

# Instruction Manual Rack Power Distribution Unit

7M, 7N, 7S, 7T and 7W Series  
**Firmware Version 3.12.7**

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## **Specifications**

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### **Overview**

The 7M, 7N, 7S, 7T and 7W series units are rack level PDUs with circuit monitoring via a built-in web server. In the 7M series, built-in sensors monitor Voltage, Current, instantaneous and cumulative Power, as well as calculated Power Factor. The 7S series units have all these sensors plus outlet level switching, while 7W series units are the same as the 7S with added outlet level current and power monitoring. Web pages, including graphs, are generated by the unit to monitor power and environmental conditions within the cabinet. No software other than a web browser is required for operation and several data formats are available. Optional external sensors and network cameras are also available. These units can be built for installation in either Delta or Wye building wiring configurations.

### **Environmental**

#### **Temperature**

|                         |                   |                  |
|-------------------------|-------------------|------------------|
| Operating (Vertical):   | 10°C (50°F) min   | 40°C (104°F) max |
| Operating (Horizontal): | 10°C (50°F) min   | 45°C (113°F) max |
| Storage:                | -25°C (-13°F) min | 65°C (149°F) max |

#### **Humidity**

|            |        |         |                  |
|------------|--------|---------|------------------|
| Operating: | 5% min | 95% max | (non-condensing) |
| Storage:   | 5% min | 95% max | (non-condensing) |

#### **Elevation**

|            |                |                        |
|------------|----------------|------------------------|
| Operating: | 0 m (0 ft) min | 2000 m (6561 ft) max   |
| Storage:   | 0 m (0 ft) min | 15240 m (50000 ft) max |

### **Electrical**

See nameplate for unit ratings.

### **Receptacle Ratings**

|                      |  |
|----------------------|--|
| NEMA 5-15R or L5-15R | 125 Volts, 15 Amp                          |
| NEMA 5-20R or L5-20R | 125 Volts, 20 Amp                          |
| NEMA 6-20R or L6-20R | 250 Volts, 20 Amp                          |
| NEMA L5-30R          | 125 Volts, 30 Amp                          |
| NEMA L6-30R          | 250 Volts, 30 Amp                          |
| NEMA L15-30R         | 250 Volts (3 phase), 30 Amp                |
| IEC-320 C13          | 125/250 Volt, 15 Amp (per Receptacle Bank) |
| IEC-320 C19          | 125/250 Volt, 20 Amp                       |

### **Networking**

#### **Protocols**

HTTP, HTTPS (SSL/TLS), SMTP, POP3, ICMP, DHCP, TCP/IP, NTP, Telnet, Syslog

**Ethernet Link Speed**

10 MBit; half-duplex

**Data Formats**

HTML, SNMP, CSV/Plain Text, XML

**EMC Verification**

This Class A device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

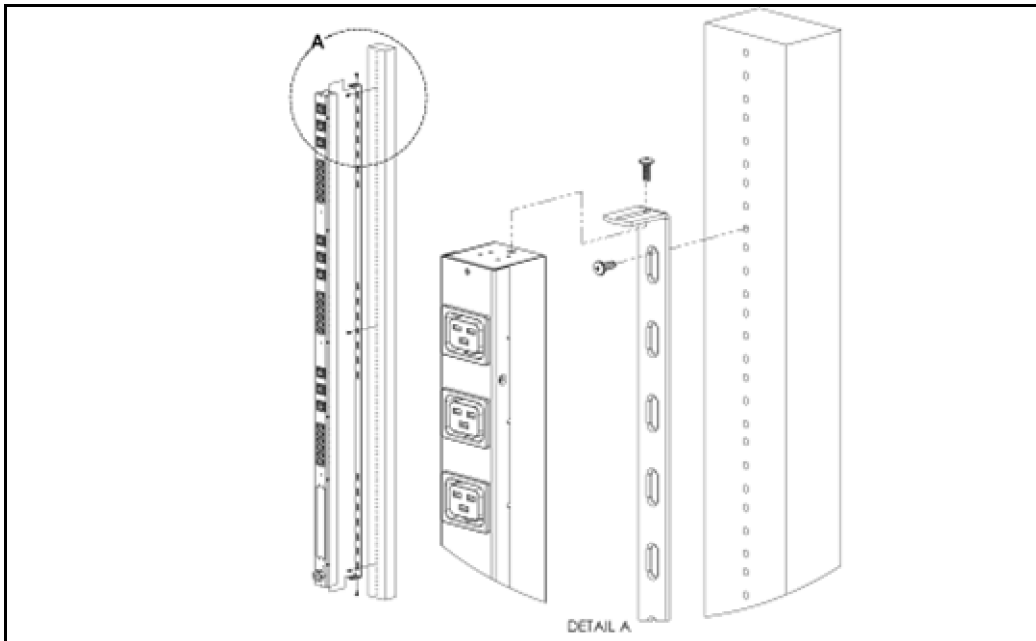
## Installation

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### Guidelines

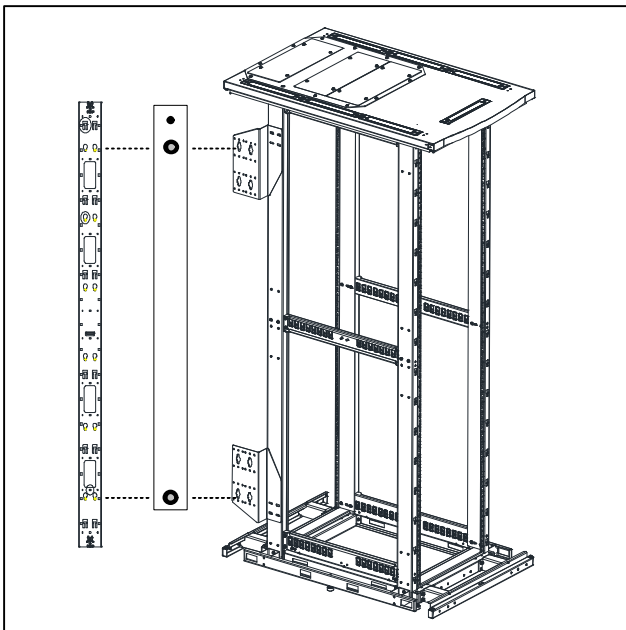
- If the PDU is installed in a cabinet the ambient temperature of the rack should be no greater than the PDU's maximum rated operating temperature.
- Install the PDU such that the amount of airflow required for safe operation of equipment is not compromised.
- Mount the PDU so that a hazardous condition is not achieved due to uneven mechanical loading.
- Follow nameplate ratings when connecting equipment to the branch circuit. Take into consideration the effect that overloading of the circuits might have on over-current protection and supply wiring.
- The PDU relies on the building installation for protection from over-current conditions. A Listed circuit breaker is required within the building installation. The circuit breaker should be sized according to the PDU's nameplate ratings and local/national electrical codes.
- Reliable earthing of rack-mount equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit. The PDU must be connected to an earthed socket-outlet.
- The PDU is intended for Restricted Access Locations only and only service personnel should install and access the PDU.
- For pluggable equipment, install the PDU so that the input plug or appliance coupler may be disconnected for service.
- Sequential power-up via Power-On Actions of devices powered by the PDU is recommended to avoid high inrush current. See Power-On Actions (page 38) for details.
- **Caution:** Disconnect all power cords before servicing.

## **Mounting**



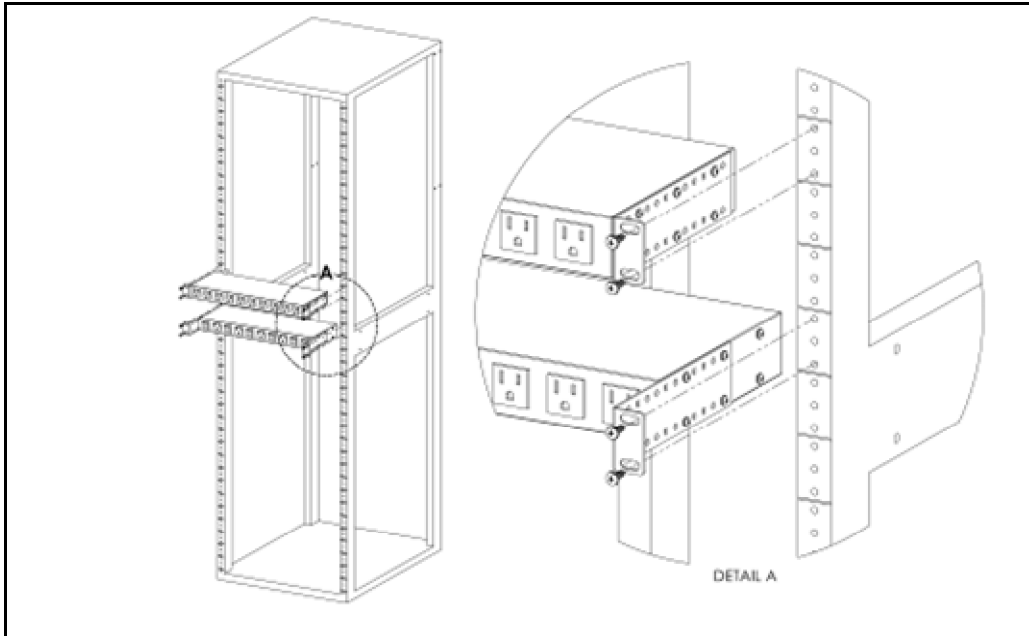
**Figure 1: Full Length Bracket**

Using the full length bracket, mount PDU to rack as shown



**Figure 2: Toolless Mounting Hardware**

Secure toolless mounting buttons to PDU as shown. Use toolless buttons with key-holed slots built into cabinet or with optional Siemon PDU brackets (V-PDU & VP-PDU-002 shown).



**Figure 3: Adjustable Mount Brackets**

Using adjustable mount brackets, attach PDU to rack as shown

## **Network Overview**

This product comes preconfigured with a default IP address set. Simply connect to the PDU and access the web page with your browser.

## **Default IP Address**

7M, 7N, 7S and 7W units have a default IP address for initial setup and access to the unit if the assigned address is lost or forgotten. Once an IP address is assigned to a unit, the default IP address is no longer active. To restore the default IP address, press and hold the reset button located below the network connector for 20 seconds while the unit is powered up. The Idle and Activity lights next to the network connector will both light up when the IP address has been reset. The reset button is accessed through the white, circular hole located below the Ethernet jack.

**Note:** Pressing the reset button under the network connector will restore the default IP address and will also clear all password settings.



The Configuration page allows you to assign the network properties or use DHCP to connect to your network. Access to the unit requires the IP address to be known, so use of a Static IP or reserved DHCP is recommended. The default address is shown on the front of the unit:

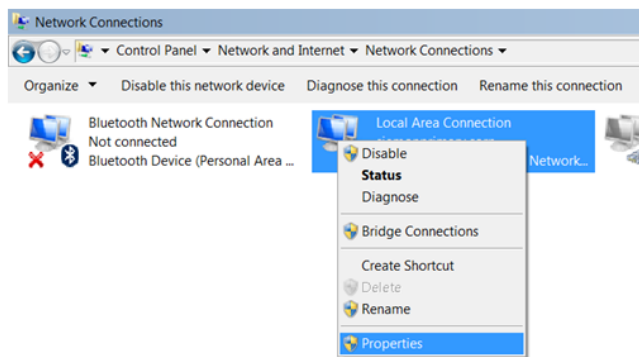
- **IP Address:** 192.168.123.123
- **Subnet Mask:** 255.255.255.0
- **Gateway:** 192.168.123.1

## **Initial Setup**

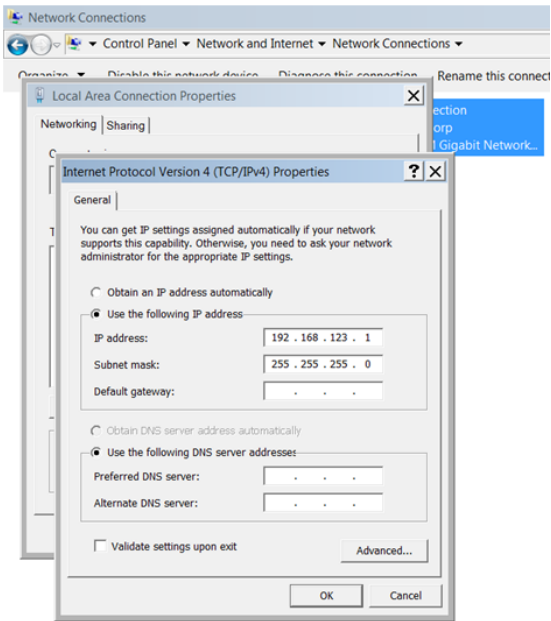
Connect the 7M, 7N, 7S or 7W series unit to your computer using a crossover cable or hub/switch.

### **Windows 7**

On your computer, go to "Start > Settings > Control Panel > Network & Sharing Center"  
Right click on "Local Area Connection" and select "Properties"



Change IP address and Subnet Mask as shown below:



## Windows XP

On your computer, go to "Start > Settings > Control Panel > Network and Dial Up Connections"

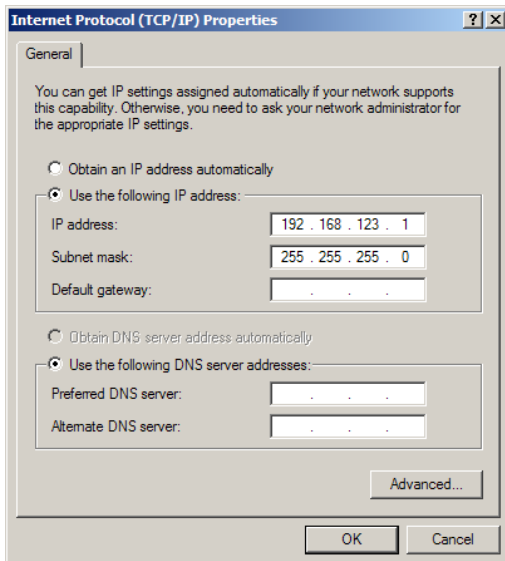
Right click on "Local Area Connection" and select "Properties"

Select "Use the following IP address". Use these settings:

- **IP Address:** 192.168.123.1
- **Subnet Mask:** 255.255.255.0
- **Gateway:** Leave blank

Click "OK" twice.

The unit should now be accessible in a web browser via the unit's permanent IP address: <http://192.168.123.123/>. See Unit Configuration (page 27) for details.



**Figure 4: Windows XP network settings for initial setup.**

## **MacOS X 10.5 and 10.6**

Open System Preferences via the Dock or the Apple menu.

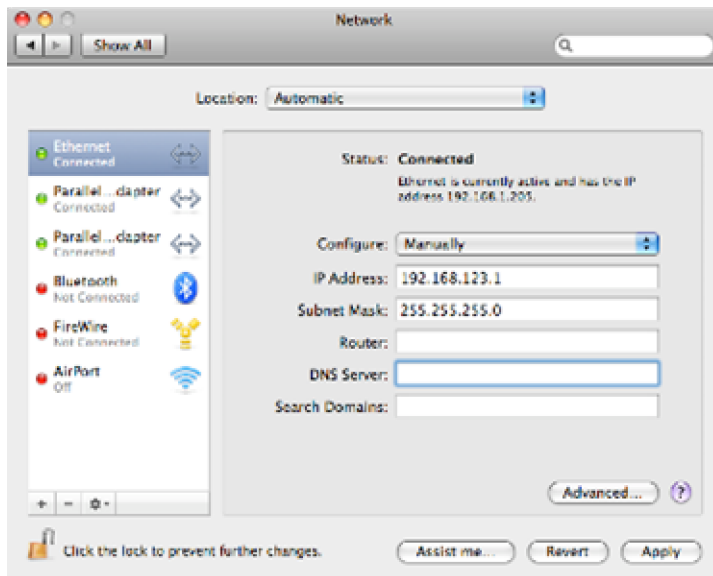
Select "Network" under "Internet & Network."

Select "Ethernet" from the list on the left side of the window and enter these settings on the right side of the window:

- **Configure:** Manually
- **IP Address:** 192.168.123.1
- **Subnet Mask:** 255.255.255.0
- **Router:** Leave blank

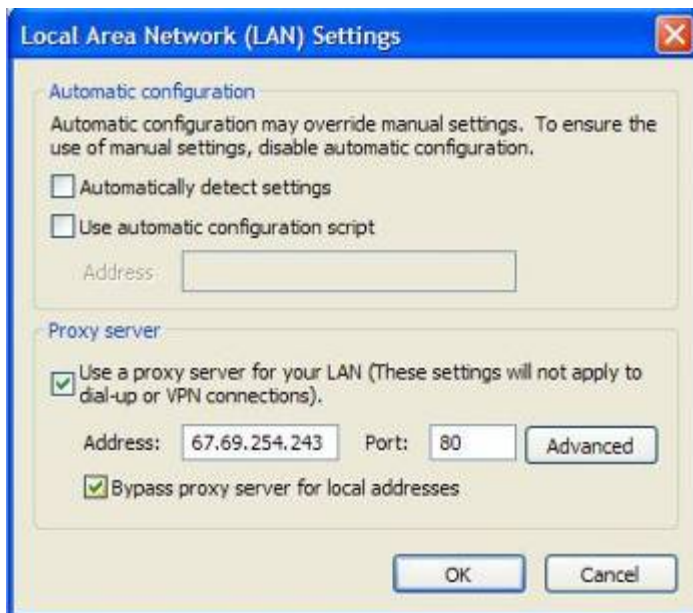
Hit "Apply" and confirm the changes.

The unit should now be accessible in a web browser via the unit's permanent IP address: <http://192.168.123.123/>. See Unit Configuration (page 26) for details.



**Figure 5: MacOS X network settings for initial setup**

**Note:** Problems connecting to the local PDUs may be caused by the use of proxy servers. Turn off "Use a proxy server for your LAN" or select "Bypass proxy server for local addresses" under your web browser's LAN settings.



**Figure 6: Internet Explorer's LAN Settings for selecting proxy settings**

## Web Interface

### Overview

The unit is accessible via a standard, unencrypted HTTP connection as well as an encrypted HTTPS (SSL) connection. The following web pages are available:

### Sensors Page

The front page, *Sensors*, gives both instantaneous and historical views of the unit's data. Real time readings are provided for all power strip data, outlet group data (7W only), and sensor data next to historical graphs.

For units configured for Wye wiring all readings are based on the line currents; A, B, C.

For units configured for Delta wiring current readings are based on input line current (A, B, C). All other readings (Voltage, Real/Apparent Power, Power Factor and kWatt-Hours) are based on the Phase-to-Phase Load (AB, BC, CA).

Optional cameras may be added and their live snapshots are shown on this page. Plug-and-play sensors appear below the internal sensors when attached.

The menu bar allows access to the rest of the PDU's functionality. Alternate formats for the real-time data can be downloaded in PDA, XML and SNMP formats, and historical data is available in PDA format.

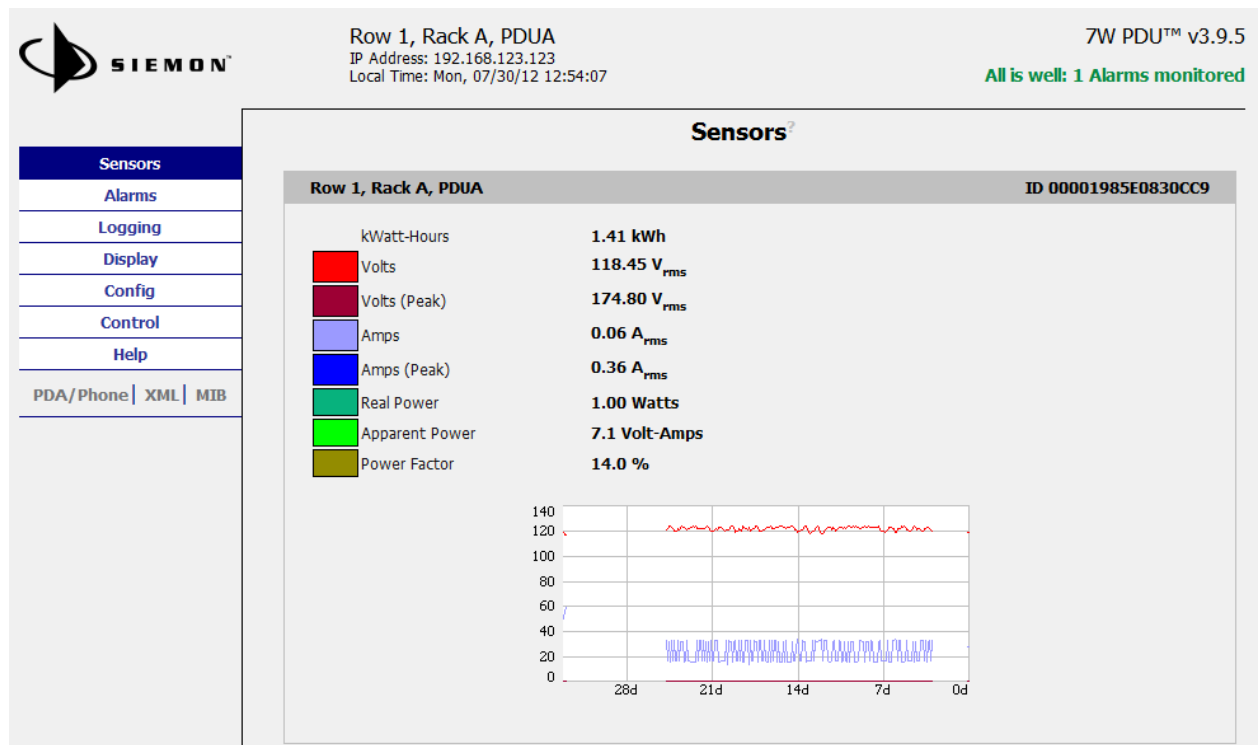


Figure 7: Sensors Page – Wye Configuration

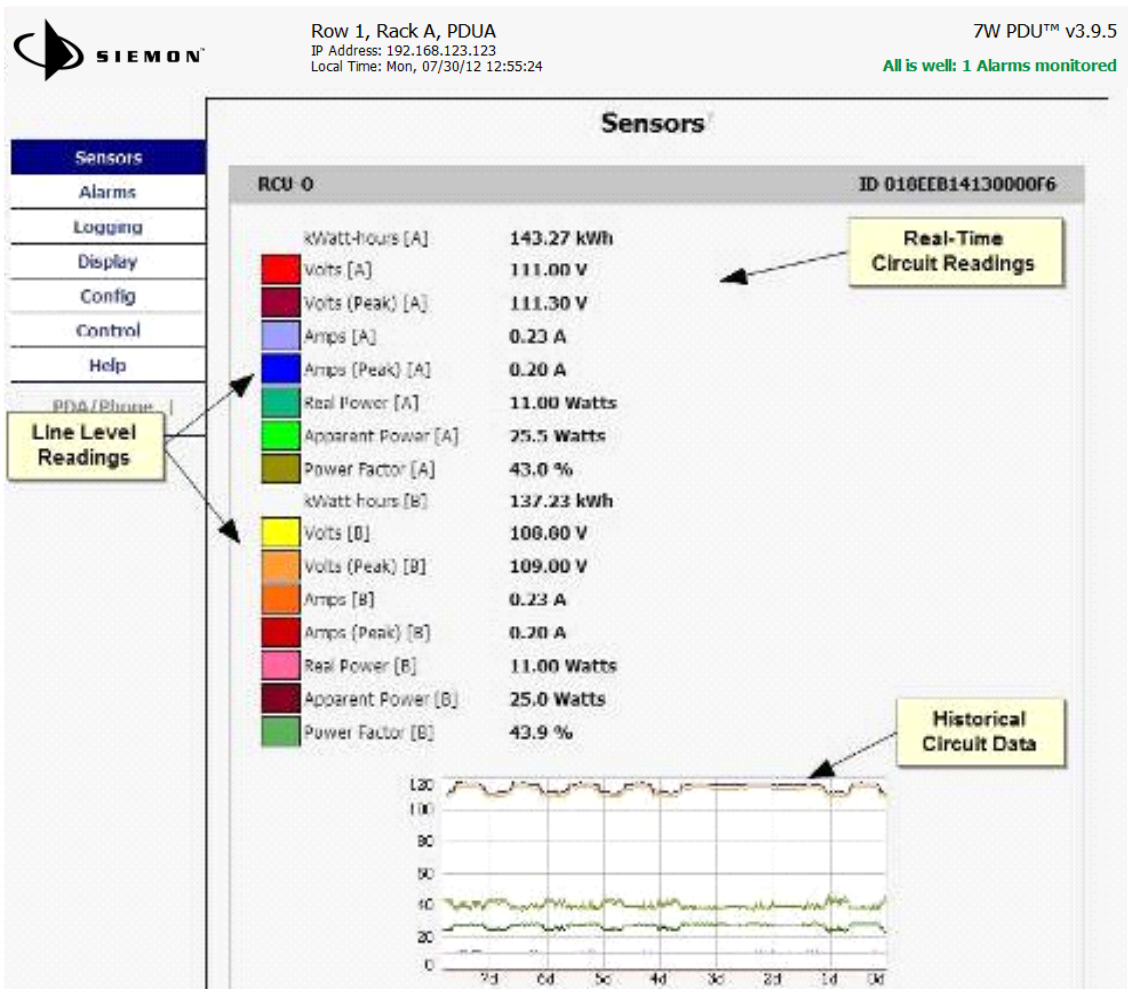


Figure 8: Sensors Page – Delta Configuration

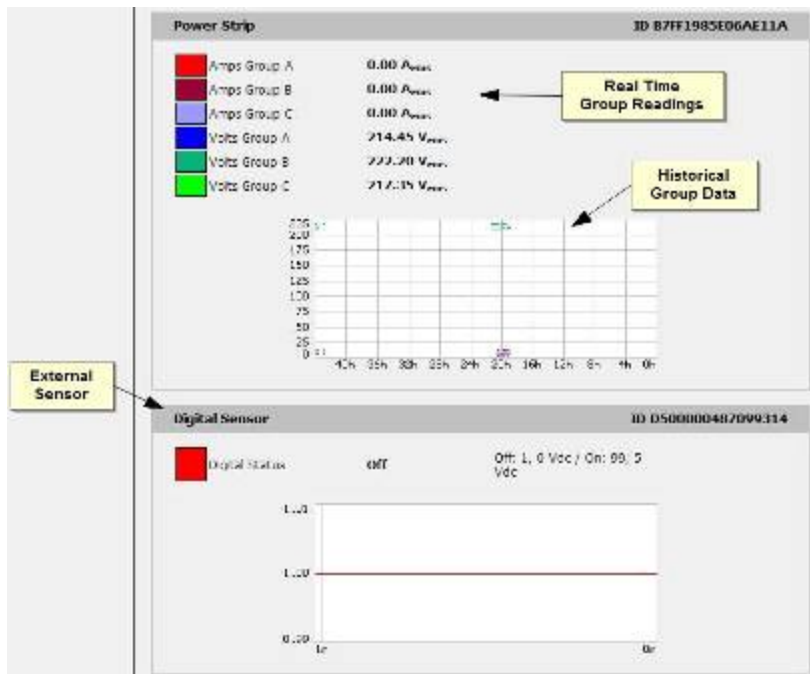


Figure 9: Sensors Page – Group and Sensor Data

## **Logging Page**

The *Logging* page allows the user to access the historical data by selecting the desired sensors and time range to be logged. The Sensor Measurement Data Graph section contains check boxes which allow the user to select which readings are to be graphed on the Logging page and/or displayed on the internal LCD.

The "Logging Control" allows users to select between different modes of logging data.

- **Normal:** Data logged once per minute into data log file.
- **High-water Mark:** High value logged each minute into the data log file.
- **Low-water Mark:** Low value logged each minute into the data log file.
- **Logging Off**

The data will be logged into the data file at a rate of one point per minute and will be available for graphing and display. Please note that although data is logged once per minute, all sensor data used in the real time display and alarm functions is read at least once every 15 seconds for internal sensors and once every 30 seconds for external sensors. Recorded data is available for download in a comma-separated values (CSV) file. To reset the logs click the "Reset Logs" check box and save the changes.



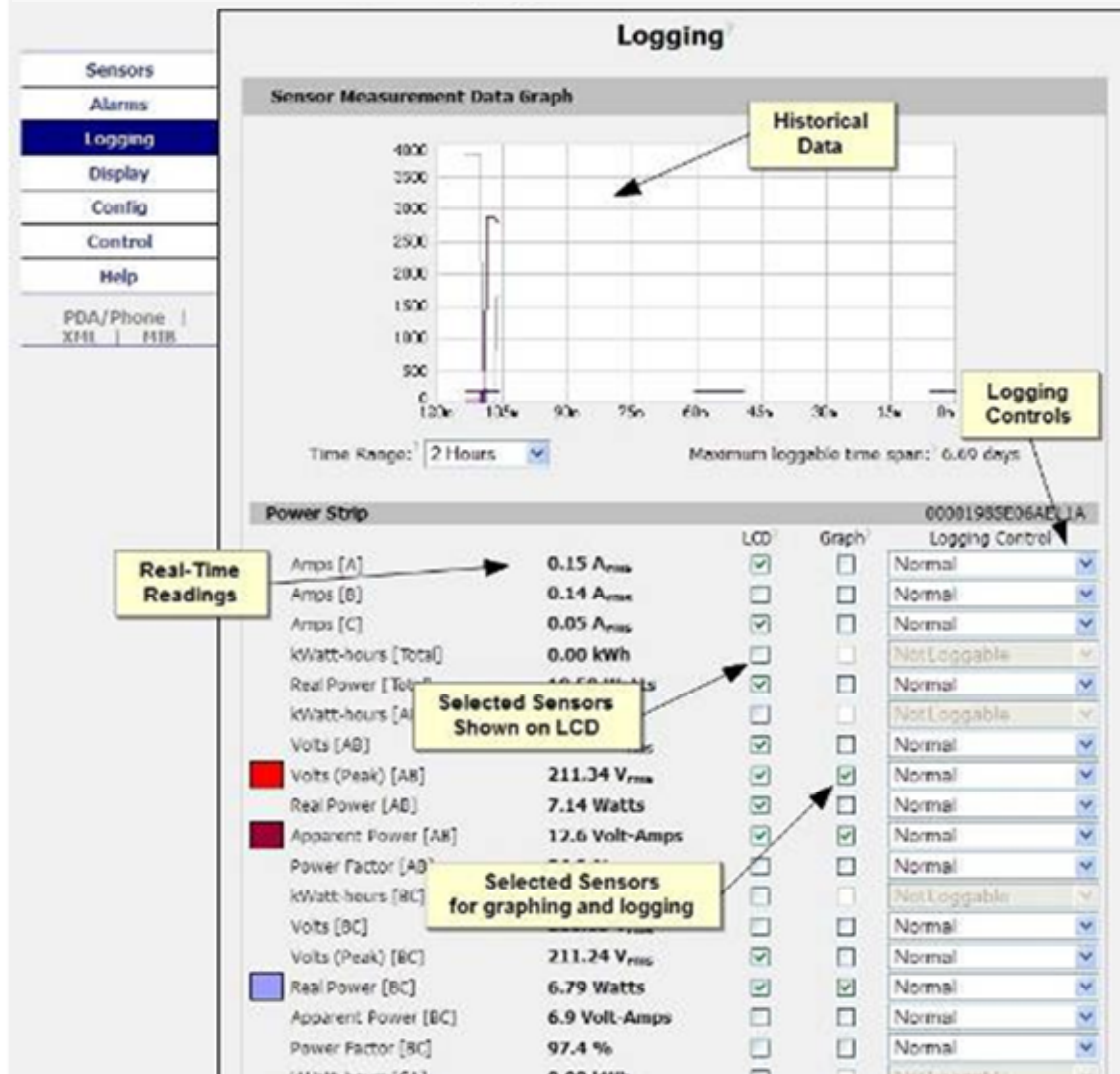


Figure 10: Logging Page

## Display Page

The *Display* page allows the user to assign friendly names to attached sensors, change the default unit of measure for all temperature sensors, and change what is scrolling on the LCD display (Measurements or Alarms). The display page also allows the user to select between the default and classic web page layouts. The default interface displays a vertical menu bar to the left of the main window (shown in Figure 11), while the classic interface displays a horizontal menu bar across the top of the screen.

SIEMON

Row 1, Rack A, PDU A  
IP Address: 192.168.123.123  
Local Time: Mon, 07/30/12 12:55:24

7W PDU™ v3.9.5  
All is well: 1 Alarms monitored

**Display**

**General**

Default Language: English  
Date Format: USA (MM/DD/YY)  
Temperature Unit: Fahrenheit  
Interface Type: Default  
Scroll on LCD: Measurements  
Save Changes

**Devices**

| Unique Address   | Device Type   | Friendly Name  |
|------------------|---------------|----------------|
| 00001985E06AE11A | ctrl3ChDELTA  | Power Strip    |
| 87FF1985E06AE11A | ctrlGrpAmps   | Power Strip    |
| D500000487099314 | digitalSensor | Digital Sensor |

☐ Remove all unplugged devices  
Save Changes

Setting Friendly Names

Figure 11: Display Page

## Alarms Page

The *Alarms* page allows the user to establish alarm conditions for each sensor reading. Alarm conditions can be established with either high or low trip thresholds. The alarms are displayed in different sections based on the device the alarm is associated with. Alarm options include a local Buzzer, Email and SNMP Trap. See Alarms (page 35) for more details.

The screenshot displays the SIEMON Alarms configuration page. At the top, the header includes the SIEMON logo, device information (Row 1, Rack A, PDU A; IP Address: 192.168.123.123; Local Time: Mon, 07/30/12 12:55:24), and version (7W PDU™ v3.9.5). A status bar indicates "All is well: 1 Alarms monitored".

The left sidebar contains navigation links: Sensors, Alarms (selected), Logging, Display, Config, Control, and Help. Below these are links for PDA/Phone, XML, and MIB.

The main content area is titled "Alarms" and is divided into sections:

- RCM-O Demo** (ID 010E836A1300000A):
  - Alarm Type**: A yellow box with an arrow pointing to the "E-mail" section.
  - Trip Type**: A yellow box with an arrow pointing to the "Amps [A]" dropdown.
  - Alarm Threshold**: A yellow box with an arrow pointing to the "threshold:" input field.
  - Configuration: "Amps [A]" dropdown, "trips if" set to "Above", "threshold:" set to "3.0".
  - Notification: "Alarm must remain tripped for" set to "1 (min)", "Repeat every:" set to "No Repeat".
  - E-mail**: A list of email addresses with checkboxes. "(E-mail 2)" is checked.
  - Alarm State**: A yellow box with an arrow pointing to the "Untripped" status.
  - Buttons: "Save Changes" and "Add New Alarm".
- Temp Sensor** (ID 74000001C0E54728):
  - Button: "Add New Alarm".
- AF/HTD Sensor** (ID A30000007A345F12):
  - External Sensor Alarms**: A yellow box with an arrow pointing to this section.
  - Configuration: "Air Flow" dropdown, "trips if" set to "Below", "threshold:" set to "3.0".
  - Notification: "Alarm must remain tripped for" set to "0 (min)", "Repeat every:" set to "No Repeat".
  - E-mail**: A list of email addresses with checkboxes. "(E-mail 2)" is checked.
  - Untripped**: A green box indicating the current state.
  - Buttons: "Save Changes" and "Add New Alarm".
- Alarm Behavior**:
  - Configuration: "Unplugged Alerts:" set to "Enabled".
  - Button: "Save Changes".

Figure 12: Alarms Page

## Control Page (7S and 7W Only)

The *Control* page has two sub-tabs; *Actions* and *Settings*. See Remote Outlet Switching (page 39) for details.

### Control Actions Tab

The *Actions* tab on the *Control* page gives the user control of the outlets. Outlets can be rebooted or turned on/off with or without pre-programmed delays. The status of each outlet is also shown for verification by the user. For 7W series units, outlet readings for current, power and logged kilowatt-hours are also shown.

SIEMON

Row 1, Rack A, PDU A  
IP Address: 192.168.123.123  
Local Time: Mon, 07/30/12 12:55:24

7W PDU™ v3.9.5  
All is well: 1 Alarms monitored

### Control

RCU-O Control

Group A 214.45 V 0.00 A<sub>rms</sub>

| <input type="checkbox"/> | Outlet | Name     | Status | A <sub>rms</sub> | kWh   | Watts | URL |
|--------------------------|--------|----------|--------|------------------|-------|-------|-----|
| <input type="checkbox"/> | 1      | Outlet 1 | On     | 0.00             | 7.531 | 0     |     |
| <input type="checkbox"/> | 2      | Outlet 2 | On     | 0.00             | 0.004 | 0     |     |
| <input type="checkbox"/> | 3      | Outlet 3 | On     | 0.00             | 1.715 | 0     |     |
| <input type="checkbox"/> | 4      | Outlet 4 | On     | 0.00             | 0.000 | 0     |     |
| <input type="checkbox"/> | 5      | Outlet 5 | On     | 0.00             | 5.808 | 0     |     |
| <input type="checkbox"/> | 6      | Outlet 6 | On     | 0.00             | 0.571 | 0     |     |
| <input type="checkbox"/> | 7      | Outlet 7 | On     | 0.00             | 3.756 | 0     |     |
| <input type="checkbox"/> | 8      | Outlet 8 | On     | 0.00             | 0.000 | 0     |     |

Group B 222.50 V 0.00 A<sub>rms</sub>


| <input type="checkbox"/> | Outlet | Name      | Status | A <sub>rms</sub> | kWh   | Watts | URL |
|--------------------------|--------|-----------|--------|------------------|-------|-------|-----|
| <input type="checkbox"/> | 9      | Outlet 9  | On     | 0.00             | 5.820 | 0     |     |
| <input type="checkbox"/> | 10     | Outlet 10 | On     | 0.00             | 0.983 | 0     |     |
| <input type="checkbox"/> | 11     | Outlet 11 | On     | 0.00             | 2.534 | 0     |     |
| <input type="checkbox"/> | 12     | Outlet 12 | On     | 0.00             | 0.000 | 0     |     |
| <input type="checkbox"/> | 13     | Outlet 13 | On     | 0.00             | 0.007 | 0     |     |
| <input type="checkbox"/> | 14     | Outlet 14 | On     | 0.00             | 0.182 | 0     |     |
| <input type="checkbox"/> | 15     | Outlet 15 | On     | 0.00             | 1.402 | 0     |     |
| <input type="checkbox"/> | 16     | Outlet 16 | On     | 0.00             | 0.000 | 0     |     |

Action:

Figure 13: Control Actions Tab

## Control Settings Tab

The *Settings* tab on the *Control* page allows the user to name and define a URL for outlets in addition to setting time delays for each outlet action. Boot up status and sequential boot up options are also available. All delay settings are referenced from the trigger event. This tab also allows the user to restore factory default settings for the outlets.



Row 1, Rack A, PDU A

IP Address: 192.168.123.123

Local Time: Mon, 07/30/12 12:55:24

7W PDU™ v3.9.5

All is well: 1 Alarms monitored

Sensors

Alarms

Logging

Display

Config

Control

Actions

Settings

Help

---

PDA/Phone | XDSL | HSB

### Control

#### RCU-O Configuration

| Group A<br>Outlet | Name      | URL | Delay (seconds) |           |        | Reboot<br>Duration |
|-------------------|-----------|-----|-----------------|-----------|--------|--------------------|
|                   |           |     | Power-On        | Power-Off | Reboot |                    |
| 1                 | Outlet 1  |     | 0               | 0         | 0      | 0                  |
| 2                 | Outlet 2  |     | 0               | 0         | 0      | 0                  |
| 3                 | Outlet 3  |     | 0               | 0         | 0      | 0                  |
| 4                 | Outlet 4  |     | 0               | 0         | 0      | 0                  |
| 5                 | Outlet 5  |     | 0               | 0         | 0      | 0                  |
| 6                 | Outlet 6  |     | 0               | 0         | 0      | 0                  |
| 7                 | Outlet 7  |     | 0               | 0         | 0      | 0                  |
| 8                 | Outlet 8  |     | 0               | 0         | 0      | 0                  |
| 9                 | Outlet 9  |     | 0               | 0         | 0      | 0                  |
| 10                | Outlet 10 |     | 0               | 0         | 0      | 0                  |
| 11                | Outlet 11 |     | 0               | 0         | 0      | 0                  |
| 12                | Outlet 12 |     | 0               | 0         | 0      | 0                  |

Save Changes

#### RCU-O Power On Actions

| Outlet | Name      | Delay (seconds) | Action                |                       |                                  |
|--------|-----------|-----------------|-----------------------|-----------------------|----------------------------------|
|        |           |                 | On                    | Off                   | Last                             |
| 1      | Outlet 1  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 2      | Outlet 2  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 3      | Outlet 3  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 4      | Outlet 4  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 5      | Outlet 5  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 6      | Outlet 6  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 7      | Outlet 7  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 8      | Outlet 8  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 9      | Outlet 9  | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 10     | Outlet 10 | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 11     | Outlet 11 | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| 12     | Outlet 12 | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

Save Changes

#### RCU-O Restore Defaults

Reset ALL to Default Values

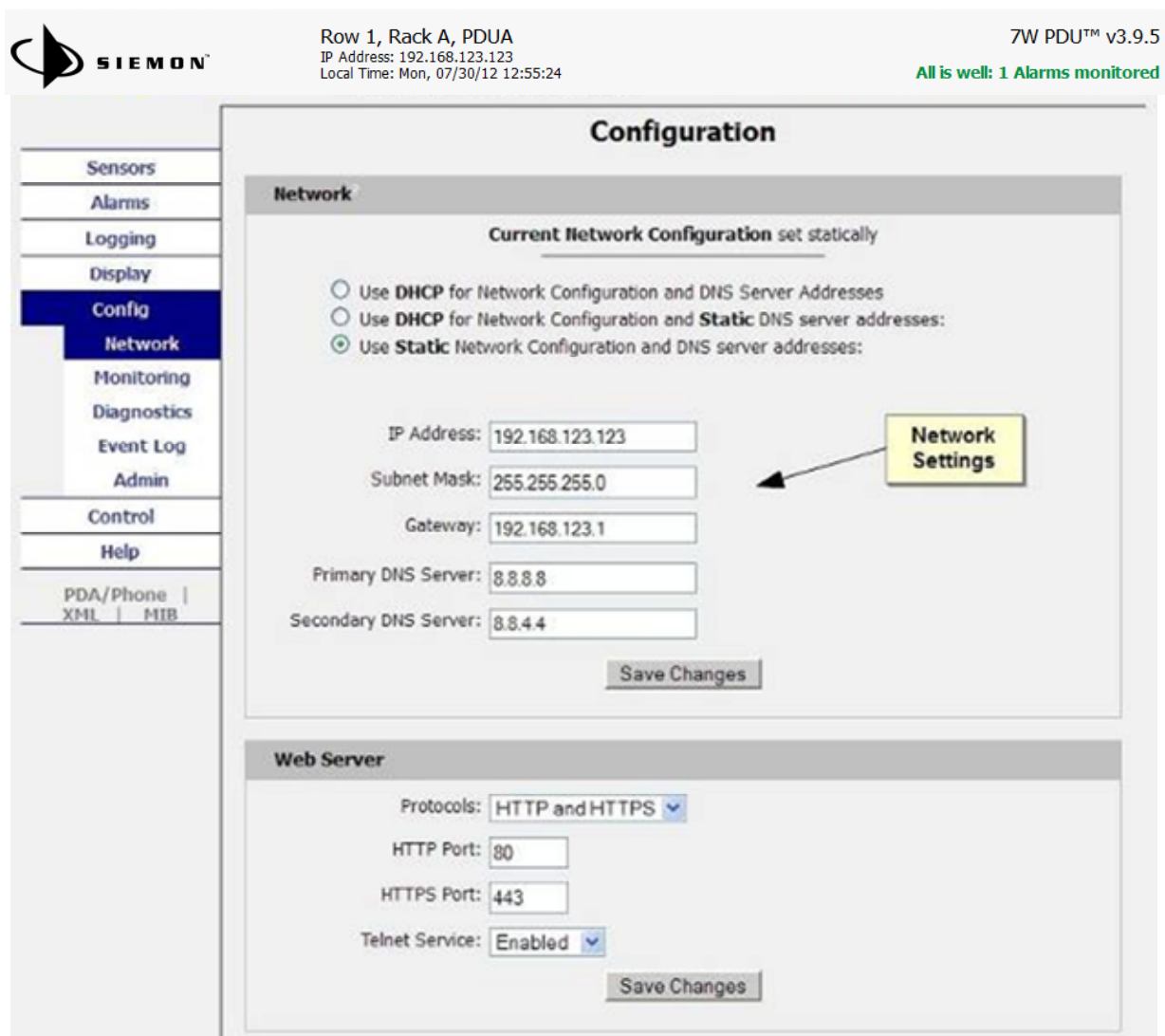
Figure 14: Control Settings Tab

## Configuration Page

The *Configuration* page has five sub-tabs; *Network*, *Monitoring*, *Diagnostics*, *Event Log*, and *Admin*. See Unit Configuration (page 27) for details.

### Configuration Network Tab

The user can enter and update the network settings on the *Network* tab of the *Configuration* page. See Unit Configuration section for details.



The screenshot displays the SIEMON Configuration page, specifically the Network tab. The top header shows the unit information: "Row 1, Rack A, PDU A", "IP Address: 192.168.123.123", "Local Time: Mon, 07/30/12 12:55:24", and "7W PDU™ v3.9.5". A status bar indicates "All is well: 1 Alarms monitored". The left sidebar contains navigation links: Sensors, Alarms, Logging, Display, Config (selected), Network (selected), Monitoring, Diagnostics, Event Log, Admin, Control, and Help. Below these are links for PDA/Phone, XML, and MIB. The main content area is titled "Configuration" and is divided into two sections: "Network" and "Web Server". The "Network" section is titled "Current Network Configuration set statically" and offers three radio button options: "Use DHCP for Network Configuration and DNS Server Addresses", "Use DHCP for Network Configuration and Static DNS server addresses:", and "Use Static Network Configuration and DNS server addresses:". The "Use Static" option is selected. Below these options are input fields for "IP Address" (192.168.123.123), "Subnet Mask" (255.255.255.0), "Gateway" (192.168.123.1), "Primary DNS Server" (8.8.8.8), and "Secondary DNS Server" (8.8.4.4). A "Save Changes" button is located at the bottom of this section. A yellow callout box labeled "Network Settings" with an arrow points to the IP Address field. The "Web Server" section is below the "Network" section and includes a "Protocols" dropdown menu set to "HTTP and HTTPS", "HTTP Port" (80), "HTTPS Port" (443), and "Telnet Service" (Enabled). A "Save Changes" button is also present at the bottom of this section.

Figure 15: Configuration Network Tab

## Configuration Monitoring Tab

The user can enter and update the email alert, SNMP, and camera settings on the *Monitoring* tab of the *Configuration* page. See Unit Configuration section for details.

[illegible]

### Figure 16: Configuration Monitoring Tab



## Configuration Diagnostics Tab

The user can update the Syslog settings on the *Diagnostics* tab of the *Configuration* page.

Row 1, Rack A, PDU A  
IP Address: 192.168.123.123  
Local Time: Mon, 07/30/12 12:55:24

7W PDU™ v3.9.5  
All is well: 1 Alarms monitored

Sensors  
Alarms  
Logging  
Display  
**Config**  
Network  
Monitoring  
**Diagnostics**  
Event Log  
Admin  
Control  
Help

PDA/Phone |  
XML | MIB

### Configuration

#### Syslog

Facility: LOCAL0

Daemon Address:port 1: 192.168.123.1514  
192.168.123.1

Save Changes

#### Syslog Configuration

| Subsystems | Severity                            |                                     |                                     |                                     |                          |                          |                          |                                     |
|------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
|            | emergency                           | alert                               | critical                            | error                               | warning                  | notice                   | inform                   | debug                               |
| os         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| hwip       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| socket     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| macphy     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| flashfl    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| webserv    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| spi0dev    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| device     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| host       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| setvars    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| dynweb     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| snmp       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| alarms     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| email      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| rtclock    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| sntp       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| dns        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| datalog    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| graphin    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| firmwar    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| msgcatlg   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |


Save Changes

Figure 17: Configuration Diagnostics Tab



## Configuration Event Log Tab

The user can view the Event Log and update the Memory Syslog settings on the *Event Log* tab of the *Configuration* page.



Row 1, Rack A, PDU A  
IP Address: 192.168.123.123  
Local Time: Mon, 07/30/12 12:55:24

7W PDU™ v3.9.5  
All is well: 1 Alarms monitored

Sensors  
Alarms  
Logging  
Display  
**Config**  
Network  
Monitoring  
Diagnostics  
Event Log  
Admin  
Control  
Help

**Configuration**  
**Memory Syslog**  
Click here to view NVM event log  
Clear NVM event log

**Memory Syslog**  

```

4/27/2011 15:48:57 setvaseiivar_init: Reading data from flash succeeded. No
4/27/2011 15:48:57 lwp rdp_input: rdp (192.168.123.255, 137) <== (192.
4/27/2011 15:48:57 lwp rdp_input:received datagram of length 60
4/27/2011 15:48:57 lwp rdp_input:ipaddr=192.168.123.255 rdp_addr
4/27/2011 15:48:57 setvaseiivar_init: size of block in flash: 20480, current
4/27/2011 15:48:57 setvaseiivar_init: Current firmware rev [943], data in f
4/27/2011 15:48:57 setvaseiivar_init: token_read[VARS BLOCK HERE], from ad
4/27/2011 15:48:57 setvaseiivar_netsack_push: secondary dns address set to
4/27/2011 15:48:57 setvaseiivar_netsack_push: primary dns address set to 0
4/27/2011 15:48:57 setvaseiivar_netsack_push: gateway set to 192.168.123.1
4/27/2011 15:48:57 setvaseiivar_netsack_push: netmask set to 255.255.255.0
4/27/2011 15:48:57 setvaseiivar_netsack_push: IP address set to 192.168.12
4/27/2011 15:48:57 socket sock_status IP to 192.168.123.123
4/27/2011 15:48:57 setvaseiivar_netsack_push: DHCP status set to 0.
4/27/2011 15:48:57 setvaseiivar_netsack_push: MAC address was set to C0:1B
4/27/2011 15:48:57 setvaseiivar_netsack_push: secondary dns address set to
4/27/2011 15:48:57 setvaseiivar_netsack_push: primary dns address set to 0
4/27/2011 15:48:57 setvaseiivar_netsack_push: gateway set to 0.0.0.0.
4/27/2011 15:48:57 setvaseiivar_netsack_push: netmask set to 0.0.0.0.
4/27/2011 15:48:57 setvaseiivar_netsack_push: IP address set to 0.0.0.0.

```

**Memory Syslog**  

| Subsystems | Severity                 |                          |                          |                          |                          |                          |                          |                          |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|            | emergency                | alert                    | critical                 | error                    | warning                  | notice                   | info                     | debug                    |
| net        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| lwp        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| socket     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| macphy     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| flashf     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| webserv    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| spiddev    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| device     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| host       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| ethvar     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| dynamdb    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| snmp       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| alarmo     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| email      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| rtclock    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| snip       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| dim        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| datalog    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| graphin    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| firmwar    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| mcgratig   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

e-mail  ☐ Send logs now

Save Changes

Figure 18: Configuration Event Log Tab

## Configuration Admin Tab

The user can set the system clock and administrative information on this tab. Additionally, the user can set administrator and account passwords. See Unit Configuration section for details.

[illegible]

### Figure 19: Configuration Admin Tab

## Unit Configuration

### Network Configuration

The unit's network configuration is set on the *Network* tab of the *Configuration* page. Settings pertaining to the unit's network connection are:

The screenshot displays the 'Network' configuration tab. At the top, it states 'Current Network Configuration set statically'. Below this, there are three radio button options: 'Use DHCP for Network Configuration and DNS Server Addresses', 'Use DHCP for Network Configuration and Static DNS server addresses:', and 'Use Static Network Configuration and DNS server addresses:'. The third option is selected. Below the radio buttons are input fields for 'IP Address' (76.79.48.112), 'Subnet Mask' (255.255.255.224), 'Gateway' (76.79.48.97), 'Primary DNS Server' (208.67.222.222), and 'Secondary DNS Server' (208.67.222.220). A 'Save Changes' button is located at the bottom of the network section. Below the network section is the 'Web Server' section, which includes a 'Protocols' dropdown menu set to 'HTTP and HTTPS', 'HTTP Port' (80), 'HTTPS Port' (443), and 'Telnet Service' (Enabled). A 'Save Changes' button is also present at the bottom of the web server section. At the very bottom of the page, there are language links for 'English' and 'Español'.

**Figure 20: Network Configuration**

- **DHCP:** Allows the unit to request a dynamic IP address from a server on the network.
- **Static IP Address/Net Mask/Gateway:** When not using a dynamic address, enter static network configuration information here.

**Telnet Service:** Enable or disable the built-in Telnet server. See

- Telnet (page 31) for details.
- **HTTP Services:** Enables/disables access via HTTP and HTTPS. Available options are: HTTP and HTTPS, HTTP only, and HTTPS only. It is not possible to disable the web interface completely.
- **HTTP/HTTPS Server Port:** Changes the TCP port that each server listens on.
- **DNS Servers:** Allows the unit to resolve host names for Email, NTP and SNMP servers as well as cameras.

## Time and Date

The system clock is set on the *Admin* tab of the *Configuration* page. The unit comes preconfigured with the IP addresses of two NIST time servers and is set to the Central Time Zone (-0500 GMT). Should a local time server be preferred, select "NTP Server" from the "Set Clock method" drop-down menu, enter its IP address into the "NTP primary server" box and click "Save Changes". Clearing the time server addresses and clicking "Save Changes" will set the time servers back to the defaults. The unit attempts to contact the time servers during boot up and periodically while running. Until a time server is contacted or the system clock is manually set, all log time stamps will present time as the number of seconds since the unit was powered up and graphs will not be shown.

The clock can also be setup to automatically change for Daylight Savings Time when needed. When enabled, the user can select the dates and times for the clocks to adjust.

**Note:** Enabling automatic DST or setting the time zone offset forward and backward will cause a gap or overwriting of logs.

The image shows two configuration panels. The top panel, titled "System Clock, set to GMT", has a "Set Clock method:" dropdown menu set to "Manual - GMT". Below it is a text field for "GMT to local, (+/-)hh:mm" with the value "-05:00". There are six input fields for date and time: "Month" (05), "Day" (05), "Year" (11 with "(yy)" below it), "Hour" (14 with "(0-23)" below it), "Minute" (48 with "(0-59)" below it), and "Second" (01 with "(0-59)" below it). A "Save Changes" button is at the bottom. The bottom panel, titled "Daylight Saving Time", has a sub-header "Operating in: Daylight Saving Time". It features an "Enable DST:" dropdown menu set to "Enabled". Below are "DST Start:" and "DST End:" settings. "DST Start:" is set to "2nd", "Sun", "in Mar", "at 00:00". "DST End:" is set to "1st", "Sun", "in Dec", "at 00:00". A "Save Changes" button is at the bottom.

**Figure 21: Manual Time Settings**

The image shows the "System Clock, set to GMT" configuration panel. The "Set Clock method:" dropdown menu is set to "NTP Server". Below it is the same "GMT to local, (+/-)hh:mm" text field with the value "-05:00". There are two IP address input fields: "NTP primary server" with the value "192.43.244.18" and "NTP secondary server" with the value "129.6.15.28". Below these is a "Sync to NTP server period (seconds)" input field with the value "1800". A "Save Changes" button is at the bottom.

**Figure 22: NTP Time Settings**

The time, date, IP address and friendly name of the unit are displayed at the top of each web page.

## **E-Mail/ Business Hours**

The e-mail and business hours configuration are set on the *Monitoring* tab of the *Configuration* page. The unit is capable of sending e-mail to as many as five addresses at once. Most SMTP and ESMTP servers are compatible. Authentication options are None, POP3 (POP-before-SMTP) or ESMTP. The unit can be configured to send alarm emails always, only during business hours or only after hours by selecting the desired option next to each email address.

The screenshot displays two configuration sections: 'E-mail' and 'Business Hours'.

**E-mail Configuration:**

- Protocols:** A dropdown menu set to 'ESMTP/TLS/SSL'.
- SMTP Server:** An empty text input field.
- SMTP Port:** A text input field containing '25'.
- "From" E-mail Address:** An empty text input field.
- Username:** An empty text input field.
- Password:** An empty text input field.
- Send alarms to this recipient:** A table with five rows for email addresses and four columns for sending options: 'Always', 'Business Hours', 'After Hours', and 'SMS'.

|                      | Always                           | Business Hours        | After Hours           | SMS                      |
|----------------------|----------------------------------|-----------------------|-----------------------|--------------------------|
| To E-mail Address 1: | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> |
| To E-mail Address 2: | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> |
| To E-mail Address 3: | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> |
| To E-mail Address 4: | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> |
| To E-mail Address 5: | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="checkbox"/> |

Buttons: 'Save Changes' and 'Send Test E-Mail'.

**Business Hours Configuration:**

- Start Time:** A time selection field set to '09:00'.
- End Time:** A time selection field set to '17:00'.
- Week Days:** A row of checkboxes for each day of the week: Sun, Mon, Tue, Wed, Thu, Fri, Sat. The checkboxes for Mon, Tue, Wed, Thu, and Fri are checked.

Button: 'Save Changes'.

**Figure 23: E-Mail Configuration**

An SMTP server as well as "From" and "To" addresses are required to send e-mails. Some mail servers may require a username and password. In most cases, the username does not have to match the "From" address, but does need to be a valid user on the authenticating server. Microsoft Exchange servers will have to be set to allow SMTP relay from the IP address of the

unit. In addition, a test email can be sent from the bottom of the *Monitoring* tab of the *Configuration* page.

**Note:** The unit cannot receive e-mails. The POP3 server is used strictly for authentication and is not required when the protocol is set to ESMTP or None.

## Status Reports

When enabled, the unit will periodically send a full status report to all “To” e-mail addresses selected for the report. The report includes current unit data from all attached sensors as well as alarm states. Reporting frequency options are: weekly, hourly, every 2, 3, 4, 6, 8, 12, 24, or 48 hours. E-mail addresses are selected when the report is created by checking the corresponding e-mail destination box. Allowing the cursor to hover over an e-mail destination box will display the e-mail address that the box is associated with.

The screenshot shows the 'System Status E-Mail Reports' configuration interface. It includes fields for 'Report Time' with 'hour' and 'min' spinners (both set to 00), a 'Report Period' dropdown menu (set to '24 hours'), and five checkboxes for 'E-mail Destinations'. A 'Delete This Report' checkbox is also present. At the bottom are 'Save Changes' and 'Add New Report' buttons.

Figure 24: Email Report Settings

## SNMP

The unit supports retrieval of all data via Simple Network Management Protocol (SNMP) v1, v2c, and v3. In addition, alarm traps can be sent to up to two IP addresses. The SNMP configuration is entered on the *Monitoring* tab of the *Configuration* page.

The screenshot shows the 'SNMP' configuration page. It includes a 'SNMP Service' dropdown (set to 'Enabled'), 'Temperature Precision' (set to '1x degree C/F'), 'Read Community' (set to 'public'), 'Listen port for GET' (set to '161'), 'Trap Community' (set to 'private'), 'Write Community' (set to 'private'), 'Trap Type' (set to 'V1 Trap'), and two 'Trap IP Address:port' fields (both set to '192.168.123.1:162'). There are 'Save Changes' and 'Send Test SNMP Trap' buttons at the bottom.

Figure 25: SNMP Configuration

The screenshot shows the 'Initial SNMPV3 data' configuration page. It includes fields for 'Unauthenticated User' (set to 'initial'), 'Authenticated Manager' (set to 'manager'), 'Manager Authentication Password' (set to '12345678'), 'Manager Privacy Password' (set to '12345678'), 'Trap User' (set to 'Trap'), 'Trap Authentication Password' (set to '12345678'), and 'Trap Privacy Password' (set to '12345678'). There is a 'Save Changes' button at the bottom. A note at the bottom states: 'Reset User/Access NVRAM will occur during the finish page.'

Figure 26: Initial SNMP V3 Data

The default community string is “public” and the MIB is downloadable via a link on the web pages menu bar.

## Accounts and Passwords

The 7M, 7N, 7S and 7W offer account security options that are entered on the *Admin* tab of the *Configuration* page. There are three levels of account security:

- **Administrator:** Password protects the Display, Alarms and Configuration pages along with protecting the Telnet and Serial access.
- **Control Access:** Password protects the Control Actions and Control Settings pages.
- **View-Only:** Password protects the Sensors, PDA, WAP and XML pages.

**Name and Password Configuration**

NOTE 1: If Account currently has a password, leaving Old Password blank results in no changes to that account.  
 NOTE 2: Administrator password may be used in the Old Password field of any account.  
 NOTE 3: If setting New Password to blank, Account Name must also be blank.  
 NOTE 4: If New Password is not blank, Account Name must not be blank.

Administrator Account Name

If blank, all access is granted without a password.

Old Password

New Password

New Password Again  (again, to confirm)

Warning: Record your password. Loss of password may require 48 hours to recover.

Control Account Name

If blank, Control and View Only access is granted without a password.

Old Password

New Password

New Password Again  (again, to confirm)

Warning: Record your password. Loss of password may require 48 hours to recover.

View Only Account Name

If blank, View access is granted without a password.

Old Password

New Password

New Password Again  (again, to confirm)

Warning: Record your password. Loss of password may require 48 hours to recover.

**Figure 27: Account Configuration**

User account names may include alphanumeric characters, spaces and underscores. Passwords may include alphanumeric characters and underscores.

**Note:** The Administrator account must be active to enable the Control Access and View-Only accounts.

**Note:** The Control Access account must be active to enable the View-Only account.

**Note:** The account names "root" and "admin" are disabled for security reasons and cannot be re-enabled.

**Warning:** Record your passwords. To reset lost passwords, follow the instructions for resetting the unit's IP address and passwords given in the Default IP Address section. To generate a temporary recovery password to access the unit, contact customer service from a location where the unit can be accessed via the internet.

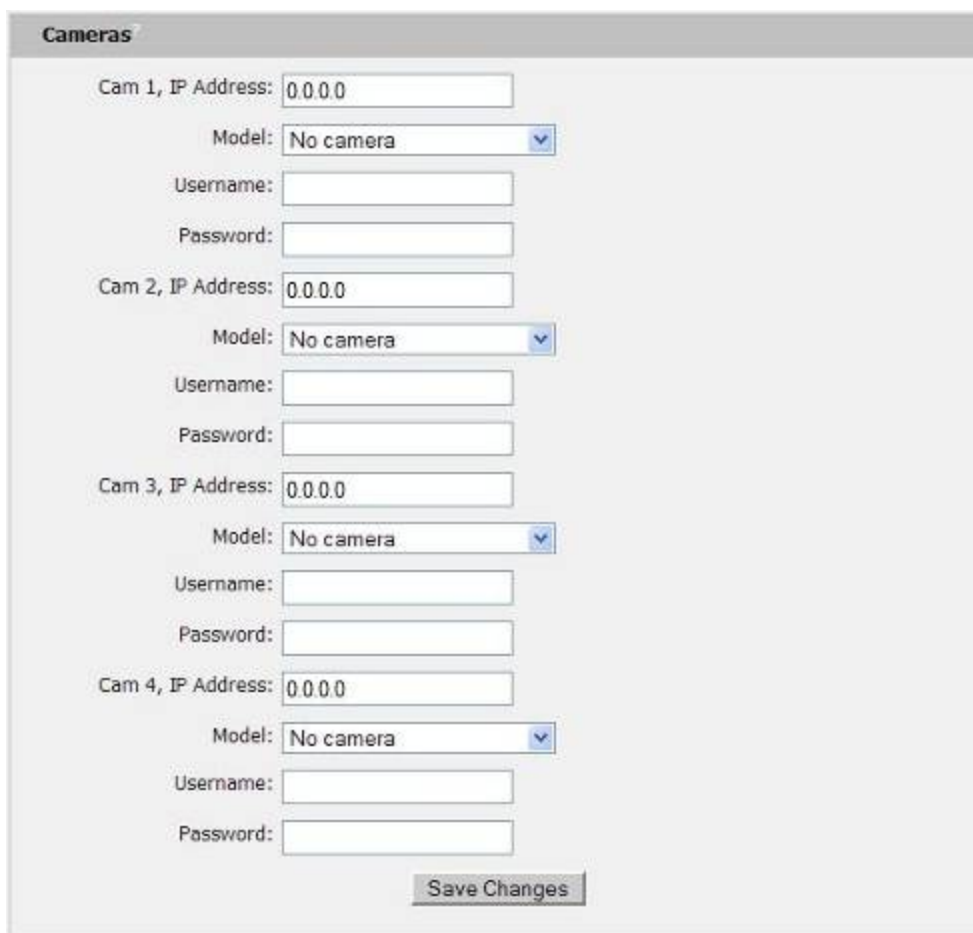
## **Telnet**

The unit provides a Telnet server for basic monitoring via the command line. The Administrator account must be enabled to use the Telnet interface. Type "help" after logging in to the unit to see a list of available commands. The Telnet service can be disabled under "Web Server" on the *Network* tab of the *Configuration* page.

**Note:** All data sent via Telnet is unencrypted. Some settings can be changed and user names and network settings are available via Telnet. In unsecure environments, it is recommended that Telnet be disabled.

## **Camera Configuration**

Enter the domain names/IP addresses and models of up to four IP-addressable network cameras in the "Cameras" section of the *Monitoring* tab on the *Configuration* page. The unit will present a linked snapshot from each camera on the *Sensors* page.



The screenshot shows a web interface titled "Cameras" with a light gray background. It contains four identical configuration blocks for cameras, labeled "Cam 1", "Cam 2", "Cam 3", and "Cam 4". Each block has the following fields: "IP Address" (text input, default "0.0.0.0"), "Model" (dropdown menu, default "No camera"), "Username" (text input), and "Password" (text input). At the bottom right of the form is a "Save Changes" button.

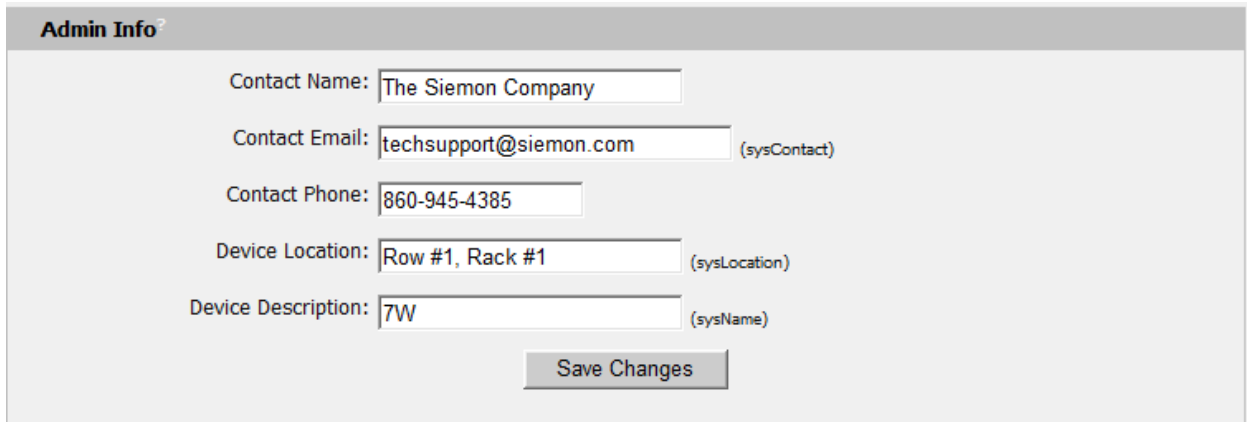
**Figure 28: Configuration and Supported Models**

**Note:** Each camera must be set to allow anonymous access to enable this feature.

## **Admin Information**



Information entered in the "Admin Info" section of the *Admin* tab of the *Configuration* page will show up at the bottom of the unit's web interface.



**Admin Info**

Contact Name:

Contact Email:  (sysContact)

Contact Phone:

Device Location:  (sysLocation)

Device Description:  (sysName)

**Figure 29: Admin Information Fields**

### **Kilowatt-Hours Reset**

The 7M, 7N, 7S and 7W's kilowatt-hours measurements are zeroed at the factory and can be reset at any time, should it become necessary. On the *Admin* tab of the *Configuration* page, simply hit the button that corresponds to the desired circuit to be reset.



**7W Reset KWh**

**Figure 30: Kilowatt Hours Reset**

### **XML File Backup**

The 7S, 7M, 7N or 7W unit's configuration is stored in the XML file. The XML file can be downloaded and stored in order to backup the unit's current configuration settings. On the *Admin* tab of the *Configuration* page, simply hit the Download Current XML File button to download the XML file.

A previously downloaded XML file can be uploaded to the unit in order to restore the unit's configuration to match the configuration contained in the XML file. On the *Admin* tab of the *Configuration* page, click the Upload Local XML file button to upload a local XML file.

**Note:** XML files are unit specific, and should only be uploaded to the unit that it was downloaded from.

**Saved Configuration XML File**

XML File:  [Browse...](#)

[Upload Local XML File](#)

[Download Current XML File](#)

**Figure 31: XML File Upload**

### **SSL Certificate Upload**

The unit will automatically generate a unique SSL Certificate and Private Key. Alternatively, a custom SSL Certificate and Private Key can be uploaded to the unit by pressing the "Upload SSL Files" button on the *Admin* tab of the *Configuration* page. The SSL certificate and key file must be in Distinguished Encoding Rules (DER) format. The SSL Certificate and Private Key can be cleared by clicking the "Erase SSL Data" button on the *Admin* tab of the *Configuration* page.

**SSL Certificate and Private Key**

SSL Certificate and Private Key are **INVALID**

SSL Certificate File:  [Browse...](#)

SSL Private Key File:  [Browse...](#)

[Upload SSL Files](#)

[Erase SSL Data](#)

**Figure 32: SSL Certificate and Private Key Upload**

## Alarms

---

### Alarm Notifications

The 7S, 7M, 7N and 7W support three types of alarm notification:

- **E-Mail:** The unit can be configured to send alarm e-mails to up to five recipients.
- **SNMP:** The unit can be configured to send SNMP traps to up to two trap servers.

The unit is capable of any combination of the above alarms at once. Alarm type combinations are selected per alarm via the check boxes which are displayed for each alarm on the Alarms page.

7W ID 010EB36A1300000A

Amps [A] trips if Above threshold: 3.0

Alarm must remain tripped for 1 (min) before notification?

Repeat every: No Repeat

E-mail

☒ (E-mail 1)

☐ (E-mail 2)

☐ (E-mail 3)

Untripped

Figure 33: Alarm State Menu

### Alarm Types

The 7M, 7N, 7S and 7W provide three types of alarm messages via E-Mail and SNMP:

- **Trip:** Occurs when a sensor value goes above a high trip threshold or below a low trip threshold.
- **Unplugged:** Occurs when a sensor with an alarm set loses contact with the main unit due to the sensor being physically unplugged or another communications error. Unplugged alerts can be enabled or disabled on the *Alarms* page.
- **Clear:** Occurs when a sensor already in the Tripped or Unplugged state goes back into its normal range.

Alarms can be added for each internal device or external sensor displayed on the *Alarms* page. An alarm is added by pressing the "Add New Alarm Button" and selecting the sensor value to be monitored from the drop down menu.

### Thresholds

The user must set a trip threshold and type for each alarm that is added to the *Alarms* page. The threshold type is chosen as either "Below" or "Above" from a drop down menu when the alarm is created. The threshold value is typed into a data window when the alarm is created. Alarms are triggered based on the selected sensor's data and the trip threshold type and value. Alarm settings can be edited or deleted at any time.

Analysis of each unit is recommended before setting alarm thresholds as some of the values monitored by the unit are relative values, whose scale will differ slightly between units. Allow each unit to operate under normal, steady state conditions for several hours before setting

alarm thresholds. By allowing the sensors to operate for several hours, the user can better understand what the normal variations are; thereby allowing the user to choose alarm thresholds that will not trigger numerous false alarms.

Alarms can be set to only send notification if the alarm is in a tripped state for a certain amount of time. The user sets the amount of time required by entering a value from 0-240 minutes in the text box on the *Alarms* page. Additionally, alarm notifications can be set to send multiple notifications for an alarm that remains in a tripped state. The alarm notifications are set to repeat at intervals of no repeat, 10, 30, or 60 minutes by selecting the desired option in the drop down menu on the *Alarms* page.

**Note:** Changes in settings take a few moments to become active. Rapidly resetting alarm values may not provide the desired results. Allow up to 2 minutes after changing a setting before modifying it again.

## Sensors

---

### Overview

All internal sensors are measured every 15 seconds. External sensors are measured every 15 to 30 seconds, depending on the number of devices connected. Sensor data collected by the 7M, 7N, 7S or 7W unit gives useful trend analysis data. While all values are not absolute in relation to a known unit, trend analysis of the data allows users to view changes and draw useful conclusions about what is happening over time in the monitored environment.

**Note:** DM series units are connected as sensors and collect a large amount of data. These will take longer than the usual 15 to 30 second for the 7M, 7N, 7S or 7W units to measure.

### Internal Sensors

The 7M, 7N, 7S and 7W units contain internal sensors that are configured in two different ways:

#### **Wye Configuration**

- **Total Unit**
  - Kilowatt-Hours: Cumulative sum of Real Power for all lines.
  - Real Power: Total average of instantaneous voltage and current on all lines over last 1.5 seconds.
- **Line Level (A, B, C):**
  - Kilowatt-Hours: Cumulative sum of Real Power.
  - Volts: Measures instantaneous RMS voltage.
  - Volts (Peak): Reports the highest reported voltage since the last time the data was updated, typically every 15 seconds.
  - Real Power: Average of instantaneous voltage and current over last 1.5 seconds.
  - Apparent Power: The product of instantaneous RMS Voltage and RMS Current.
  - Power Factor: The ratio of Real Power to Apparent Power.
  - Amps: Measures instantaneous RMS current.
  - Amps (Peak): Reports the highest reported current since the last time the data on the screen

#### **Delta Configuration**

- **Total Unit**
  - Kilowatt-Hours: Cumulative sum of Real Power for all lines.
  - Real Power: Total average of instantaneous voltage and current on all lines over last 1.5 seconds.
- **Phase Level (AB, BC, CA):**
  - Kilowatt-Hours: Cumulative sum of Real Power.
  - Volts: Measures instantaneous RMS voltage.
  - Volts (Peak): Reports the highest reported voltage since the last time the data was updated, typically every 15 seconds.
  - Real Power: Average of instantaneous voltage and current over last 1.5 seconds.
  - Apparent Power: The product of instantaneous RMS Voltage and RMS Current.
  - Power Factor: The ratio of Real Power to Apparent Power.
- **Line Level (A, B, C):**
  - Amps: Measures instantaneous RMS current.

The 7W contains the following additional onboard sensors:

- **Group Volts:** Measures instantaneous RMS voltage for a group of outlets.
- **Group Amps:** Measures instantaneous RMS current for a group of outlets.
- **Outlet Amps:** Measures instantaneous RMS current for each outlet.
- **Outlet Real Power:** Average of instantaneous voltage and current over last 1.5 seconds for each outlet.
- **Outlet Kilowatt-Hours:** Cumulative sum of Real Power for each outlet.

### **Data Logging and Display**

All sensor data collected by the unit can be graphed, except kilowatt-hours and outlet level data (7W only). The *Logging* page allows the user to select data to be logged. The user can also choose to view a graph of any logged data. Selected sensor values are logged into the data file at a rate of one point per minute. The number of selected sensors determines the maximum data logging time span. This period is calculated and displayed on the *Logging* page. The oldest data will be deleted when the onboard memory fills up in order to make room for new data. Sensor values can also be selected for display on the local LCD.

## Remote Outlet Switching (7S and 7W Only)

### Actions

The 7S and 7W Series are equipped with individually switchable outlets. There are seven possible actions for any given outlet, available from the "Action" drop down box on the *Actions* tab of the *Control* page:

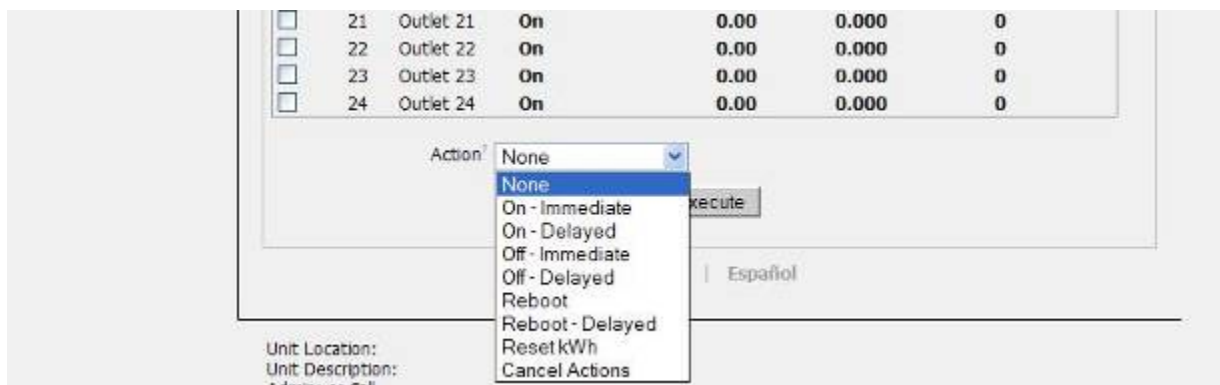


Figure 34: Outlet Actions

- **On – Immediate:** Turns on all selected outlets with no delay.
- **On – Delayed:** Turns on all selected outlets with applicable delays.
- **Off – Immediate:** Turns off all selected outlets with no delay.
- **Off – Delayed:** Turns off all selected outlets with applicable delays.
- **Reboot:** Cycles power to the selected outlets with one applicable delay. Each outlet is powered-down immediately, then "Reboot Duration" sets the delay after power-down and before power-up.
- **Reboot-Delayed:** Cycles power to the selected outlets with two applicable delays. "Reboot" delays before power down, and "Reboot Duration" sets the delay after power-down and before power-up.
- **Reset kWh:** Resets the kWh total on all selected outlets to 0. (7W only)
- **Cancel Actions:** Cancels any actions currently in progress on the selected outlets.

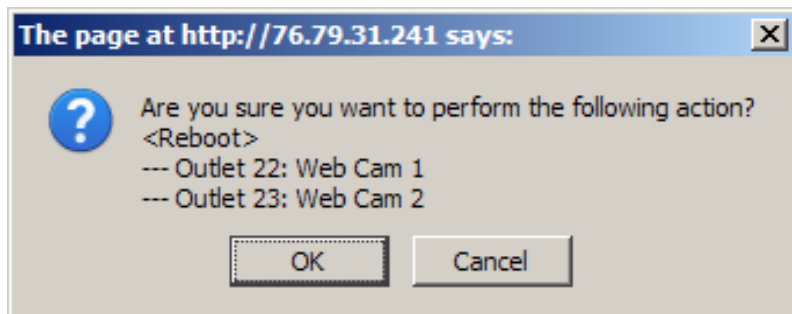


Figure 35: Outlet Action Confirmation

To perform an action, select the check box next to the outlets needing attention, select an action from the drop down box and click the "Execute" button. A dialog box will appear asking for confirmation of the selected actions. Click OK to execute the action. Click cancel to make changes or ignore the action.

**Note:** "Reboot", "Reboot-Delayed" and "On/Off-Delayed" actions are subject to the delays set on the *Settings* Tab of the *Control* page.

## Configuration

The 7S and 7W series units list all available outlets under "Configuration" on the *Settings* tab of the *Control* page. Each outlet has five fields associated with it:

| 7W Configuration |             |     |                 |           |        |          |
|------------------|-------------|-----|-----------------|-----------|--------|----------|
| Group A          |             |     | Delay (seconds) |           |        | Reboot   |
| Outlet           | Name        | URL | Power-On        | Power-Off | Reboot | Duration |
| 1                | Mail Server |     | 0               | 0         | 0      | 0        |

**Figure 36: Outlet Configuration**

- **Name:** A friendly name to easily identify what is plugged into the outlet. For example: "Mail Server"
- **URL:** A URL associated with the equipment plugged into the outlet. This will appear as a clickable link on the Control Actions Tab next to the outlet status information.
- **Power-On Delay:** Delay from the time the "On - Delayed" action is executed until the outlet will turn on.
- **Power-Off Delay:** Delay from the time the "Off - Delayed" action is executed until the outlet will turn off.
- **Reboot:** Delay from the time the "Reboot-Delayed" action is executed to the time the selected outlets will be turned off.
- **Reboot Duration:** Delay from the time the "Reboot" or "Reboot-Delayed" action is executed and each selected outlet has turned off until the outlet will turn back on.

**Note:** All delays are in seconds.

## Power-On Actions

The state of each of the unit's switched outlets on unit power-up is user configurable by setting a power-on action.

Available settings are:

- **Delay:** Used in conjunction with On and Last actions to allow sequencing of outlet power-up to prevent overloading circuit breakers with inrush current.
- **Off:** Leaves the outlet off until turned on manually via the Control Actions page.
- **On:** Turns the outlet on.
- **Last:** Returns the outlet to its state prior to the unit losing power.

| Outlet | Name        | Delay (seconds) | on                    | off                   | last                             |
|--------|-------------|-----------------|-----------------------|-----------------------|----------------------------------|
| 1      | Mail Server | 0               | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |

**Figure 37: Outlet Power-On Action Configuration**

**Tip:** To emulate legacy 7S or 7W behavior for a particular outlet, set the delay to 0 and action to On.

**Note:** Outlets with their delay values set to 0 will perform the selected action immediately upon receiving power.



**Note for units with built-in circuit breakers:** Should one of the unit's circuit breakers trip, upon being reset any outlets powered by that breaker will perform their power-on actions.

## Accessories

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### Serial Communication (Delta Configured Units Only)

The Delta configured units provide an out-of-band, serial line, monitoring interface. The unit provides an RJ-45 port for RS-232 serial communication, giving monitoring via the command line similar to the Telnet service. If the administrator name and password are setup then they must be used to access the serial command line. Type "help" after logging-in to the unit to see a list of available commands.

**Note:** All data sent via the serial port is unencrypted. Some settings can be changed and user names and network settings are available.

```
Login successful.
Type 'help' or 'help all' for command list.
CLP> help

Format:  command [[optional args] | <required args>]

help      [<command name> | all] - HELP on a specific command or all details
reset     <parameter> - RESET specified parameters to factory default values
report    - REPORT settings and status
net       - List and set NETWORK settings
server    - List and set web SERVER configuration
mail      - List & set MAIL settings
snmp      - List & set SNMP parameters
account   - List & set ACCOUNT Names & passwds
admin     - List & set contact ADMIN information
fcal      - Factory CALibrate a sensor (contact support for instructions!)
fconf     - Factory CONFigure an External sensor (contact support!)
bye       | exit | quit | ^D (EOT character) - End Login session

sensors   - list <sensor id> numbers, measurement Labels, and values
alarms    - List all alarms. {Use 'alarms sensors' to get <sensor id>'s}
control   - List all outlets and present status
```

**Figure 38: Serial Command**

### IP-Addressable Network Cameras

The unit is able to interface with up to four IP-addressable network cameras. A live snapshot from each camera will be displayed on the unit's *Sensors* page underneath the main unit's graph. Clicking on a snapshot opens the camera's website in a new browser window.



**Figure 39: Camera Images**

Camera model and IP address are entered on the *Monitoring* tab of the *Configuration* page.

**Note:** Some cameras require additional software downloads to display live video in a web browser.

### **Alternate Data Formats**

In addition to the full access, control and configuration available via a desktop web browser, 7M, 7N, 7S and 7W Series products present data in multiple formats for easy integration with other monitoring systems. Data formats available via links on the unit's web page are:



**Figure 40: Alternate Format Links**

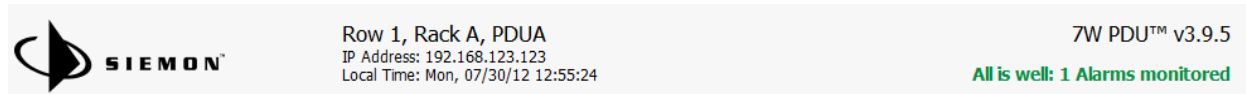
- PDA/Phone: Presents data in a format best-suited for PDA or cellular phone web browsers.
- XML: Extensible Markup Language. Presents data in a structured tree for use with automated scripts and monitoring systems.
- MIB: Management Information Base. Downloads the MIB for use with SNMP monitoring tools.

## Technical Support

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### **Firmware Version**

The firmware version is located in the upper right section of the web interface header, represented by v3.y.xx. Before contacting support, it is recommended that the PDU first be updated to the latest firmware version. If this is not possible, please have the existing firmware version number for the unit available when contacting technical support.



**Figure 41: Web Page Header**

### **Firmware Updates**

Keep your unit updated with the latest firmware releases or sign up for notifications. [www.siemon.com](http://www.siemon.com)

### **Resetting PDU**

Should the PDU lose communication, the processor may be manually rebooted without affecting power to the outlets. Pressing the 'Reset' button on the face of the unit will cause the processor to reboot. The web interface will remain off-line during boot up.

### **Service and Maintenance**

No service or maintenance is required. Do not attempt to open the PDU or you may void the warranty. No serviceable parts inside. It is recommended that power be removed from the unit before installing or removing any equipment.

### **More Technical Support**

<http://www.siemon.com>  
(866) 474-1197  
Email: [techsupport@siemon.com](mailto:techsupport@siemon.com)  
Or contact your distributor.

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## Revision History

| Revision | Date    | Notes           | Approved By |
|----------|---------|-----------------|-------------|
| 0.0      | 8/14/12 | Initial Version | LM          |
|          |         |                 |             |
|          |         |                 |             |
|          |         |                 |             |
|          |         |                 |             |
|          |         |                 |             |

