

Power View

Enhanced PDU

- PS570A

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, Black Box does not recommend the use of any of its products in the following situations:

- life-support applications where failure or malfunction of the Black Box product can be reasonably expected to cause failure of the life-support device or to significantly affect its safety or effectiveness.
- direct patient care.

Black Box will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Black Box that:

- the risks of injury or damage have been minimized,
- the customer assumes all such risks, and
- the liability of Black Box 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.

Compliance

Units have been safety tested/certified to the following standards: USA and Canada to UL 1950 and CAN/CSA 22.2 No. 950-95 and European Union to EN60950.

USA Notification

Warning: Changes or modifications to these units not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment under FCC rules.

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.

Canadian Notification

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Japanese Notification

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Table of Contents

- CHAPTER 1: INTRODUCTION** **1**
 - Features and Benefits2
 - Technical Support3
 - Quick Start Guide.....3
- CHAPTER 2: INSTALLATION** **5**
 - Standard Accessories.....6
 - Additional Required Items6
 - Equipment Overview.....6
 - Safety Precautions6
 - Mounting7
 - Connecting to the Power Source7
 - Connecting Devices.....7
 - Connecting to the Power View.....7
- CHAPTER 3: OPERATIONS** **9**
 - Interfaces10
 - HTML Interface10
 - Command Line Interface.....16
- CHAPTER 4: APPENDICES** **23**
 - Appendix A: Resetting to Factory Defaults24
 - Appendix B: Uploading Firmware24
 - Appendix C: Technical Specifications25
 - Appendix D: Product Registration and Support26

Chapter 1: Introduction

FEATURES AND BENEFITS	2
Communication Access Modes	2
Power Distribution & Remote Management	2
Load and Environment Measurement	2
Outlet Grouping.....	2
User Interfaces and LEDs.....	2
Security	2
Automatic Timeout	2
TECHNICAL SUPPORT	3
QUICK START GUIDE	3

Introduction

The BLACK BOX® Power View family of products provides easy, practical, and secure solutions for power distribution and power management for remote internetworking equipment and branch AC circuits.

The Power View Enhanced PDU supports the elimination of unnecessary trips to remote locations by allowing remote control of the power on/off status for distant critical equipment, minimizing the impact of locked-up devices on mission-critical networks.

Features and Benefits

The Power View Enhanced PDU is available in an 8 outlet configuration for 100-120V AC for support up to 20A. See *Models* in Appendix C: Technical Specifications.

Communication Access Modes

The Enhanced PDU is equipped standard with a Console RS-232 port and a 10/100 Base-T Ethernet port for Telnet and in-band web browser (HTML) access.

Power Distribution & Remote Management

The Enhanced PDU distributes up to 20A AC power and offer individual remote control over the power on/off status of up to 8 devices.

Load and Environment Measurement

The Enhanced PDU's load measurement feature eliminates guesswork by supplying the cumulative operating load in amperes. This allows administrators to maximize the equipment installed and operated on a circuit without worry. Use of the circuit is maximized, while effectively allowing a 10% to 20% safety margin.

Outlet Grouping

For operations across multiple attached devices or devices with multiple or redundant power supplies, The Enhanced PDU's outlets may be included in one or more named groups of outlets. Changes may then be applied to all outlets in the named group with one easy command sequence.

User Interfaces and LEDs

The Enhanced PDU features two user interfaces: the HTML interface and the command line. For easy recognition, both individual outlets and groups may be assigned descriptive names for use in control commands. For the on-site technician, LEDs on the Enhanced PDU indicates power status for individual outlets.

Security

The Enhanced PDU ships with one predefined administrative user account. The administrator may create up to 128 user accounts, with individualized access to outlets and commands. All accounts support username and password protection. For configurations requiring multiple fully-privileged users, the Enhanced PDU allows the administrator to grant administrative privileges to other user accounts in the system.

Automatic Timeout

For added security, a user session will be automatically terminated after five minutes of inactivity; if a user is called away unexpectedly, an unprotected channel will not remain open indefinitely.

Technical Support

Black Box understands that there are often questions when installing and/or using a new product. FREE Technical Support is provided 24 hours a day, 7 days a week. See *Technical Support* in Product Registration and Support for more information.

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Quick Start Guide

The following instructions will help you quickly install and configure your Power View for use on your network. For detailed information on each step, go to the page number listed to the right.

For your network security, Black Box strongly recommends the removal of the predefined user account prior to attachment to your network.

1. Mount the Power View6
2. Connect to the power source7
3. Connect the devices to the Power View7
4. Connect to the Power View7
5. Configure the Power View7
 - Login as the predefined Administrator (admn/admn) 11, 16
 - Configure the network settings (IP/Subnet/Gateway)..... 12, 17
 - Create new administrative user account.....14
 - Configure location and tower names 12
 - Configure outlet names13
 - Configure group names13
 - Configure new user account(s) with outlet and group access 14
 - Remove the predefined Administrator14
6. Connect the Power View to the network

Chapter 2: Installation

STANDARD ACCESSORIES	6
ADDITIONAL REQUIRED ITEMS	6
EQUIPMENT OVERVIEW	6
SAFETY PRECAUTIONS	6
MOUNTING	7
CONNECTING TO THE POWER SOURCE	7
CONNECTING DEVICES	7
CONNECTING TO THE POWER VIEW	7
<i>Console (RS232) port</i>	7
<i>Ethernet port</i>	7

Installation

Before installing your Power View, 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 bracket hardware: two mounting brackets and four screws

Additional Required Items

- Flathead and Phillips screwdrivers
- Screws, washers and nuts to attach the Power View to your rack

Equipment Overview

A number is printed above each outlet. These numbers may be used in commands that require an outlet name. The power inlet connects to the electrical power source.

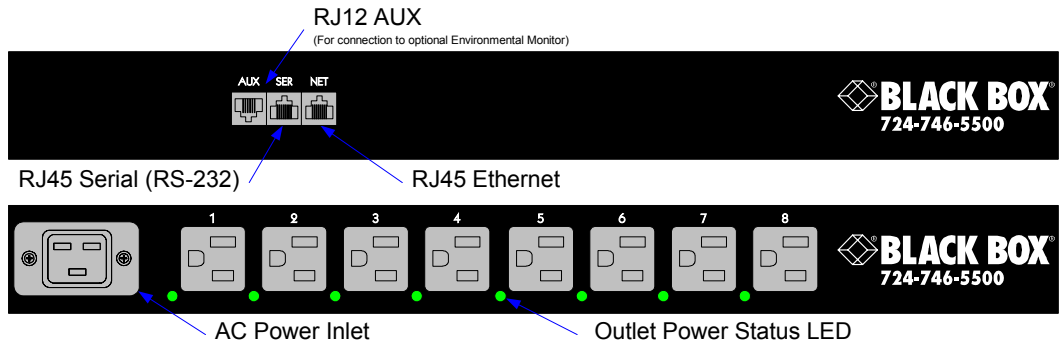


Figure 2.1 Enhanced PDU Product Views

Safety Precautions

This section contains important safety and regulatory information that should be reviewed before installing and using the Power View product. 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.	<i>Destiné à l'installation et l'utilisation dans le cadre de Service Access Location selon les instructions d'installation et d'utilisation.</i>	Nur für Installation und Gebrauch an Anschlusszugriffspunkten gemäß der folgenden Installations- und Gebrauchsanweisungen.
	This equipment is designed to be installed on a dedicated circuit.	<i>Cet équipement est conçu à être installé sur un circuit spécialisé.</i>	Diese Ausrüstung ist zur Installation in einem festen Stromkreis vorgesehen.
	Dedicated circuit must have circuit breaker or fuse protection. Power Views 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 Power View must be provided and must meet all applicable codes and regulations. In North American, protection must have a 10,000A interrupt capacity.	<i>Le circuit spécialisé doit avoir un disjoncteur ou une protection de fusible. Power Views ont été conçus sans disjoncteur général ni fusible pour éviter que cela devienne un seul endroit de panne. C'est la responsabilité du client de fournir une protection adéquate pour le circuit-alimentation spécialisé. Protection de capacité équivalent 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.</i>	Der feste Stromkreis muss mit einem Schutzschalter oder einem Sicherungsschutz versehen sein. Ein Power Views verfügt über keinen Hauptschutzschalter bzw. über keine Sicherung, damit kein einzelner Fehlerpunkt entstehen kann. Der Kunde ist dafür verantwortlich, den Stromkreis sachgemäß zu schützen. Der Kapazitätsschutz entspricht der aktuellen Stromstärke der Geräte und muss alle relevanten Codes und Bestimmungen erfüllen. Für Installation in Nordamerika müssen Ausschalter bzw. Sicherung über 10.000 A Unterbrechungskapazität verfügen.
	The plug on the power supply cord shall be installed near the equipment and shall be easily accessible.	<i>La prise sur le cordon d'alimentation sera installée près de l'équipement et sera facilement disponible.</i>	Der Stecker des Netzkabels muss in der Nähe der Ausrüstung installiert werden und leicht zugänglich sein.
	Always disconnect the power supply cord before opening to avoid electrical shock.	<i>Toujours déconnecter le cordon d'alimentation avant d'ouvrir pour éviter un choc électrique.</i>	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 Verluststrom! Ein Erdungsanschluss ist vor dem Einschalten der Stromzufuhr erforderlich!

Mounting

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.

Connecting to the Power Source

Connect the female end of the power cord firmly into the connector, use a screwdriver to tighten the screws on the retention bracket and 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 properly attached to the outlets, or
Log in to the Power View and turn the outlets off before connecting the devices to the unit(s).
2. Connect devices to the outlets.



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

Afin d'éviter les chocs électriques, débranchez le câble électrique avant d'ouvrir.

Immer Netzleitung auskuppeln vor den Aufmachen um elektrischen Schlag zu vermeiden.

Connecting to the Power View

Console (RS232) port

The Power View is equipped with an RJ45 Console RS-232 port for attachment to a PC or networked terminal server. See *Data Connections* in Appendix C: Technical Specifications for more information on the Console RS-232 port.

Ethernet port

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

The Power View 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

INTERFACES	10
Usernames and Passwords	10
HTML INTERFACE	10
Logging In	11
Outlet Control	11
<i>Individual</i>	11
<i>Group</i>	11
Environmental Monitoring	12
<i>Input Feeds</i>	12
Configuration	12
<i>System</i>	12
<i>Network</i>	12
<i>Telnet/HTTP</i>	13
<i>Outlets</i>	13
<i>Groups</i>	13
<i>Users</i>	14
<i>FTP</i>	15
Tools	15
<i>Restart</i>	15
COMMAND LINE INTERFACE	16
Logging In	16
Operations Commands	17
<i>Outlet Control</i>	17
Administration Commands	19
<i>System Administration</i>	19
<i>TCP/IP Administration</i>	19
<i>Telnet Administration Commands</i>	20
<i>HTTP Administration Commands</i>	20
<i>FTP Administration</i>	21

Operations

Interfaces

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

Username and Passwords

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

NOTE: For security, Black Box 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 outlet and user information. An administrator may also view the status of and control power to all outlets.

The administrator may create additional user accounts and then grant these users the right to view the status of and control power to specific outlets, groups and ports.

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 Power View'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.

The screenshot shows the Power View Enhanced PDU web interface in a Microsoft Internet Explorer browser window. The browser address bar shows the URL `http://64.42.31.207/main.html?1,1`. The interface is divided into three main sections:

- User/Navigation:** A vertical sidebar on the left containing navigation links: "Outlet Control", "Environmental Monitoring", "Configuration", and "Tools". The "Outlet Control" section is expanded to show "Individual", "Group", and "Tools". The user information at the top of the sidebar reads "User: ADMN" and "Access: Admin". A "Logout" button is at the bottom.
- System Location:** A horizontal header bar at the top displaying "Power View Enhanced PDU" on the left, the Black Box logo and "BLACK BOX NETWORK SERVICES" on the right, and "Black Box Corp - Lawrence, PA" and the IP address "64.42.31.207" in the center. Below this, it shows "Outlet Control - Individual".
- Control Screen:** The main content area titled "Individual Outlet Control". It contains a table for controlling power to individual outlets. The table has columns for "Outlet ID", "Outlet Name", "Outlet Status", "Control State", and "Control Action".

Outlet ID	Outlet Name	Outlet Status	Control State	Control Action
A1	TowerA_Outlet1	On	Idle On	None
A2	TowerA_Outlet2	On	Idle On	None
A3	TowerA_Outlet3	On	Idle On	None
A4	TowerA_Outlet4	On	Idle On	None
A5	TowerA_Outlet5	On	Idle On	None
A6	TowerA_Outlet6	On	Idle On	None
A7	TowerA_Outlet7	On	Idle On	None
A8	TowerA_Outlet8	On	Idle On	None

Below the table, there is a "Global Control Action" dropdown menu set to "None" and "Apply" and "Cancel" buttons.

Figure 3.1 Example HTML page

Logging In

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

To log in by HTML:

1. 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.

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 Power View by the outlet, the current Control State being applied by the Power View and the outlet load in amperes.

Available outlet and group power states may be set to on, off or reboot; the reboot operation turns the outlet(s) off, delays for a period of 15 seconds and then turns the outlet(s) on.

Outlet State/Control State Field Values

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

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

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**.

Environmental Monitoring

The Environmental Monitoring section offers access to the Input Feed page. This section is available to administrative level users and users with Environmental Monitoring view rights.

Input Feeds

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

Configuration

The Configuration section offers access to all unit configuration options including Network, HTTP, Outlets, Groups, Users, and FTP. 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 Power View descriptive names.

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

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

Creating a descriptive location 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 13 for additional information on creating descriptive outlet names.

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 and gateway address as well as view the link status, speed and duplex value.

The Power View 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 15.

Setting the IP address, subnet mask or gateway:

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

Telnet/HTTP

The Telnet/HTTP configuration page used to enable or disable Telnet support, configure the port number that the Telnet or HTTP server watches and responds to and selection of the method of authentication used.

Enabling or disabling Telnet support:

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

Changing the Telnet or HTTP server port number:

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

Setting the HTTP authentication method:fs

The Power View 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**.

Outlets

The Outlets configuration page is used for assignment and/or editing of outlet descriptive names and wakeup states.

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 and colon characters 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** or **Off** from the Wakeup State drop-down menu and press **Apply**.

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 and colon characters 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 associated group.

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 24 alphanumeric and other typeable characters (ASCII 33 to 126 decimal, spaces and colon characters 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 Power View has two defined access privilege levels; Admin and User:

- 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.

The administrator may also grant administrative privileges to other user accounts allowing the Power View 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**.

NOTE: This also grants or removes viewing privileges for the optional Power View Environmental Manager. See the Power View Environmental Manager Installation and Operations manual for more information.

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**.

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**.

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 Appendix A: Resetting to Factory Defaults for more information on resetting an Power View to factory defaults from the HTML interface.

Uploading new firmware:

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

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:

```
Power View Enhanced PDU 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.

You may enter commands in any combination of uppercase and lowercase. You must enter all command characters correctly; there are no command abbreviations. There are two types of commands: operations and administration. A user must have administrative privileges to use the administration commands. The following tables list and briefly describe each command.

Operations Command Summary

Command	Description
On	Turns one or more outlets on
Off	Turns one or more outlets off
Reboot	Reboots one or more outlets
Status	Displays the on/off status of one or more outlets
Login	Ends the current session and brings up the Username: prompt
Logout	Ends a session
Quit	Ends a session

Administrative Command Summary

Restart	Performs a warm boot
Set FTP Filename	Specifies the file to be uploaded via FTP
Set FTP Filepath	Specifies the filepath for the file to be uploaded
Set FTP Host	Sets the FTP Host IP address
Set FTP Password	Sets the password for the FTP Host
Set FTP Username	Sets the username for the FTP Host
Set Gateway	Sets the Gateway
Set HTTP Port	Sets the HTTP server port number
Set HTTP Security	Sets the HTTP server authentication method
Set Ipaddress	Sets the Power View Enhanced PDU IP address
Set Subnet Mask	Sets the Subnet Mask
Set Telnet Port	Sets the Telnet server port number
Set Telnet	Enables or disables Telnet access
Show FTP	Displays FTP configuration information
Show Network	Display network configuration information
Version	Displays the Power View Enhanced PDU firmware version

Operations Commands

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

NOTE: Users must be granted access to affect any change in outlet state.

Outlet Control

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 Power View Enhanced PDU: prompt, type **on**, followed by an outlet name, and press **Enter**, or

Type **on**, followed by a group 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:

```
Power View Enhanced PDU: on .aa2<Enter>
```

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

```
Power View Enhanced 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 Power View Enhanced PDU: prompt, type **off**, followed by an outlet name, and press **Enter**, or

Type **off**, followed by a group name, and press **Enter**, or

Type **off all** and press **Enter**

Examples

The following command turns off the outlet named FileServer_1:

```
Power View Enhanced PDU: off FileServer_1<Enter>
```

The following command turns off all outlets:

```
Power View Enhanced PDU: off all<Enter>
```

Rebooting outlets

The Reboot command reboots one or more outlets. This operation turns the outlet(s) off, delays for a period of 15 seconds 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 after 15 seconds. See *Displaying outlet status* for more information.

To reboot one or more outlets:

At the Power View Enhanced PDU: prompt, type **reboot**, followed by an outlet name, and press **Enter**, or

Type **reboot**, followed by a group 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:

```
Power View Enhanced 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 Sentry by the outlet and the current Control State being applied by the Sentry. If you do not specify any parameter with this command, the status of all accessible outlets is displayed.

For more information on outlet and control state values, see *Outlet Control* on page 11.

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

At the Power View Enhanced 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:

```
Power View Enhanced PDU: status FileServer_1<Enter>
Outlet      Outlet      Outlet  Control
ID          Name          Status  State
.AA3       FileServer_1   On      On
```

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

```
Power View Enhanced PDU: status<Enter>
Outlet      Outlet      Outlet  Control  Outlet
ID          Name          Status  State    Load
.AA1       DataServer_1  On      On       5.0 Amps
.AA2       WebServer_1   On      On       2.5 Amps
.AB1       FileServer_1  On      On       9.5 Amps
.AB2                          On      On       0.0 Amps
```

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

```
Power View Enhanced PDU: status ServerGroup_1<Enter>
Group: ServerGroup_1
Outlet      Outlet      Outlet  Control  Outlet
ID          Name          Status  State    Load
.AA1       DataServer_1  On      On       5.0 Amps
.AA2       WebServer_1   On      On       2.5 Amps
.AB1       FileServer_1  On      On       9.5 Amps
```

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 Power View Enhanced PDU: prompt, type **login** and press **Enter**. The Username: prompt appears.

Ending a session

The Quit or Logout commands ends 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 Power View Enhanced PDU: prompt, type **quit** and press **Enter**, or

Type **logout** and press **Enter**.

Administration Commands

System Administration

Displaying the Power View Enhanced PDU firmware version

The Version command displays the firmware version.

To display the firmware version:

At the Power View Enhanced PDU: prompt, type **version** and press **Enter**.

Performing a warm boot

The Restart command performs a warm boot.

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

To perform a warm boot:

At the Power View Enhanced PDU: prompt, type **restart** and press **Enter**.

TCP/IP Administration

NOTE: A restart is required after setting or changing ANY TCP/IP configurations. See *Performing a warm boot* on page 19 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 Power View Enhanced 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:

```
Power View Enhanced PDU: set ipaddress 12.34.56.78<Enter>
```

Setting the subnet mask

The Set Subnet command sets the subnet mask for the network the Power View Enhanced PDU will be attached to.

To set the subnet mask:

At the Power View Enhanced 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

```
Power View Enhanced PDU: set subnet 255.0.0.0<Enter>
```

Setting the gateway

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

To set the gateway IP address:

At the Power View Enhanced 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:

```
Power View Enhanced PDU: set gateway 12.34.56.1<Enter>
```

Telnet Administration Commands

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 Power View Enhanced 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 socket:

At the Power View Enhanced PDU: prompt, type **set telnet port**, followed by the port number and press **Enter**.

Example

The following changes the Telnet port number to 7001:

```
Power View Enhanced PDU: set telnet port 7001<Enter>
```

HTTP Administration Commands

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 Power View Enhanced PDU: prompt, type **set http port**, followed by the port number and press **Enter**.

Example

The following changes the HTTP port number to 2048:

```
Power View Enhanced 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 Power View Enhanced 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 *Changing the Telnet or HTTP server port number*:

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

Setting the HTTP authentication method: on page 13.

To set the HTTP authentication method:

At the Power View Enhanced PDU: prompt, type **set http security**, followed by **basic** or **md5** and press **Enter**.

Displaying network configuration information

The Show Network command displays TCP/IP and Web configuration information.

- NIC module serial number, MAC address and hardware revision code
- IP address, subnet mask and gateway
- Enabled-disabled status of Telnet support
- Telnet and HTTP port numbers
- HTTP authentication method
- Network link status, connection speed and duplex value

To display network configuration information:

At the Power View Enhanced PDU: prompt, type **show network** and press **Enter**.

Example

The following command displays the network configuration information:

```
Power View Enhanced PDU: show network<Enter>
Network Configuration
NIC S/N :      1600001
MAC Address:   00-0a-9c-10-00-01
H/W Rev Code:  0
IP Address:    12.34.56.78
Subnet Mask:   255.0.0.0
Gateway:       12.34.56.1
Telnet:        Enabled      Port:   23
HTTP           Port:       80   Security: Basic
Network Status
Link:          Up
Speed:         100 Mbps
Duplex:        Half
```

FTP Administration

The following commands are used to configure the Power View Enhanced 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 Power View Enhanced 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:

```
Power View Enhanced 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 Power View Enhanced PDU: prompt, type **set ftp username**, followed by the FTP username and press **Enter**.

Example

The following command sets the FTP username to Guest:

```
Power View Enhanced 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 Power View Enhanced PDU: prompt, type **set ftp password**, followed by the FTP password and press **Enter**.

Example

The following command sets the FTP password to OpenSesame:

```
Power View Enhanced 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 Power View Enhanced PDU: prompt, type **set ftp filename**, followed by the firmware filename and press **Enter**.

Example

The following command sets the FTP filename to pv-v51a.bin:

```
Power View Enhanced PDU: set ftp filename pv-v51a.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 Power View Enhanced PDU: prompt, type **set ftp filepath**, followed by the filepath and press **Enter**.

Example

The following command sets the FTP filepath to ftp://Powerview:

```
Power View Enhanced PDU: set ftp filepath ftp://Powerview<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 Power View Enhanced PDU: prompt, type **show ftp** and press **Enter**.

Example

The following command displays the FTP configuration information:

```
Power View Enhanced PDU: show ftp<Enter>
FTP Configuration
Host IP Address: 12.34.56.99
Username:      guest
Password:      OpenSesame
Directory:     ftp://powerview
Filename:      pv-v51a.bin
```

Chapter 4: Appendices

APPENDIX A: RESETTING TO FACTORY DEFAULTS	24
To reset to factory defaults from the HTML interface	24
To reset the to factory defaults from the command line	24
To reset to factory defaults using the reset button	24
APPENDIX B: UPLOADING FIRMWARE	24
To initiate an FTP upload session	24
To initiate an FTP upload session from the command line	24
APPENDIX C: TECHNICAL SPECIFICATIONS	25
Models	25
Power Ratings	25
Physical Specifications	25
Data Connections	25
LED Indicators	25
APPENDIX D: PRODUCT REGISTRATION AND SUPPORT	26
Technical Support	26
Troubleshooting	26

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 HTML interface, the command line 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 update the current working configuration to the factory defaults.

NOTE: Resetting the unit to factory defaults resets all TCP/IP and Web configurations. Reconfiguring of the TCP/IP and 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 the to factory defaults from the command line

At the Power View Enhanced PDU: prompt, type **restart factory** and press **Enter**.

To reset to factory defaults using the reset button

Press and hold the reset button between ten and fifteen 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 from the HTML interface or the command line. You must have administrator-level privileges to initiate an upload.

To initiate an FTP upload session

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 *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 Power View 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 Power View Enhanced PDU: prompt, type **restart ftpload** and press **Enter**.

Appendix C: Technical Specifications

Models

Standard Models

Model	Voltage	Inlet	Outlets
PS570A	100-120V AC, 50/60 Hz	IEC 60320 C19	8x NEMA 5-15

Power Ratings

Model Modele Modell	Input Current Ratings ¹ <i>L'indice du courant d'entrée</i> Eingangsstromstärke		Output Current Ratings <i>L'indice du courant de sortie</i> Ausgangsstromstärke			
	Voltage <i>Tension</i> Spannung	Current <i>Courant</i> Strom	Outlet <i>Prise</i> Anschlussstelle	Quad ²	Octet ³	Total <i>Total</i> Insgesamt
PS570A	100-120V 50/60Hz	20	10	15	20	20

¹ All current ratings are in amperes.

Tous les indices de courant sont en ampères.

Alle Angaben der Stromstärke erfolgen in Ampere.

² 1-4, 5-8

³ 1-8

Physical Specifications

Model	PS570A	
Physical Size (H x W x D)	3.5 x 17.0 x 17.0 in.	
Weight	22.8 lbs	
Temperature	Operating	0° to 50° C (32° to 122° F)
	Storage	-40° to 85° C (-40° to 185° F)
Elevation (above MSL)	Operating	0 to 10,000 ft (0 to 3000 m)
	Storage	0 to 50,000 ft (0 to 15 000 m)
Relative Humidity	Operating	10 to 90%, non-condensing
	Storage	10 to 90%, non-condensing
Approvals	cCSAus, TUV-GS ¹	

¹ cCSAus - UL 1950, CAN/CSA 22.2 No. 950-95

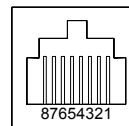
TUV-GS - EN60950:2000

Data Connections

RS-232 port

Enhanced 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.

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



LED Indicators

Enhanced PDUs are equipped with a status LED for each outlet. A lit/on LED indicates that power is being supplied to the outlet and a darkened/off LED indicates that there is no power at the outlet.

Appendix D: Product Registration and Support

Technical Support

Black Box understands that there are often questions when installing and/or using a new product. FREE Technical Support is provided 24 hours a day, 7 days a week.

Black Box Corporation

1000 Park Drive

Lawrence, PA 15055 USA

Tel: 724.746.5500

Fax: 724.746.0746

Web: www.blackbox.com

Email: info@blackbox.com

Troubleshooting

Calling BLACK BOX

If you determine that your Power View is malfunctioning, ***do not attempt to alter or repair the unit.*** It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The model and serial number of the problem unit.
- The nature and duration of the problem.
- When the problem occurs.
- Any particular application that, when used, appears to create the problem or make it worse.

Shipping and Packaging

If you need to transport or ship your Power View:

- Package it carefully. We recommend that you use the original container.
- If you are returning the unit, make sure you include everything you received with it. Before you ship for return or repair, contact Black Box to get a Return Materials Authorization (RMA) number.



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