaining outlets.

For more information on outlet and control state values, see Outlet Control on page 12.

To display on/off status of one or more outlets:

At the Switched PDU: prompt, type status, followed by an outlet name, and press Enter, or

Type status, followed by a group name, and press Enter, or

Type status and press Enter.

Examples

The following command displays the on/off status of the outlet named FileServer_1:

Switched PDU: status FileServer_1<Enter>

Outlet ID Name State State
.A3 FileServer_1 On On

The following command displays the on/off status of all accessible outlets:

Switched PDU: status<Enter>

Outlet ID Name State State
.A1 DataServer_1 On On
.A2 WebServer_1 On On
.A3 FileServer_1 On On
.A4 On On
.A5 On On
.A6 On On
.A7 On On
.A8 On On
.A9 On On
.A10 On On
.A11 On On
.A12 On On
.A13 On On
.A14 On On
.A15 On On
.A16 On On

More (Y/es N/o):

The following command displays the on/off status for outlets in the group ServerGroup_1:

Switched PDU: status ServerGroup_1<Enter>

Group: ServerGroup_1
Outlet ID Name State State
.A1 DataServer_1 On On
.A2 WebServer_1 On On
.A3 FileServer_1 On On
Displaying accessible outlets

The List Outlets command displays accessible outlets for the current user. The display includes the absolute and descriptive name of all outlets assigned to the current user.

To display accessible outlets:
At the Switched PDU: prompt, type `list outlets` and press `Enter`.

Example
The following command displays all accessible outlets for the current user:

```
Switched PDU: list outlets<Enter>
Outlet   Outlet
ID       Name
.A1      DataServer_1
.A2      WebServer_1
```

Displaying accessible groups

The List Groups command displays accessible groups for the current user.

To display accessible groups:
At the Switched PDU: prompt, type `list groups` and press `Enter`.

Example
The following command displays all accessible groups for the current user:

```
Switched PDU: list groups<Enter>
Groups:
  ServerGroup_1
  RouterGroup_1
```

Displaying outlets assigned to a group

The List Group command displays outlets assigned to the specified group name.

To display outlets assigned to a group:
At the Switched PDU: prompt, type `list group`, followed by the group name and press `Enter`.

Example
The following command displays the outlets assigned to the group ServerGroup_1:

```
Switched PDU: list group ServerGroup_1<Enter>
Group: ServerGroup_1
Outlet   Outlet
ID       Name
.A1      DataServer_1
.A2      WebServer_1
.A3      FileServer_1
```

Displaying accessible serial ports

The List Ports command displays accessible serial ports for the current user.

To display accessible serial ports:
At the Switched PDU: prompt, type `list ports` and press `Enter`.

Example
The following command displays all accessible serial ports for the current user:

```
Switched PDU: list ports<Enter>
Port      Port
ID        Name
Console   Console
```
Displaying infeed status
The istat or iload command displays the status of one or more infeed.

This display includes the infeed absolute and descriptive names and the Input Status and current Load reported to the PDU by the infeed.

**To display status of one or more infeeds:**
Type **istat** and press **Enter**, or
Type **iload** and press **Enter**.

**Examples**
The following command displays the infeed status:

```
Switched PDU: istat
```

<table>
<thead>
<tr>
<th>Input ID</th>
<th>Input Feed Name</th>
<th>Input Status</th>
<th>Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>HQ_1_Infeed_A</td>
<td>On</td>
<td>10.5 Amps</td>
</tr>
</tbody>
</table>

Connecting to a serial device
The Connect command allows Pass-Thru serial connection to devices attached to the standard serial port (Console).

**To connect to a serial device:**
At the Switched PDU: prompt, type **connect console** and press **Enter**.

**To disconnect from a serial device:**
Type **!break** and press **Enter**.

Displaying the status of the Environmental Monitor
The Envmon command displays the status of the integrated Environmental Monitor.

By default, only administrative user accounts are allowed access to the Envmon command. An administrator may use the Set User Envmon command to enable and disable access for other user accounts.

**To display the status of the Environmental Monitor:**
At the Switched PDU: prompt, type **envmon** and press **Enter**.

**Example**
The following command displays the status of the Environmental Monitor.

```
Switched PDU: envmon<Enter>
```

```
Environmental Monitor .A
Name: Florida_HQ_1 Status: Normal
Temperature/Humidity Sensors
ID       Name        Temperature    Humidity
.A1      Temp_Humid_Sensor_A1 Not Found   Not Found
.A2      T/H2_Florida_HQ_1  23.5 Deg. C  22 % RH
```

Starting a new session
The Login command activates the Username: prompt. The current session ends, allowing a user to log in and start a new session under a different username.

**To start a new session:**
At the Switched PDU: prompt, type **login** and press **Enter**. The Username: prompt appears.

Ending a session
The Quit or Logout commands end a session. A session ends automatically when no activity is detected for five minutes, or upon loss of connection.

**To end a session:**
At the Switched PDU: prompt, type **quit** and press **Enter**, or
Type **logout** and press **Enter**.
Administration Commands

Administration commands may only be issued by a user with administrative privileges, such as the predefined Admn user or another user who has been granted administrative privileges with the Set User Admnpriv command.

User Administration

Creating a user account

The Create User command creates a user account with the specified username and password. See Usernames and Passwords in this chapter for more information.

To create a user account:

At the Switched PDU: prompt, type create user, optionally followed by a 1-16 character username (Spaces are not allowed, and usernames are not case sensitive). Press Enter.

At the Password: prompt, type a password of up to 16 alphanumeric and other typeable characters (ASCII 32 to 126 decimal). Passwords are case sensitive. Press Enter. To specify no password, press Enter at the prompt.

At the Verify Password: prompt, retype the password. Press Enter. To verify no password, press Enter at the prompt.

Example

The following command creates the user account JaneDoe:

```
Switched PDU: create user JaneDoe<Enter>
Password: <Enter>
Verify New Password: <Enter>
```

For security, password characters are not displayed.

Removing a user account

The Remove User command removes a user account.

To remove a user account:

At the Switched PDU: prompt, type remove user, optionally followed by a username. Press Enter.

Changing a password

The Set User Password command changes a user’s password. For security, when you type a password, the characters are not displayed on the screen. See Usernames and Passwords for more information.

To change a password:

At the Switched PDU: prompt, type set user password, followed by a username and press Enter.

At the Password: prompt, type the new password and press Enter. Passwords may contain up to 16 characters, and spaces are not allowed. To specify no password, press Enter at the prompt.

At the Verify Password: prompt, retype the new password and press Enter. To verify no password, press Enter at the prompt.

Examples

The following command changes the password for the user JohnDoe:

```
Switched PDU: set user password johndoe<Enter>
Password: <Enter>
Verify Password: <Enter>
```

The following command blanks the password for the user JaneDoe:

```
Switched PDU: set user password<Enter>
Username: janedoe<Enter>
Password: <Enter>
Verify Password: <Enter>
```
Setting user access level privileges

The Set User Access command sets the access level privileges for a user. The PDU has four defined access privilege levels: Admin, User, On-Only and View-Only. For more information on user access levels, see Changing a user’s access privilege level: on page 16.

The administrator may also grant administrative privileges to other user accounts allowing the PDU to have more than one administrative-level user.

NOTE: You cannot remove administrative privileges from the Admin user unless another user has already been given administrative access level privileges created.

To set the access level privilege for a user:

At the Switched PDU: prompt, type set user access, followed by admin or user, optionally followed by a username and press Enter.

Examples

The following command sets the user access level for JohnDoe to Admin:

Switched PDU: set user access admin johndoe<Enter>

The following command sets the user access level for JaneDoe to User:

Switched PDU: set user access user janedoe<Enter>

Granting and removing input load viewing privileges

The Set User Envmon command grants or removes input status viewing privileges to/from a user.

To grant or remove input load viewing privileges for a user:

At the Switched PDU: prompt, type set user envmon followed by on or off, optionally followed by a username and press Enter.

Example

The following command grants input load privileges to the user JohnDoe:

Switched PDU: set user envmon on johndoe<Enter>

Displaying the access privilege levels

The List Users command displays all defined users with their access privilege level.

To display user access privilege levels:

At the Switched PDU: prompt, type list users and press Enter.

Example

The following command displays all users with their access privilege level:

Switched PDU: list users<Enter>

<table>
<thead>
<tr>
<th>User</th>
<th>Privilege</th>
<th>Environmental Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOHNDOE</td>
<td>Admin</td>
<td>Allowed</td>
</tr>
<tr>
<td>JANEDOE</td>
<td>User</td>
<td>Allowed</td>
</tr>
<tr>
<td>JOSEYDOE</td>
<td>On-Only</td>
<td>Not Allowed</td>
</tr>
<tr>
<td>JOEDOE</td>
<td>View-Only</td>
<td>Not Allowed</td>
</tr>
</tbody>
</table>
Adding outlet access to a user

The Add OutletToUser command grants a user access to one or all outlets. To grant access for more than one outlet, but not all outlets, you must use multiple Add OutletToUser commands.

To grant outlet access to a user:

At the Switched PDU: prompt, type `add outlettouser`, optionally followed by an outlet name and a username. Press Enter, or

Type `add outlettouser all`, followed by a username and press Enter.

Examples

The following commands grant the user JaneDoe access to outlets A1 and Webserver_1:

- `Switched PDU:add outlettouser .a1 janedoe<Enter>`
- `Switched PDU:add outlettouser WebServer_1 janedoe<Enter>`

Deleting outlet access for a user

The Delete OutletFromUser command removes a user’s access to one or all outlets. You cannot remove access to any outlet for an administrative level user.

To delete outlet access for a user:

At the Switched PDU: prompt, type `delete outletfromuser`, optionally followed by an outlet name and a username. Press Enter, or

Type `delete outletfromuser all`, followed by a username and press Enter.

Adding group access to a user

The Add GroupToUser command grants a user access to a group. To grant access for more than one group, you must use multiple Add GroupToUser commands.

To grant group access to a user:

At the Switched PDU: prompt, type `add grouptouser`, optionally followed by a group name and a username. Press Enter.

Examples

The following commands grant to user JaneDoe access to the groups ServerGroup_1 and ServerGroup_2:

- `Switched PDU:add GroupToUser ServerGroup_1 janedoe<Enter>`
- `Switched PDU:add GroupToUser ServerGroup_2 janedoe<Enter>`

Deleting group access for a user

The Delete GroupFromUser command removes a user’s access to a group. You cannot remove access to any group for an administrative level user.

To delete group access for a user:

At the Switched PDU: prompt, type `delete GroupFromUser`, optionally followed by a group name and a username. Press Enter.

Adding serial port access to a user

The Add PortToUser command grants a user access to the serial port.

To grant serial port access to a user:

At the Switched PDU: prompt, type `add porttouser console` and a username. Press Enter.

Deleting serial port access for a user

The Delete PortFromUser command removes a user’s access to the serial port. You cannot remove access to the serial port for an administrative level user.

To delete serial port access for a user:

At the Switched PDU: prompt, type `delete portfromuser console` and a username. Press Enter.
Displaying user outlet, group and serial port access

The List User command displays all accessible outlets, groups and serial ports for a user.

To display user outlet, group and serial port access:

At the Switched PDU: prompt, type `list user`, optionally followed by a username. Press `Enter`.

Example

The following command displays information about the user JaneDoe:

```
Switched PDU: list user janedoe<Enter>
Username: JANEDOE
Outlet   Outlet
ID       Name
.A1      DataServer_1
.A2      WebServer_1
Groups:
    ServerGroup_1
    ServerGroup_2
More (Y/es N/o): Y
Ports:
    Port      Port
    ID        Name
    Console   Console
```

JaneDoe may access the following outlets, groups and serial ports: outlet A1 which has a descriptive name of DataServer_1, outlet A2 which has a descriptive name of WebServer_1, group ServerGroup_1, group ServerGroup_2, and Console serial port.

Outlet Administration

Setting the sequencing interval

The Set Outlet SeqInterval commands sets the power on sequencing interval for all outlets.

To set the sequencing interval:

At the Switched PDU: prompt, type `set outlet seqinterval all`, followed by a value from 2 to 15 (in seconds) and press Enter.

Setting the reboot delay

The Set Outlet RebootDelay commands sets the reboot delay for all outlets.

To set the sequencing interval:

At the Switched PDU: prompt, type `set outlet rebootdelay all`, followed by a value from 5 to 60 (in seconds) and press Enter.

Creating a descriptive outlet name

The Set Outlet Name command assigns a descriptive name to an outlet. You may use this name in commands that require an outlet name as an alternative to using the outlet’s absolute name.

To create an outlet name:

At the Switched PDU: prompt, type `set outlet name`, followed by the absolute outlet name and a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Outlet names are not case sensitive. Press `Enter`.

Example

The following command adds the descriptive name DataServer_1 to outlet .a1:

```
Switched PDU: set outlet name .a1 DataServer_1<Enter>
```
Setting the outlet wakeup state

The Set Outlet Wakeup command sets the default wakeup state for that outlet. In the event of a system-wide power loss, this state will be applied to the outlet when power is restored.

The wakeup state may be set to On, Off, or Last. Upon restoration of system power, if set to On, the PDU will apply power to that outlet. If set to Off, the PDU will not apply power to that outlet. If set to Last, the PDU will apply the last known power state.

To set the wakeup state:

At the Switched PDU prompt, type set outlet wakeup, followed by on, off or last and the outlet name. Press Enter.

Example

The following command sets the wakeup state for outlet .a1 to off:

Switched PDU: set outlet wakeup off .a1<Enter>

Setting the outlet Post-On delay

The Set Outlet PostOnDelay command is used to set the Post-On delay for an outlet. This feature allows the administrator to manage boot dependencies during power-on sequencing or group commands by delaying the sequencing of subsequent outlets after an outlet has been powered on.

NOTE: This delay is applied in addition to the general sequencing interval.

To set the outlet Post-On delay

At the Sentry prompt, type set outlet postondelay, followed by a value from 0 to 900 (in seconds) and press Enter.

Example

The following command sets the Post-On delay for outlet .a5 to 90 seconds:

Sentry: set outlet postondelay .a5 90<Enter>

Displaying outlet information

The Show Outlets command displays information about all outlets. This information includes:

- Sequencing and reboot timer values
- Descriptive outlet name, if applicable
- Outlet wakeup state setting

To display outlet information:

At the Switched PDU prompt, type show outlets and press Enter.

Example

The following command displays all outlet information:

Switched PDU: show outlets<Enter>

Outlet ID Outlet Name Wakeup State Post-On Delay (seconds)
.a1 TowerA_Outlet1 On 30
.a2 TowerA_Outlet2 On 0
.a3 TowerA_Outlet3 On 0
.a4 TowerA_Outlet4 On 0
.a5 TowerA_Outlet5 On 0
.a6 TowerA_Outlet6 On 0
.a7 TowerA_Outlet7 On 0
.a8 TowerA_Outlet8 On 0
.a9 TowerA_Outlet9 On 0
.a10 TowerA_Outlet10 On 0
.a11 TowerA_Outlet11 On 0
.a12 TowerA_Outlet12 On 0
.a13 TowerA_Outlet13 On 0
.a14 TowerA_Outlet14 On 0
.a15 TowerA_Outlet15 On 0
.a16 TowerA_Outlet16 On 0

More (Y/yes N/no):

Outlet Options:
  Sequence Interval:  2 seconds
  Reboot Delay:  15 seconds
**Group Administration**

**Creating a group name**

The Create Group command creates a new group name.

**To create a group name:**

At the Switched PDU: prompt, type `create group`, optionally followed by a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed. Group names are not case sensitive). Press Enter.

**Example**

The following command creates group name ServerGroup_1:

```
Switched PDU: create group ServerGroup_1<Enter>
```

**Removing a group name**

The Remove Group command removes a group name.

**To remove a group name:**

At the Switched PDU: prompt, type `remove group`, optionally followed by a username. Press Enter.

**Example**

The following command removes group name ServerGroup_1:

```
Switched PDU: remove group ServerGroup_1<Enter>
```

**Adding an outlet to a group**

The Add OutletToGroup command adds an outlet to a group. To add more than one outlet, but not all outlets, you must use multiple Add OutletToGroup commands.

**To add an outlet to a group:**

At the Switched PDU: prompt, type `add outlettogroup`, optionally followed by an outlet name and group name. Press Enter, or

Type `add OutletToGroup`, followed by `all` and the group name. Press Enter.

**Examples**

The following commands use absolute outlet names to add outlets A1 and A2 to group name ServerGroup_1:

```
Switched PDU:add OutletToGroup .a1 ServerGroup_1<Enter>
Switched PDU:add OutletToGroup .a2 ServerGroup_1<Enter>
```

The following commands use the outlets’ descriptive names to add outlets DataServer_1 and WebServer_1 to group name ServerGroup_1:

```
Switched PDU:add OutletToGroup DataServer_1 ServerGroup_1<Enter>
Switched PDU:add OutletToGroup WebServer_1 ServerGroup_1<Enter>
```

The following command add all outlets to group name ServerGroup_1:

```
Switched PDU: add OutletToGroup<Enter>
Outletname: all<Enter>
Groupname: ServerGroup_1<Enter>
```

**Deleting an outlet from a group**

The Delete OutletFromGroup command deletes an outlet from a group. To delete more than one outlet, but not all outlets, you must use multiple Delete OutletToGroup commands.

**To delete an outlet from a group:**

At the Switched PDU: prompt, type `delete outletfromgroup`, optionally followed by an outlet name and a group name. Press Enter, or

Type `delete outletfromgroup`, followed by `all` then the group name. Press Enter.
Environmental Monitor Administration

Creating a descriptive Environmental Monitor name

The Set Envmon Name command assigns a descriptive name to the integrated Environmental Monitor. This descriptive name is displayed when the Evnmon command is issued.

To create an Environmental Monitor name:

At the PDU: prompt, type `set envmon name`, followed by the absolute Environmental Monitor name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal – spaces are not allowed). Press Enter.

Example

The following command adds the descriptive name Florida_HQ_1 to the Environmental Monitor:

```
Switched PDU: set envmon name .a Florida_HQ_1<Enter>
```

Creating a descriptive temperature/humidity sensor name

The Set Envmon THS Name command assigns a descriptive name to a temperature/humidity sensor. This descriptive name is displayed when the Evnmon command is issued.

To create an temperature/humidity sensor name:

At the PDU: prompt, type `set envmon ths name`, followed by the absolute name of the temperature/humidity sensor, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal – spaces are not allowed). Press Enter.

Example

The following command adds the descriptive name T/H2_Florida_HQ_1 to the second temperature/humidity sensor:

```
Switched PDU: set envmon ths name .a2 T/H2_Florida_HQ_1<Enter>
```

Serial Port Administration

Creating a descriptive serial port name

The Set Port Name command assigns a descriptive name to a serial port. You may use this name in commands that require a port name as an alternative to using the port’s absolute name.

To create an port name:

At the Switched PDU: prompt, type `set port name`, followed by the absolute outlet name and a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Port names are not case sensitive. Press Enter.

Example

The following command adds the descriptive name Rack1 to Console port:

```
Switched PDU: set port name console Rack1<Enter>
```

Setting the serial ports data-rate

The Set Port Speed command sets the default data-rate for the serial port. Valid data-rates are 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200.

To set the serial port data-rate:

At the Switched PDU: prompt, type `set port speed`, follow by the data-rate and press Enter.

Example

The following command sets the serial ports data-rate to 38400 BPS:

```
Switched PDU: set port speed 38400<Enter>
```

Enabling or disabling active signal checking for serial connections

The Set Port Dsrchk command enables or disables active signal checking for serial connections to devices attached to any of the available serial ports.

To enable or disable active signal checking for serial connections:

At the Switched PDU: prompt, type `set port dsrchk console`, on or off, and press Enter.


**Setting the serial port timeout value**

The Set Port Timeout command is used to set the serial port inactivity timeout period. The timeout period defines the maximum period of inactivity before automatically closing the Pass-Thru session. The valid range for the period parameter is 0 to 5 (in minutes). The default period is 5.

**NOTE:** Setting the timeout to ‘0’ disables the timer.

**To set the serial port timeout value:**

At the PDU: prompt, type `set port timeout`, followed by a value from 0 to 5 (in minutes) and press Enter.

**Displaying serial port information**

The Show Ports command displays information about all serial ports. This information includes:

- Serial port data rate
- Descriptive port name, if applicable
- DSR signal checking settings

**To display serial port information:**

At the Switched PDU: prompt, type `show ports` and press Enter.

**Example**

The following command displays all serial port information:

```
Switched PDU: show ports<Enter>
```

Serial Port Configuration

ALL Ports:

- Baud Rate: 38400
- Connection Timeout: 5 minutes
- Port ID: Console
- Port Name: CONSOLE
- DSR Check: ON

**System Administration**

**Creating a location description**

The Set Location command specifies text that appears in the HTML control screen’s Location field. The text is also appended to a Welcome to banner that appears when a user successfully logs in serially or through a Telnet session.

If you do not issue this command, or if you issue this command without specifying any text, the control screen’s Location field will be blank and no Welcome to banner will be displayed.

**To create a location description:**

At the Switched PDU: prompt, type `set location`, followed by a descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 32 to 126 decimal - spaces are allowed). Press Enter.

Omitting any characters after typing ‘set location’ deletes any previously specified text.

**Examples**

The following command specifies Florida HQ as the descriptive location for the control screen and the login banner:

```
Switched PDU: set location Florida HQ<Enter>
```

The following command deletes any previously specified location description:

```
Switched PDU: set location<Enter>
```

In this case, the control screen’s Location field will be blank, and no welcome banner will be displayed after a successful login.
Setting the LED display orientation

The Set Display command is used to configure the Current LED(s) display orientation.

**To set the LED display orientation:**

At the Sentry: prompt, type `set display`, followed by **normal** or **inverted** and press Enter.

**Example**

The following set the LED display orientation to Inverted:

```
Sentry: set display inverted<Enter>
```

**NOTE:** When set to Inverted, the load will be reported in whole ampere increments

Displaying system configuration information

The Show System command displays all system configuration information.

- Firmware version
- NIC module serial number and MAC address
- Hardware revision code and Flash size
- Uptime since last system restart
- System location description

See Chapter 4: Advanced Operations on page 41 for more information on SNMP.

**To display system configuration information:**

At the Switched PDU: prompt, type **show system** and press Enter.

**Example**

```
System Information
  F/W Version:   Leviton Version 5.3b
  NIC S/N:       1600001
  MAC Address:   00-0a-9c-10-00-01
  H/W Rev Code:  0
  Flash Size:    2 MB
  Uptime:        0 days 6 hours 14 minutes 1 second
  Location:      Florida HQ
```

Creating a descriptive tower name

The Set Tower Name command assigns a descriptive name to a tower. This descriptive name is displayed when the Show Traps command is issued. See Displaying trap configuration information on page 35 for more information on the Show Traps command.

**To create a tower name:**

At the Switched PDU: prompt, type **set tower name**, followed by the absolute tower name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Press Enter.

**Example**

```
The following command adds the descriptive name Florida_HQ_1 to tower .a:
Switched PDU: set tower name .a Florida_HQ_1<Enter>
```

Displaying tower information

The Show Towers command displays information about the PDU. This information includes the absolute and descriptive PDU names.

**To display tower information:**

At the Switched PDU: prompt, type **show towers** and press Enter.

**Example**

```
Switched PDU: show towers<Enter>
  Tower   Tower
  ID Name
  .A Florida_HQ_1
```
Creating a descriptive infeed name

The Set Infeed Name command assigns a descriptive name to an infeed. This descriptive name is displayed when the Show Traps command is issued. See Displaying trap configuration information on page 35 for more information on the Show Traps command.

To create a infeed name:

At the Switched PDU: prompt, type set infeed name, followed by the absolute infeed name, then the descriptive name of up to 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal - spaces are not allowed). Press Enter.

Example

The following command adds the descriptive name HQ_1_Infeed_A to the infeed on the Switched PDU:

```
Switched PDU: set infeed name HQ_1_Infeed_A<Enter>
```

Displaying Infeed information

The Show Infeeds command displays information about all infeeds. This information includes the absolute and descriptive infeed names.

To display tower information:

At the Switched PDU: prompt, type show infeeds and press Enter.

Example

```
Switched PDU: show infeeds<Enter>
```

<table>
<thead>
<tr>
<th>Input</th>
<th>Feed ID</th>
<th>Feed Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>.AA</td>
<td>HQ_1_Infeed_A</td>
<td></td>
</tr>
<tr>
<td>.AB</td>
<td>HQ_1_Infeed_B</td>
<td></td>
</tr>
<tr>
<td>.BA</td>
<td>HQ_2_Infeed_A</td>
<td></td>
</tr>
<tr>
<td>.BB</td>
<td>HQ_2_Infeed_B</td>
<td></td>
</tr>
</tbody>
</table>

Displaying the Leviton firmware version

The Version command displays the Leviton firmware version.

To display the firmware version:

At the Switched PDU: prompt, type version and press Enter.

Performing a warm boot

The Restart command performs a warm boot of the PDU.

NOTE: System user/outlet/group/port configuration or outlet states are NOT changed or reset with this command.

To perform a warm boot:

At the Switched PDU: prompt, type restart and press Enter.

TCP/IP Administration

NOTE: A restart of the PDU is required after setting or changing ANY TCP/IP configurations. See Performing a warm boot on page 35 for more information.

Setting the IP address

The Set Ipaddress command sets the TCP/IP address of the network interface controller.

To set the IP address:

At the Switched PDU: prompt, type set ipaddress, followed by the IP address and press Enter.

Example

The following command sets the IP address to 12.34.56.78:

```
Switched PDU: set ipaddress 12.34.56.78<Enter>
```
Setting the subnet mask

The Set Subnet command sets the subnet mask for the network the PT40 will be attached to.

To set the subnet mask:
At the Switched PDU: prompt, type set subnet, followed by the subnet mask and press Enter.

Example
The following command sets the subnet mask to 255.0.0.0

Switched PDU: set subnet 255.0.0.0<Enter>

Setting the gateway

The Set Gateway command sets the IP address of the default gateway the PDU uses to access external networks.

To set the gateway IP address:
At the Switched PDU: prompt, type set gateway, followed by the gateway IP address and press Enter.

Example
The following command set the gateway IP address to 12.34.56.1:

Switched PDU: set gateway 12.34.56.1<Enter>

Setting the DNS IP address

The Set DNS command sets the TCP/IP address of the Domain Name server (DNS).

To set the DNS IP address:
At the Switched PDU: prompt, type set, followed by dns1 or dns2 and the Domain Name server’s IP address. Press Enter.

Example
The following command sets the primary Domain Name server IP address to 98.76.54.254:

Switched PDU: set dns1 98.76.54.254<Enter>

Displaying network configuration information

The Show Network command displays TCP/IP, Telnet, SSH, Web, SSL and SNMP configuration information.

- IP address, subnet mask, gateway and DNS IP addresses
- Enabled-disabled status and port numbers for Telnet, SSH, HTTP, SSL and SNMP support
- HTTP authentication method and SSL access setting
- Network status

See Chapter 4: Advanced Operations on page 41 for more information on SNMP and Remote Authentication

To display network configuration information:
At the Switched PDU: prompt, type show network and press Enter.

Example
The following command displays the network configuration information:

Switched PDU: show network<Enter>

Network Configuration

<table>
<thead>
<tr>
<th>IP Address:</th>
<th>12.34.56.78</th>
<th>DNS1: 98.76.54.254</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subnet Mask:</td>
<td>255.0.0.0</td>
<td>DNS2: 0.0.0.0</td>
</tr>
<tr>
<td>Gateway:</td>
<td>12.34.56.1</td>
<td></td>
</tr>
<tr>
<td>Telnet:</td>
<td>Enabled</td>
<td>Port: 23</td>
</tr>
<tr>
<td>SSH:</td>
<td>Enabled</td>
<td>Port: 65535</td>
</tr>
<tr>
<td>HTTP:</td>
<td>Enabled</td>
<td>Port: 80</td>
</tr>
<tr>
<td>SSL:</td>
<td>Enabled</td>
<td>Access: Required</td>
</tr>
<tr>
<td>SNMP:</td>
<td>Enabled</td>
<td></td>
</tr>
</tbody>
</table>

Network Status

- Link: Up
- Speed: 100 Mbps
- Duplex: Full
- Negotiation: Auto
HTTP Administration

NOTE: A restart is required after setting or changing ANY Telnet/Web configurations. See Performing a warm boot on page 35 for more information.

Enabling and disabling HTTP support

The Set HTTP command is used to enable or disable HTTP support.

To enable or disable HTTP support:
At the Switched PDU: prompt, type `set http`, followed by `enabled` or `disabled` and press Enter.

Changing the HTTP server port

With HTTP support enabled, the HTTP server watches and responds to requests on the default HTTP port number 80. This port number may be changed using the Set HTTP Port command.

To change the HTTP port:
At the Switched PDU: prompt, type `set http port`, followed by the port number and press Enter.

Example
The following changes the HTTP port number to 2048:

`Switched PDU: set HTTP port 2048<Enter>`

Setting the HTTP authentication method

The Set HTTP Security command is used to set the method of authentication. The PDU HTTP server supports two authentication methods for security and validation of the username-password – Basic and MD5 digest.

For more information on authentication methods, see Setting the HTTP authentication method: on page 14.

To set the HTTP authentication method:
At the Switched PDU: prompt, type `set http security`, followed by `basic` or `md5` and press Enter.

Telnet Administration

NOTE: A restart of the PDU is required after setting or changing ANY Telnet/Web configurations. See Performing a warm boot on page 35 for more information.

Enabling and disabling Telnet support

The Set Telnet command is used to enable or disable Telnet support.

To enable or disable Telnet support:
At the Switched PDU: prompt, type `set telnet`, followed by `enabled` or `disabled` and press Enter.

Changing the Telnet port

With Telnet support enabled, the Telnet server watches and responds to requests on the default Telnet port number 23. This port number may be changed using the Set Telnet Port command.

To change the Telnet port:
At the Switched PDU: prompt, type `set telnet port`, followed by the port number and press Enter.

Example
The following changes the Telnet port number to 7001:

`Switched PDU: set telnet port 7001<Enter>"
FTP Administration

You may upload new versions of firmware into the PDU using File Transfer Protocol (FTP). This allows access to new firmware releases for firmware improvements and new features additions. The following commands are used to configure the PDU for an FTP firmware upload. See Appendix B: Uploading Firmware for more information on initiating a FTP firmware upload.

Setting the FTP Host IP address

The Set FTP Host command sets the FTP host IP address allowing for firmware file uploads.

To set the FTP Host IP address:

At the Switched PDU: prompt, type `set ftp host`, followed by the Host IP address and press Enter.

Example

The following command sets the FTP Host IP address to 12.34.56.99:

`Switched PDU: set ftp host 12.34.56.99<Enter>`

Setting the FTP username

The FTP Username command sets the username as required by the FTP Host.

To set the FTP username:

At the Switched PDU: prompt, type `set ftp username`, followed by the FTP username and press Enter.

Example

The following command sets the FTP username to Guest:

`Switched PDU: set ftp username guest<Enter>`

Setting the FTP Password

The FTP Password command sets the password as required by the FTP Host.

To set the FTP password:

At the Switched PDU: prompt, type `set ftp password`, followed by the FTP password and press Enter.

Example

The following command sets the FTP password to OpenSesame:

`Switched PDU: set ftp password OpenSesame<Enter>`

Setting the filename to be uploaded

The FTP Filename command sets the filename of the firmware file to be uploaded.

To set the FTP filename:

At the Switched PDU: prompt, type `set ftp filename`, followed by the firmware filename and press Enter.

Example

The following command sets the FTP filename to snb_s53b.bin:

`Switched PDU: set ftp filename snb_s53b.bin<Enter>`

Setting the filepath for the file to be uploaded

The FTP Filepath command sets the filepath for the firmware file to be uploaded.

To set the FTP filepath:

At the Switched PDU: prompt, type `set ftp filepath`, followed by the filepath and press Enter.

Example

The following command sets the FTP filepath to ftp://Switched PDU:

`Switched PDU: set ftp filepath ftp://Leviton<Enter>`
Displaying FTP configuration information

The Show FTP command displays all FTP configuration information.

- FTP Host IP address
- FTP Host username and password
- Firmware filepath and filename

To display FTP configuration information:

At the Switched PDU: prompt, type show ftp and press Enter.

Example

The following command displays the FTP configuration information:

```
Switched PDU: show ftp<Enter>
```

```
FTP Configuration
Host IP Address: 12.34.56.99
Username: guest
Password: OpenSesame
Directory: ftp://Leviton
Filename: snb_s53b.bin
```

SNTP Administration

The PDU supports the use of a network time service to provide a synchronized time reference.

Setting the SNTP server address

The Set SNTP command is used to set the primary and secondary SNTP server addresses.

To set the SNTP server address:

At the Switched PDU: prompt, type set sntp, followed by primary or secondary, and the SNTP server IP address. Press Enter.

Example

The following command set the primary SNTP server address to 204.152.184.72:

```
Switched PDU: set sntp primary 204.152.184.72<Enter>
```

Displaying SNTP configuration information

The Show SNTP command displays all SNTP configuration information.

To display SNTP configuration information

At the Switched PDU: prompt, type show sntp and press Enter.

Example

The following command displays the SNTP configuration information:

```
Switched PDU: show sntp <Enter>
```

```
SNTP Date/Time (GMT): 2003-02-21 21:32:48
SNTP Primary IP Address: 204.152.184.72
SNTP Secondary IP Address: 0.0.0.0
```
<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSL</strong></td>
<td>42</td>
</tr>
<tr>
<td>Enabling and Setting up SSL Support</td>
<td>42</td>
</tr>
<tr>
<td>SSL Technical Specifications</td>
<td>42</td>
</tr>
<tr>
<td><strong>SSH</strong></td>
<td>43</td>
</tr>
<tr>
<td>Enabling and Setting up SSH Support</td>
<td>43</td>
</tr>
<tr>
<td>SSH Technical Specifications</td>
<td>43</td>
</tr>
<tr>
<td><strong>SNMP</strong></td>
<td>44</td>
</tr>
<tr>
<td>MIB, OID and Support</td>
<td>44</td>
</tr>
<tr>
<td>Enabling and Setting up SNMP Support</td>
<td>44</td>
</tr>
<tr>
<td>SNMP Traps</td>
<td>46</td>
</tr>
<tr>
<td>Configuring Traps</td>
<td>48</td>
</tr>
</tbody>
</table>
Secure Socket Layers (SSL) version 3 enables secure HTML sessions between a Leviton PDU Remote Power Manager and a remote user. SSL provides two chief features designed to make TCP/IP (Internet) transmitted data more secure:

- **Authentication** – The connecting client is assured of the identity of the server.
- **Encryption** – All data transmitted between the client and the server is encrypted rendering any intercepted data unintelligible to any third party.

SSL uses the public-and-private key encryption system by RSA, which also requires the use of digital certificates. An SSL Certificate is an electronic file uniquely identifying individuals or websites and enables encrypted communication; SSL Certificates serve as a kind of digital passport or credential. The Leviton PDU product’s SSL Certificate enables the client to verify the Leviton PDU’s authenticity and to communicate with the Leviton PDU securely via an encrypted session, protecting confidential information from interception and hacking.

### SSL Command Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set SSL</td>
<td>Enables/disables SSL support</td>
</tr>
<tr>
<td>Set SSL access</td>
<td>Sets SSL access as optional or required</td>
</tr>
</tbody>
</table>

### Enabling and Setting up SSL Support

**Enabling or disabling SSL support**

The Set SSL command is used to enable or disable SSL support.

**To enable or disable SSL support:**

At the Switched PDU: prompt, type `set ssl`, followed by `enabled` or `disabled` and press **Enter**.

**Setting SSL access level**

The Set SSL Access command is used to assign use of SSL as optional or required. The default access level is set to optional.

**To change the access level:**

At the Switched PDU: prompt, type `set ssl access`, followed by `optional` or `required`, and press **Enter**.

**Example**

The following changes the access level to required:

```
Switched PDU: set ssl access required<Enter>
```

### SSL Technical Specifications

- Secure Socket Layer (SSL) version 3
- Transport Layer Security (TLS) version 1 (RFC 2246)
- SSL/TLS-enabled HTTPS server (RFC 2818)
- Self-Signed X.509 Certificate version 3 (RFC 2459)
- **Asymmetric Cryptography:**
  - 1024-bit RSA Key Exchange
- **Symmetric Cryptography Ciphers:**
  - TLS_RSA_WITH_AES_256_CBC_SHA
  - TLS_RSA_WITH_3DES_EDE_CBC_SHA
  - TLS_RSA_WITH_AES_128_CBC_SHA
  - TLS_RSA_WITH_DES_CBC_SHA
Secure Shell (SSH) version 2 enables secure network terminal sessions between a Leviton PDU Remote Power Manager and a remote user over insecure network. SSH provides an encrypted terminal sessions with strong authentication of both the server and client, using public-key cryptography and is typically used as a replacement for unencrypted Telnet. In addition to enabling secure network terminal sessions to the Leviton PDU for configuration and power management, the SSH session may be used for secure Pass-Thru connections to attached devices.

SSH requires the configuration and use of a client agent on the client PC. There are many freeware, shareware or for-purchase SSH clients available. Two examples are the freeware client PuTTY and the for-purchase client SecureCRT® by VanDyke® Software. For configuration and use of these clients, please refer to the applicable software documentation.

### SSH Command Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set SSH</td>
<td>Enables/disables SSH support</td>
</tr>
<tr>
<td>Set SSH port</td>
<td>Sets the SSH server port number</td>
</tr>
</tbody>
</table>

### Enabling and Setting up SSH Support

**NOTE:** A restart of the Leviton PDU is required after setting or changing ANY SSH configurations. See Performing a warm boot on page 35 for more information.

#### Enabling or disabling SSH support

The Set SSH command is used to enable or disable SSH support.

**To enable or disable SSH support:**

At the Switched PDU: prompt, type `set ssh`, followed by `enabled` or `disabled` and press Enter.

#### Changing the SSH server port

With SSH support enabled, the SSH server watches and responds to requests on the default SSH port number 22. This port number may be changed using the Set SSH Port command.

**To change the SSH port:**

At the Switched PDU: prompt, type `set ssh port`, followed by the port number and press Enter.

**Example**

The following changes the SSH port number to 65535:

```
Switched PDU: set ssh port 65535<Enter>
```

### SSH Technical Specifications

Secure Shell (SSH) version 2

Asymmetric Cryptography:
- Diffie-Hellman DSA/DSS 512-1024 (random) bits per NIST specification

Symmetric Cryptography:

<table>
<thead>
<tr>
<th>Algorithm</th>
<th>Key Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES256-CBC</td>
<td>256 bits</td>
</tr>
<tr>
<td>AES192-CBC</td>
<td>192 bits</td>
</tr>
<tr>
<td>AES128-CBC</td>
<td>128 bits</td>
</tr>
<tr>
<td>RIJNDAEL256-CBC</td>
<td>256 bits</td>
</tr>
<tr>
<td>RIJNDAEL192-CBC</td>
<td>192 bits</td>
</tr>
<tr>
<td>RIJNDAEL128-CBC</td>
<td>128 bits</td>
</tr>
<tr>
<td>3DES-192-CBC</td>
<td>192 bits</td>
</tr>
<tr>
<td>BLOWFISH-128-CBC</td>
<td>128 bits</td>
</tr>
<tr>
<td>ARCFOUR-128</td>
<td>128 bits</td>
</tr>
</tbody>
</table>

Message Integrity:
- HMAC-SHA1-160
- HMAC-SHA1-96
- HMAC-MD5-128
- HMAC-MD5-96

Authentication:
- Username/Password

Session Channel Break Extension (for RS232 Break)
SNMP

The Leviton PDU family of products supports the Simple Network Management Protocol (SNMP). This allows network management systems to use SNMP requests to retrieve information and control power for the individual outlets.

The Leviton PDU includes an SNMP v2c agent supporting standard MIB I and MIB II objects. A private enterprise MIB extension (Leviton3 MIB) is also supported to provide remote power control.

See SNMP on page 18, for information on enabling and configuring SNMP.

NOTE: For security, SNMP support is disabled by default.

SNMP Command Summary

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>set snmp</td>
<td>Enables or disables SNMP support</td>
</tr>
<tr>
<td>set snmp getcomm</td>
<td>Sets the 'get' community string</td>
</tr>
<tr>
<td>set snmp setcomm</td>
<td>Sets the 'set' community string</td>
</tr>
<tr>
<td>set snmp trapdest1</td>
<td>Sets a destination IP addresses for traps</td>
</tr>
<tr>
<td>set snmp trapdest2</td>
<td>Sets a destination IP addresses for traps</td>
</tr>
<tr>
<td>set snmp traptime</td>
<td>Sets the delay for steady state condition traps</td>
</tr>
<tr>
<td>show snmp</td>
<td>Displays all SNMP configuration information</td>
</tr>
</tbody>
</table>

MIB, OID and Support

The Leviton SNMP MIB and OID are available on the Leviton website:


Technical Support is available from 6:30 AM to 4:30 PM, Monday-Friday, Pacific Time.

For SNMP Support, email: http://www.levitonvoicedata.com/support/contact.aspx

Enabling and Setting up SNMP Support

Leviton SNMP support must be enabled and configured for access to Leviton3 MIB objects and generation of all Leviton3 traps.

Enabling/disabling SNMP support

The Leviton SNMP command is used to enable or disable SNMP support.

To enable SNMP support:

At the Switched PDU: prompt, type set snmp, followed by enabled or disabled and press Enter.

NOTE: A restart of the Leviton PDU is required after enabling or disabling SNMP support. See Performing a warm boot on page 35 for more information.

Setting trap destinations

The Set SNMP Trapdest1 and Trapdest2 commands are used to set the IP addresses of SNMP management stations receiving all traps. The Leviton PDU supports a maximum of two trap destinations; one must be defined to enable trap generation.

To set the trap destination:

At the Switched PDU: prompt, type set snmp, trapdest1 or trapdest2, the Ipaddress and press Enter.

Example

The following sets the trap destination 1 to 64.42.31.208:

Switched PDU: set snmp trapdest1 64.42.31.208<Enter>

To reset the trap destination:

At the Switched PDU: prompt, type set snmp, trapdest1 or trapdest2, 0.0.0.0 and press Enter.
Setting the trap timer

The Set Traptime command sets the timer period between repeated error-condition traps. The valid range for the timer period is 1 to 65535 (in seconds). The default value for the timer period is 60 seconds.

To set the trap timer:
At the Switched PDU: prompt, type set traptime, followed by the timer period and press Enter.

Example
The following sets the timer period to 180 seconds:

```
Switched PDU: set traptime 180<Enter>
```

Setting the Get/Set community strings

Leviton supports two SNMP community strings that provide varying levels of access to objects defined in the Leviton3 MIB.

Community strings may be 1 to 24 characters.

Setcomm

The Setcomm string provides read-write access to Leviton3 MIB objects. The default Setcomm string is “private”

To set the Setcomm community string:
At the Switched PDU: prompt, type set snmp setcomm, followed by the string and press Enter.

Getcomm

The Getcomm string provides read-only access to Leviton3 MIB objects. The default Getcomm string is “public”.

To set the Getcomm community string:
At the Switched PDU: prompt, type set snmp getcomm, followed by the string and press Enter.

Setting the Trap community string

The Set SNMP Trapcomm command is used to set the community string that is included with all generated traps. The trap community string may be 1 to 24 characters. The default Trapcomm string is “trap”.

To set the Trapcomm community string:
At the Switched PDU: prompt, type set snmp trapcomm, followed by the string and press Enter.

Displaying SNMP configuration information

The Show SNMP command displays all SNMP configuration information.

- SNMP support status
- SNMP community strings
- Trap timer value
- Trap destinations

To display SNMP configuration information:
At the Switched PDU: prompt, type show snmp and press Enter.

Example
The following command displays the SNMP configuration information:

```
Switched PDU: show snmp<Enter>
SNMP Configuration
SNMP: Enabled
SET Community String: private
GET Community String: public
TRAP Community String: trap
Error Trap Repeat Time (seconds): 180
Trap Destination 1: 64.42.31.208
Trap Destination 2: (undefined)
```
SNMP Traps

The Switched PDU supports four types of SNMP traps. Traps are enabled at the Tower (T), Infeed (I), outlet (O), Environmental Monitor (E) or sensor (S) level.

### Trap Summary

<table>
<thead>
<tr>
<th>Name</th>
<th>Level(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>T, I, O, E, S</td>
<td>Operational status change</td>
</tr>
<tr>
<td>Change</td>
<td>O</td>
<td>Control status change</td>
</tr>
<tr>
<td>Load</td>
<td>I</td>
<td>Input load out of limit</td>
</tr>
<tr>
<td>Temp</td>
<td>S</td>
<td>Temperature is out of range</td>
</tr>
<tr>
<td>Humid</td>
<td>S</td>
<td>Relative Humidity is out of range</td>
</tr>
</tbody>
</table>

All traps include the Location of the Leviton PDU as defined with the Set Location command.

### Status Trap

A Status trap is generated when an error condition occurs on a tower, infeed, Environmental Monitor or individual sensor. Status traps include the reported Status, the Location of the Leviton PDU and identifier and name of the affected tower, infeed, outlet, environmental monitor or sensor.

Any error state generates a Status trap and triggers the trap timer. A new trap is generated at the end of every timer period until the Status returns to a non-error status. All status traps are enabled by default.

#### Tower Status traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>Tower is working correctly</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the tower has been lost</td>
</tr>
</tbody>
</table>

#### Infeed Status traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td></td>
<td>Infeed is on</td>
</tr>
<tr>
<td>OffError</td>
<td>x</td>
<td>Infeed should be on but no current is sensed at the infeed</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the infeed has been lost</td>
</tr>
</tbody>
</table>

#### Outlet Status traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>On</td>
<td></td>
<td>Outlet is on</td>
</tr>
<tr>
<td>Off</td>
<td></td>
<td>Outlet is off</td>
</tr>
<tr>
<td>OnWait</td>
<td></td>
<td>Outlet Status in transition</td>
</tr>
<tr>
<td>OffWait</td>
<td></td>
<td>Outlet Status in transition</td>
</tr>
<tr>
<td>OnError</td>
<td>x</td>
<td>Outlet should be off but current is sensed at the outlet</td>
</tr>
<tr>
<td>OffError</td>
<td>x</td>
<td>Outlet should be on but no current is sensed at the outlet</td>
</tr>
<tr>
<td>OffFuse</td>
<td>x</td>
<td>Outlet should be on but a blown fuse has been detected</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the outlet has been lost</td>
</tr>
</tbody>
</table>

#### Environmental Monitor Status traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>Environmental Monitor is working correctly</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the Environmental Monitor has been lost</td>
</tr>
</tbody>
</table>
## Temperature/Humidity Sensor Status traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Found</td>
<td></td>
<td>The sensor has been detected</td>
</tr>
<tr>
<td>NotFound</td>
<td></td>
<td>No sensor has been detected</td>
</tr>
<tr>
<td>Lost</td>
<td>x</td>
<td>Sensor initially detected but communication to the sensor has been lost</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the sensor has been lost</td>
</tr>
</tbody>
</table>

**NOTE:** Traps are generated according to a hierarchical architecture; ie if an Tower Status enters a trap condition, only the Tower Status trap will be generated. Infeed, Outlet, Environmental Monitor or Sensor Status and Temp and Humid traps will be suppressed until the Tower Status returns to Normal.

### Change trap

The Change trap is generated for all outlet status changes between any on/off conditions. Change traps include the outlet status, Location of the Leviton PDU, and identifier and name of the affected outlet. For descriptions of the outlet status types, please refer to the prior table.

### Load Trap

The Load trap is generated whenever the total input load on an infeed exceeds a preset threshold. Load traps include the reported input load, load status, Location of the Leviton PDU, and identifier and name of the affected infeed.

Any error state generates a Load trap and triggers the trap timer. A new trap is generated at the end of every timer period until the Load returns to a non-error status.

### Load traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>Infeed is on and within preset thresholds</td>
</tr>
<tr>
<td>NotOn</td>
<td></td>
<td>Infeed is off</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td>Non-error state – Load status currently being read</td>
</tr>
<tr>
<td>LoadHigh</td>
<td>x</td>
<td>Infeed current load exceeds preset threshold</td>
</tr>
<tr>
<td>OverLoad</td>
<td>x</td>
<td>Infeed current load exceeds the measurable range for the infeed</td>
</tr>
<tr>
<td>ReadError</td>
<td>x</td>
<td>Unable to read Load status</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the infeed has been lost</td>
</tr>
</tbody>
</table>

### Temp Trap

The Temp trap is generated whenever the temperature on a temperature/humidity sensor is beyond preset thresholds. Temp traps include the reported temperature, temp status, Location of the Leviton, and identifier and name of the affected sensor.

Any error state generates a Temp trap and triggers the trap timer. A new trap is generated at the end of every timer period until the Temp returns to a non-error status.

### Temp traps

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>The sensor is working correctly and the temperature is within preset thresholds</td>
</tr>
<tr>
<td>NotFound</td>
<td></td>
<td>No sensor has been detected</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td>Temp status currently being read</td>
</tr>
<tr>
<td>TempLow</td>
<td>x</td>
<td>Temperature at the sensor below preset low threshold</td>
</tr>
<tr>
<td>TempHigh</td>
<td>x</td>
<td>Temperature at the sensor exceeds preset high threshold</td>
</tr>
<tr>
<td>ReadError</td>
<td>x</td>
<td>Unable to read Temp status</td>
</tr>
<tr>
<td>Lost</td>
<td>x</td>
<td>Sensor initially detected but communication to the sensor has been lost</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the sensor has been lost</td>
</tr>
</tbody>
</table>
**Humidity Trap**

The Humidity trap is generated whenever the humidity on a temperature/humidity sensor is beyond preset thresholds. Humidity traps include the reported relative humidity, humidity status, Location of the Leviton PDU, and identifier and name of the affected sensor.

Any error state generates a Humidity trap and triggers the trap timer. A new trap is generated at the end of every timer period until the Humidity returns to a non-error status.

**Humidity traps**

<table>
<thead>
<tr>
<th>Status</th>
<th>Error</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td></td>
<td>The sensor is working correctly and the relative humidity is within preset thresholds</td>
</tr>
<tr>
<td>NotFound</td>
<td></td>
<td>No sensor has been detected</td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td>Humidity status currently being read</td>
</tr>
<tr>
<td>HumidLow</td>
<td>x</td>
<td>Relative humidity at the sensor below preset low threshold</td>
</tr>
<tr>
<td>HumidHigh</td>
<td>x</td>
<td>Relative humidity at the sensor exceeds preset high threshold</td>
</tr>
<tr>
<td>ReadError</td>
<td>x</td>
<td>Unable to read Humidity status</td>
</tr>
<tr>
<td>Lost</td>
<td>x</td>
<td>Sensor initially detected but communication to the sensor has been lost</td>
</tr>
<tr>
<td>NoComm</td>
<td>x</td>
<td>Communication to the sensor has been lost</td>
</tr>
</tbody>
</table>

**Configuring Traps**

**SNMP Trap Command Summary**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set Trap Tower Status</td>
<td>Enables or disables the Tower Status trap</td>
</tr>
<tr>
<td>Set Trap Infeed Status</td>
<td>Enables or disables the Infeed Status trap off</td>
</tr>
<tr>
<td>Set Trap Infeed Load</td>
<td>Enables or disables the Infeed Load trap</td>
</tr>
<tr>
<td>Set Trap Infeed HighThresh</td>
<td>Sets the Infeed Load trap high limit</td>
</tr>
<tr>
<td>Set Trap Outlet Change</td>
<td>Enables or disables the Outlet Change trap</td>
</tr>
<tr>
<td>Set Trap Outlet Status</td>
<td>Enables or disables the Outlet Status trap</td>
</tr>
<tr>
<td>Set Trap EM Status</td>
<td>Enables or disables the Environmental Monitor Status trap</td>
</tr>
<tr>
<td>Set Trap THS Status</td>
<td>Enables or disables a temperature/humidity sensor Status trap</td>
</tr>
<tr>
<td>Set Trap THS Temp</td>
<td>Enables or disables a temperature/humidity sensor Temp trap</td>
</tr>
<tr>
<td>Set Trap THS Temphigh</td>
<td>Sets a temperature/humidity sensor Temp trap high limit</td>
</tr>
<tr>
<td>Set Trap THS Templow</td>
<td>Sets a temperature/humidity sensor Temp trap low limit</td>
</tr>
<tr>
<td>Set Trap THS Humid</td>
<td>Enables or disables a temperature/humidity sensor Humid trap</td>
</tr>
<tr>
<td>Set Trap THS Humidhigh</td>
<td>Sets a temperature/humidity sensor Humid trap high limit</td>
</tr>
<tr>
<td>Set Trap THS Humidlow</td>
<td>Sets a temperature/humidity sensor Humid trap low limit</td>
</tr>
<tr>
<td>Show Traps</td>
<td>Displays trap configurations</td>
</tr>
</tbody>
</table>

**Enabling or Disabling a Status trap**

The Set Trap … Status command is used to enable or disable Status traps for a Tower, Infeed or Outlet.

**To Enable or Disable a Status trap:**

At the Switched PDU: prompt, type `set trap (tower, infeed, outlet, em or ths) status`, followed by the tower, infeed or outlet name, and `on` or `off`. Press `Enter`, or `\`

Type `set trap (tower, infeed, outlet, em or ths) Status all`, followed by `on` or `off` and press `Enter`.

**Examples**

The following command enables the Status trap for the first tower, using the tower’s absolute name:

Switched PDU: `set trap tower status .a on<Enter>`

The following command enables the Status trap for the tower named Florida_HQ_1:

Switched PDU: `set trap tower status Florida_HQ_1 on<Enter>`

**NOTE:** Enabling lower hierarchical traps automatically enables traps of higher hierarchical value: i.e. enabling an Outlet Status trap automatically enables the Infeed and Tower Status traps for that outlet. Conversely, if a Tower Status trap is disabled, all associated Infeed Status & Load and Outlet Status traps will be disabled.
Enabling or Disabling a Load trap

The Set Trap Infeed Load command is used to enable or disable an Infeed Load trap.

To Enable or Disable a Load trap:

At the Switched PDU: prompt, type `set trap infeed load`, followed by the infeed name, and **on** or **off**. Press **Enter**, or

Type `set trap infeed load all`, followed by **on** or **off** and press **Enter**.

**Examples**

The following command enables the Load trap for second infeed on the first tower, using the infeed’s absolute name:

```
Switched PDU: set trap infeed load .AB on<Enter>
```

The following command disables the Load trap for all infeeds:

```
Switched PDU: set trap infeed load all off<Enter>
```

**NOTE:** Enabling lower hierarchical traps automatically enables traps of higher hierarchical value; i.e. enabling an Infeed Load trap automatically enables the Infeed and Tower Status traps for that infeed.

Setting the Infeed Load limit

The Set Trap Infeed Loadhigh command is used to set the upper load limits for an input feed.

To set the infeed load limit:

At the Switched PDU: prompt, type `set trap infeed loadhigh`, followed by the infeed name, and a value from 0 to 255 in amperes. Press **Enter**.

**Example**

The following command sets the infeed load limit for the second infeed on the first tower to 25 amperes, using the infeed’s absolute name:

```
Switched PDU: set trap infeed loadhigh .AB 25<Enter>
```

Enabling or Disabling a Change trap

The Set Trap Outlet Change command is used to enable or disable an Outlet Change trap.

To Enable or Disable a Change trap:

At the Switched PDU: prompt, type `set trap outlet change`, followed by the outlet name and **on** or **off**. Press **Enter**, or

Type `set trap outlet change all`, followed by **on** or **off** and press **Enter**.

**Example**

The following command enables the Change trap for the third outlet on the first infeed of the second tower, using the outlet’s absolute name:

```
Switched PDU: set trap outlet change .ba3 on<Enter>
```

Enabling or Disabling the Temp trap

The Set Trap THS Temp command is used to enable or disable the Temp trap.

To Enable or Disable the Temp trap:

At the Switched PDU: prompt, type `set trap ths temp`, followed by the sensor name and **on** or **off**. Press **Enter**.

**Example**

The following command enables the Temp trap for the first temperature-humidity sensor:

```
Switched PDU: set trap ths temp .a1 on<Enter>
```
Setting the Temperature sensor threshold limits

The Set Trap THS Templow and Set Trap THS Temphigh commands are used to set the lower and upper threshold limits for the Temperature sensor.

To set the Temperature threshold limits:

At the Switched PDU: prompt, type `set trap ths templow` or `temphigh`, followed by the sensor name and a value from 0 to 127 in degrees Celsius. Press **Enter**.

**Example**

The following command sets the second temperature high threshold limit to 95:

```
Switched PDU: set trap ths temphigh .a2 95<Enter>
```

Enabling or Disabling the Humid trap

The Set Trap THS Humid command is used to enable or disable the Humid trap.

To Enable or Disable the Humid trap:

At the Switched PDU: prompt, type `set trap ths humid`, followed by the sensor name and **on** or **off**. Press **Enter**.

**Example**

The following command enables the Humid trap for the first temperature-humidity sensor:

```
Switched PDU: set traps ths humid .a1 on<Enter>
```

Setting the Humidity sensor threshold limits

The Set Trap THS Humidlow and Set Trap THS Humidhigh commands are used to set the lower and upper threshold limits for the Humidity sensor.

To set the Humidity threshold limits:

At the Switched PDU: prompt, type `set trap ths humidlow` or `humidhigh`, followed by the sensor name and a value from 0 to 100 in percent relative humidity. Press **Enter**.

**Example**

The following command sets the first humidity sensor low threshold limit to 5:

```
Switched PDU: set trap ths humidlow .a1 5<Enter>
```
Displaying trap configuration information

The Show Traps command displays information about all traps.

To display trap information:

At the Switched PDU: prompt, type show traps and press Enter.

Example

The following command requests trap configuration information:

```
Switched PDU: show traps <Enter>
```

**Tower trap configuration:**

<table>
<thead>
<tr>
<th>Tower ID</th>
<th>Name</th>
<th>Trap</th>
</tr>
</thead>
<tbody>
<tr>
<td>.A</td>
<td>Florida_HQ_1</td>
<td>ON</td>
</tr>
<tr>
<td>.B</td>
<td>Florida_HQ_2</td>
<td>ON</td>
</tr>
</tbody>
</table>

```
More (Y/n)?: y
```

**Input feed trap configuration:**

<table>
<thead>
<tr>
<th>Input Feed ID</th>
<th>Feed Name</th>
<th>Status</th>
<th>Load</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>.AA</td>
<td>HQ_1_Infeed_A</td>
<td>ON</td>
<td>ON</td>
<td>255 A</td>
</tr>
<tr>
<td>.BA</td>
<td>HQ_2_Infeed_A</td>
<td>ON</td>
<td>ON</td>
<td>255 A</td>
</tr>
</tbody>
</table>

```
More (Y/n)?: y
```

**Outlet trap configuration:**

<table>
<thead>
<tr>
<th>Outlet ID</th>
<th>Name</th>
<th>Change</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>.AA1</td>
<td>DataServer_1</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AA3</td>
<td>FileServer_1</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AA4</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AA5</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AA6</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AA7</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB1</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB2</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB3</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB4</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB5</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB6</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB7</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>.AB8</td>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>

```
More (Y/n)?: y
```

**Environmental Monitor .A trap configuration:**

- Temperature/Humidity Sensor A1
  - Name: Temp_Humid_Sensor_A1
  - Status: Trap ON
  - Temp Trap: ON
  - Low: 0 Deg.C
  - High: 127 Deg.C
- Temperature/Humidity Sensor A2
  - Name: T/H2_Florida_HQ_1
  - Status: Trap ON
  - Temp Trap: ON
  - Low: 0 Deg.C
  - High: 95 Deg.C

```
Leviton Switched Power Distribution Unit Advanced Operations • 51
Installation and Operations Manual
```
Chapter 5: Appendices

Appendix A: Resetting to Factory Defaults

You may reset the non-volatile RAM that stores all configurable options. This clears all administrator-editable fields and resets all command line configurable options to their default values, including all user accounts.

You may reset the unit to factory defaults from the command line or the HTML interface, or by pressing the reset button. You must have administrator-level privileges to issue the command. Using the reset button may be necessary when a forgotten password prevents administrator login. Each of the methods updates the current working configuration to the factory defaults.

NOTE: Resetting the unit resets all TCP/IP and Telnet/Web configurations. Reconfiguring the TCP/IP and Telnet/web settings will be required.

To reset to factory defaults from the HTML interface

On the Restart page in the Tools section of the HTML interface, select Restart and reset to factory defaults from the drop-down menu and press Apply.

To reset to factory defaults from the command line

At the Switched PDU: prompt, type restart factory and press Enter.

To reset to factory defaults using the reset button

Locate the recessed reset button directly beside the Serial & Ethernet ports. You will need a non-conductive, non-metallic tool that fits inside the recess.

Insert the tool in the recess, then depress and hold the reset button for at least ten seconds.

NOTE: If the reset button is depressed and held for more than 15 seconds, the reset will abort.

Appendix B: Uploading Firmware

You may upload new versions of firmware using File Transfer Protocol (FTP). This allows access to new firmware releases for firmware improvements and new features additions.

NOTE: To begin an FTP upload session, you must first configure the FTP Host address, username/password, filename and filepath. For information on configuring the FTP settings required for firmware upload see Chapter 3: Operations.

You may initiate an FTP upload session by issuing a command or from the HTML interface. You must have administrator-level privileges to initiate an upload.

To initiate an FTP upload session from the HTML interface

On the Restart page in the Tools section of the HTML interface, select Restart and upload firmware via FTP from the drop-down menu and press Apply.

Upon issuing this command the unit will restart and upload the firmware file specified with the FTP Filename command from the previously configured FTP Host. See See FTP Administration in Chapter 3: for more information.

To initiate an FTP upload session from the command line

The Restart FTPLoad command initiates an upload of firmware. Upon issuing this command the unit will restart and upload the firmware file specified with the FTP Filename command from the previously configured FTP Host. See FTP Administration in Chapter 3: for more information.

To initiate an FTP firmware upload session:

At the Switched PDU: prompt, type restart ftpload and press Enter.
## Appendix C: Technical Specifications

### Models

#### Switched PDU

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage</th>
<th>Input Cordset and Plug (10')</th>
<th>Outlets</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH081-1D1</td>
<td>100-120V 50/60Hz</td>
<td>IEC 60320 C20¹</td>
<td></td>
</tr>
<tr>
<td>SH081-1B1</td>
<td>100-120V 50/60Hz</td>
<td>NEMA L5-30P, 30A/120V locking</td>
<td></td>
</tr>
<tr>
<td>SH082-1C2</td>
<td>208-240V 60Hz</td>
<td>NEMA L6-30P, 30A/208V locking</td>
<td></td>
</tr>
<tr>
<td>SV161-1D1</td>
<td>100-120V 50/60Hz</td>
<td>IEC 60320 C20¹</td>
<td></td>
</tr>
<tr>
<td>SV161-1B1</td>
<td>100-120V 50/60Hz</td>
<td>NEMA L5-30P, 30A/120V locking</td>
<td></td>
</tr>
<tr>
<td>SV162-1C2</td>
<td>208-240V 60Hz</td>
<td>NEMA L6-30P, 30A/208V locking</td>
<td></td>
</tr>
</tbody>
</table>

#### Expansion Module PDU

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated Voltage</th>
<th>Input Cordset and Plug (10')</th>
<th>Outlets</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH081-1D1</td>
<td>100-120EV 50/60Hz</td>
<td>IEC 60320 C20¹</td>
<td></td>
</tr>
<tr>
<td>EH081-1B1</td>
<td>100-120EV 50/60Hz</td>
<td>NEMA L5-30P, 30A/120EV locking</td>
<td></td>
</tr>
<tr>
<td>EH082-1C2</td>
<td>208-240EV 60Hz</td>
<td>NEMA L6-30P, 30A/208EV locking</td>
<td></td>
</tr>
<tr>
<td>EV161-1D1</td>
<td>100-120EV 50/60Hz</td>
<td>IEC 60320 C20¹</td>
<td></td>
</tr>
<tr>
<td>EV161-1B1</td>
<td>100-120EV 50/60Hz</td>
<td>NEMA L5-30P, 30A/120EV locking</td>
<td></td>
</tr>
<tr>
<td>EV162-1C2</td>
<td>208-240EV 60Hz</td>
<td>NEMA L6-30P, 30A/208EV locking</td>
<td></td>
</tr>
</tbody>
</table>

¹ Input cordset selected at time of purchase.

### Power Ratings

#### 100-120V 50/60Hz

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Spannung</th>
<th>Current Strom</th>
<th>Voltage Spannung</th>
<th>Outlet Anschlussstelle</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH081-1D1</td>
<td>100-120V 50/60Hz</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>SH081-1B1</td>
<td>100-120V 50/60Hz</td>
<td>24</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>SV161-1D1</td>
<td>100-120V 50/60Hz</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>SV161-1B1</td>
<td>100-120V 50/60Hz</td>
<td>24</td>
<td>16</td>
<td>24</td>
</tr>
</tbody>
</table>

#### 208-240V 60Hz

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Spannung</th>
<th>Current Strom</th>
<th>Voltage Spannung</th>
<th>Outlet Anschlussstelle</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH082-1C2</td>
<td>208-240V 60Hz</td>
<td>24</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>EV162-1C2</td>
<td>208-240V 60Hz</td>
<td>24</td>
<td>12</td>
<td>24</td>
</tr>
</tbody>
</table>

### Physical Specifications

#### Operating

- Temperature: 32° to 122° F (0° to 50° C)
- Elevation (above MSL): 0 to 10,000 ft (0 to 3000m)
- Relative Humidity: 10 to 90%, non-condensing

#### Storage

- Temperature: -40° to 185° F (-40° to 85° C)
- Elevation (above MSL): 0 to 50,000 ft (0 to 15000m)
- Relative Humidity: 10 to 90%, non-condensing

### Dimensions

- xH08x: 1.75 x 17.0 x 7.0 in. (45 x 432 x 178 mm) 6.75 lbs (3.1 kg)
- xV16x: 45.75 x 1.75 x 2.25 in. (1162 x 45 x 57 mm) 7.5 lbs (3.4 kg)
Branch Circuit Protection

Always disconnect both power supply cords before opening to avoid electrical shock.
Afin d’éviter les chocs électriques, débranchez les câbles électrique avant d’ouvrir.
Immer beiden Netzleitungen auskuppeln vor den Aufmachen um elektrischen Schlag zu vermeiden.

Switched PDUs feature Branch Circuit protection on all outlets in the form of internal fuses. These fuses meet the strict safety requirements of UL/CSA 60950-1 for Branch Circuit Protection.

Time-Delay Fuses – Class G

<table>
<thead>
<tr>
<th>Amperes</th>
<th>Bussman Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>SC-20</td>
</tr>
</tbody>
</table>

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Data Connections

RS-232 port

Switched PDUs are equipped standard with an RJ45 DTE RS-232c serial port. This connector may be used for direct local access or from other serial devices such as a terminal server. An RJ45 crossover cable is provided for connection to an RJ45 DCE serial port.

<table>
<thead>
<tr>
<th>Pin</th>
<th>DTE Signal Name</th>
<th>Input/Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Request to Send RTS</td>
<td>Output</td>
</tr>
<tr>
<td>2</td>
<td>Data Terminal Ready DTR</td>
<td>Output</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Data TD</td>
<td>Output</td>
</tr>
<tr>
<td>4</td>
<td>Signal Ground</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Signal Ground</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Receive Data RD</td>
<td>Input</td>
</tr>
<tr>
<td>7</td>
<td>Data Set Ready DSR</td>
<td>Input</td>
</tr>
<tr>
<td>8</td>
<td>Clear to Send CTS</td>
<td>Input</td>
</tr>
</tbody>
</table>

RJ45 to DB9F serial port adapter

Additionally, an RJ45 to DB9F serial port adapter is provided for use in conjunction with the RJ45 crossover cable to connect to a PC DB9M DCE serial port. The adapter pinouts below reflect use of the adapter with the provided RJ45 crossover cable.

<table>
<thead>
<tr>
<th>Pin</th>
<th>DCE Signal Name</th>
<th>Input/Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Receive Data RD</td>
<td>Output</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Data TD</td>
<td>Input</td>
</tr>
<tr>
<td>4</td>
<td>Data Terminal Ready DTR</td>
<td>Input</td>
</tr>
<tr>
<td>5</td>
<td>Signal Ground</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Data Set Ready DSR</td>
<td>Output</td>
</tr>
<tr>
<td>7</td>
<td>Request to Send RTS</td>
<td>Input</td>
</tr>
<tr>
<td>8</td>
<td>Clear to Send CTS</td>
<td>Output</td>
</tr>
</tbody>
</table>

LED Indicators

Units are equipped with a status LED for each power receptacle. A lit/on LED indicates that power is being supplied at the port and a darkened/off LED indicates that there is no power at the port.
Regulatory Compliance

Product Safety

Units have been safety tested and certified to the following standards:

- USA/Canada: UL 60950:2003 and CAN/CSA 22.2 No. 60950-1-03

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 his own expense.

Modifications not expressly approved by the manufacturer could void the user's authority to operated the equipment under FCC rules.

Canadian Notification

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

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matériel brouilleur du Canada.
Appendix D: Warranty and Support

Warranty

For a copy of Leviton’s product warranties, log on to www.levitonvoicedata.com/warranty.

Technical Support

Leviton understands that there are often questions when installing and/or using a new product. Free Technical Support is provided from 6:00 AM to 4:30 PM, Monday-Friday, Pacific Time.

Leviton Voice & Data Division
2222 – 222nd Street SE         Tel: (800) 722.2082         Web: www.levitonvoicedata.com
Bothell, WA 98021 USA         Fax: 425.483.5270