

SEI DC-UPS Power Management Package Users Manual



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1. Introduction

SEI's Power Management Package (PMP) for the SEI-DC-UPS provides a variety of functions necessary to monitor and control output power to DC powered devices, as well as maximize the efficiency and reliability of the power systems and battery backup.

Ethernet communication is accessed via a side panel mounted standard RJ45 connector. Two Ethernet interfaces are provided to monitor and control the DC-UPS. A web page interface that can be viewed with any Internet browser is available for easy system status checks and fast system configuration tasks. An SNMP interface provides the ability to continuously monitor the DC-UPS status with a Network Management System (NMS) and to receive instantaneous notification of DC UPS status changes and alarms via SNMP traps.

2. Web Page Interface

A sample image of the DC-UPS Power Management Package Web Page interface is shown in Figure 1. There are five sections in the PMP Web Page Interface:

1. **UNIT IDENTIFIER** – Displays the model number, System Name and IP address of the DC-UPS PMP. The System Name can be changed by clicking the System Configuration link in the System Status Section. The IP address can be changed by clicking the Network Configuration link on the System Configuration page.
2. **SYSTEM STATUS** – Displays the operational status of the DC-UPS, as well as data on important system parameters. This section also contains a link to the System Configuration page. The possible system status modes are:
 - *SYSTEM STARTUP* – The DC-UPS is initializing.
 - *SYSTEM STARTUP DELAY* – The DC-UPS is powered-up, but all output ports are disabled while the battery receives an initial charge. Maximum delay is 60 seconds.
 - *OPERATING NORMALLY* – The DC-UPS is operating within normal parameters
 - *UNDERVOLTAGE WARNING* – The DC-UPS System Voltage is below the optimal value to charge the battery. A System Voltage below 54.0 Vdc will trigger an undervoltage warning.
 - *OVERVOLTAGE WARNING* - The DC-UPS System Voltage is above the optimal value to charge the battery. A System Voltage above 55.5 Vdc will trigger an overvoltage warning.
 - *TEMPERATURE WARNING* - The DC-UPS internal temperature is 45°C or greater.
 - *UNDERVOLTAGE FAULT* - – The DC-UPS System Voltage is too low to charge the battery. A System Voltage below 50.0 Vdc will trigger an undervoltage fault.
 - *OVERVOLTAGE FAULT* - The DC-UPS System Voltage is too high to charge the battery. A System Voltage below 57.0 Vdc will trigger an overvoltage fault.
 - *TEMPERATURE FAULT* - The DC-UPS internal temperature is 50°C or greater.

- *POWER THRESHOLD FAULT* – The power utilization is greater than the user settable utilization alarm value.
- *AC FAIL FAULT* – The AC power to the DC-UPS has failed. On multi-rectifier units, and AC fail fault can also mean that one of the rectifiers has failed.

The System Status section also displays the following system parameters:

- *AVAILABLE POWER* – The maximum power output of the DC-UPS.
 - *DELIVERED POWER* – The total power delivered to the loads.
 - *POWER UTILIZATION* – The percentage of available power delivered to the loads.
 - *SYSTEM VOLTAGE* – The DC buss voltage of the DC-UPS.
 - *DELIVERED CURRENT* – The total DC current delivered to the loads.
 - *UTILIZATION ALARM THRESHOLD* – The percentage of available power at which a Power Threshold Fault is triggered. This value is user settable via the System Configuration page.
 - *UNIT TEMPERATURE* – The internal temperature of the DC-UPS.
3. **BATTERY STATUS** – Displays the status of the DC-UPS internal battery pack. It also displays the battery charge current, the results of the last battery test, and provides a button to perform a battery test. The battery test is disabled when the battery is charging, when a system fault condition is declared and for one minute after a previous battery test. When the DC-UPS is operating on battery power, the estimated battery capacity remaining is displayed.
 4. **PORT STATUS** – Displays the status of each of the individually controllable output ports of the DC-UPS. Clicking on the any port description link will open the Port Configuration page for that port. The possible port status modes are:
 - *PORT DISABLE* – The port has been disabled by the user.
 - *POWER ENABLED* – The port is delivering power to the load within operational parameters.
 - *OVERLOAD WARNING* – The port is delivering power greater than the user settable Port Power Warning Level.
 - *OVERLOAD FAULT* – The port is turned off because the power delivered was greater than the user settable Port Power Shutdown Level.
 - *PRIORITY SHUTDOWN* - The port is turned off because the DC-UPS is operating on battery power.
 - *PORT SOFTSTART* – The port is turned on and delivering power in a current limited mode.
 - *STARTUP DELAY* – The port is temporarily disabled from turning on. This mode is only entered if the port is Enable with Softstart and is required to allow the current limit circuitry to reset.
 5. **UNIT INFORMATION** – Displays the firmware versions, the serial number and the manufacture date of the DC-UPS.

When Power is
THE Priority

SEI 500
DC UPS

SEI DC-UPS

192.168.10.29



Refresh

SYSTEM STATUS ● OPERATING NORMALLY

AVAILABLE POWER: 500 W	SYSTEM VOLTAGE: 55.2 Vdc	UNIT TEMPERATURE: 38°C/100°F
DELIVERED POWER: 218 W	DELIVERED CURRENT: 4.0 A	
POWER UTILIZATION: 44%	UTILIZATION ALARM THRESHOLD: 75%	SYSTEM CONFIGURATION

BATTERY STATUS ● CHARGING

CHARGE CURRENT: 0.1 A

LAST BATTERY TEST: ● PASS
51.3Vdc, 0 DAYS, 0 HOURS AGO

BATTERY CHARGING:
BATTERY TEST DISABLED

OUTPUT PORT STATUS

PORT DESCRIPTION	PORT STATUS	OUTPUT CURRENT	OUTPUT POWER	PRIORITY LEVEL	PORT WARN POWER	PORT FAULT POWER
1: ● PORT 1	POWER ENABLED	1.5 A	85 W	HIGH	225 W	250 W
2: ● PORT 2	POWER ENABLED	1.9 A	104 W	HIGH	225 W	250 W
3: ● PORT 3	POWER ENABLED	0.5 A	29 W	HIGH	225 W	250 W
4: ⊗ PORT 4	PORT DISABLED	0.0 A	0 W	HIGH	225 W	250 W

● DELIVERING POWER ● WARNING ● FAULT ⊗ PORT DISABLED

FIRMWARE VERSION

SYSTEM CONTROLLER: v0.12
NETWORK CONTROLLER: v0.14

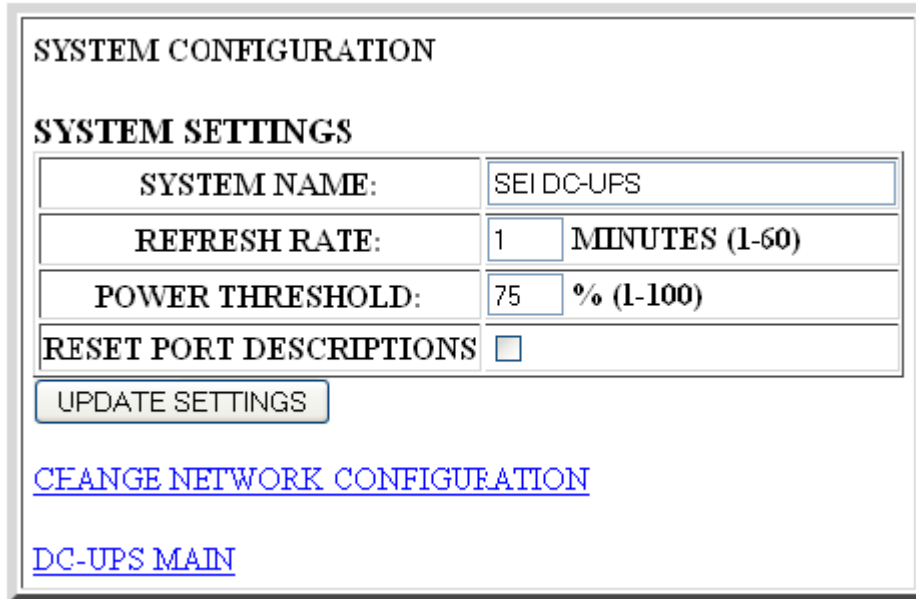
UNIT INFORMATION

SERIAL NUMBER: 54321
MANUFACTURE DATE: 02/10/2009

Figure 1 WEB Page Interface

3. System Configuration Page

The System Configuration page is reached by clicking the System Configuration link in the System Status section of the DC-UPS web page.



The screenshot shows a web interface for system configuration. At the top, it says "SYSTEM CONFIGURATION". Below that is a section titled "SYSTEM SETTINGS" containing a table of settings. The settings are: SYSTEM NAME (SEI DC-UPS), REFRESH RATE (1 MINUTES (1-60)), POWER THRESHOLD (75 % (1-100)), and RESET PORT DESCRIPTIONS (checkbox). Below the table is an "UPDATE SETTINGS" button. At the bottom, there are two links: "CHANGE NETWORK CONFIGURATION" and "DC-UPS MAIN".

SYSTEM CONFIGURATION	
SYSTEM SETTINGS	
SYSTEM NAME:	SEI DC-UPS
REFRESH RATE:	1 MINUTES (1-60)
POWER THRESHOLD:	75 % (1-100)
RESET PORT DESCRIPTIONS	<input type="checkbox"/>

UPDATE SETTINGS

[CHANGE NETWORK CONFIGURATION](#)

[DC-UPS MAIN](#)

Figure 2 System Configuration Page

The user settings are:

- *SYSTEM NAME* – An identifying description of the DC-UPS – 30 characters maximum.
- *REFRESH RATE* – The automatic web page refresh rate in minutes.
- *POWER THRESHOLD* – The percentage of Power Available at which a Power Threshold Fault is declared.
- *RESET PORT DESCRIPTIONS* – Checking this box will reset all port descriptions to PORT #.

To quit with no changes click the DC-UPS MAIN link. The CHANGE NETWORK CONFIGURATION link is also available in the System Configuration page.

3. Port Configuration Page

The Port Configuration page is reached by clicking the Port Description link in the Port Status section of the DC-UPS web page. The port status, port output power and port output current is displayed. If the port status is Overload Fault, the power level that caused the fault is displayed.

PORT 1 STATUS AND CONFIGURATION

OUTPUT PORT STATUS: **POWER ENABLED**

OUTPUT POWER: **85 W**

OUTPUT CURRENT: **1.5 A**

OUTPUT PORT SETTINGS

DESCRIPTION:	PORT 1
PORT CONTROL:	POWER ENABLED <input type="button" value="v"/>
MAXIMUM PORT POWER:	250 WATTS
PORT POWER WARNING LEVEL:	225 <input type="text"/> WATTS
PORT POWER SHUTDOWN LEVEL:	250 <input type="text"/> WATTS
PRIORITY(on BATTERY):	<input checked="" type="radio"/> HIGH <input type="radio"/> MEDIUM <input type="radio"/> LOW

[DC-UPS MAIN](#)

Figure 3 Port Configuration page

The user configuration settings are:

- *DESCRIPTION* – An identifying description of the load connected to the output port – 29 characters maximum.
- *PORT CONTROL* – There are three port control settings:
 - PORT DISABLED – The port is turned off.
 - POWER ENABLED – The port is enabled and will deliver power to the load when the unit is turned on.
 - ENABLED with SOFTSTART – The port is enabled. The port will start up in a current limited mode to control inrush current.
- *PORT POWER WARNING LEVEL* – The power level at which a Port Overload Warning is declared. The Overload condition must persist for 10 seconds before the warning is triggered. The value must be less than PORT POWER SHUTDOWN LEVEL and MAXIMUM PORT POWER.
- *PORT POWER SHUTDOWN LEVEL* – The power level at which a Port Overload Fault is declared and the port is shutdown. The Overload condition must persist for 10 seconds before the fault is triggered. The value must be greater than PORT POWER SHUTDOWN LEVEL and less than or equal to MAXIMUM PORT POWER.
- *PRIORITY(on BATTERY)* - The priority level of the port when the DC-UPS is operating on battery.
 - LOW – The port will be shutdown 1 minute after the DC-UPS begins operating on battery power.

- MEDIUM – The port will be shutdown when the battery capacity reaches 50%.
- HIGH – The port will remain enabled until the battery is depleted.

To quit with no changes click the DC-UPS MAIN link.

4. IP Address Initialization

The SEI DC-UPS PMP comes from the factory with the following network settings:

- IP Address: 192.168.0.30
- Subnet Mask: 255.255.255.0
- Gateway: 0.0.0.0

The DC-UPS PMP requires a static IP address. If this IP Address is out of range of your computer's normal network settings you have two options to set the network configuration of the PMP.

- Temporarily modify your computer's TCP/IP settings so that IP address 192.168.0.30 is reachable and proceed per the Network Configuration instructions in Section 5 below.
- Perform the following steps to initialize the IP address to a valid address on your network:
 - 1) Connect the DATA port on the side panel of the DC-UPS to a network switch or hub using a CAT5 or better patch cable. To connect a computer directly to the DC-UPS DATA port, a crossover cable is required. The green LINK LED will light if properly connected.
 - 2) Insert the DC-UPS disk into optical drive of the computer.
 - 3) Open the **SEI-DCupsNetConfig** folder on the CD. Run **SEI-DCupsNetConfig.exe**. The Network Download Utility will open.

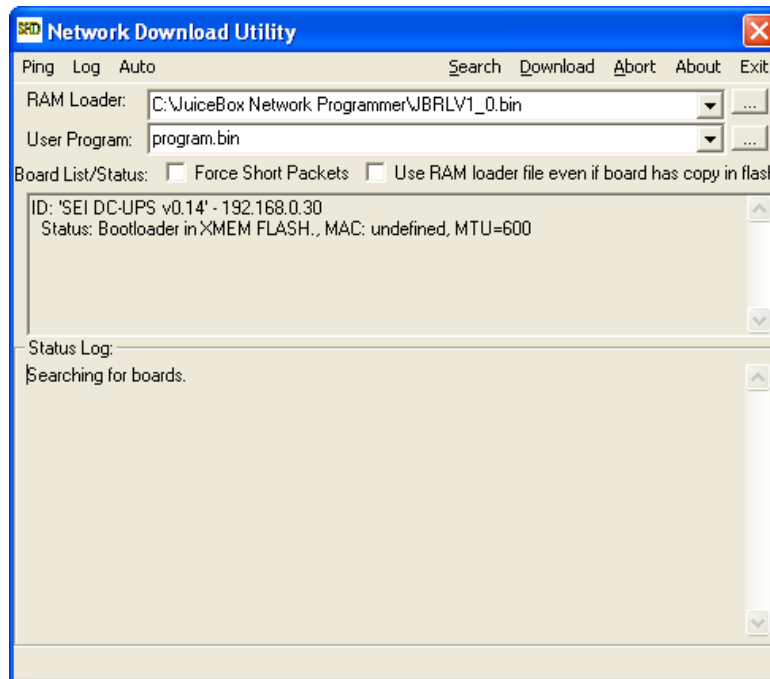


Figure 4 Network Download Utility

- 4) If everything is connected properly, the utility will search for and find the PMP network board as shown above. If the utility continues to search for boards without displaying one in the Board List/Status frame, check the following:
 - a) Verify that the DC-UPS is powered-on.
 - b) Verify that the Link LED by the DC-UPS data port is solid or flashing green.
 - c) Verify that both the PMP and the computer are connected to the same network switch or hub.
 - d) Check the network and computer firewall settings. Some firewalls block the UDP broadcast packets used by the configuration utility to communicate with the PMP network board.
- 5) If more than one board is shown in the Board List/Status frame, then you will need the MAC address of the PMP network board that you are configuring. The MAC address, a 6 character alpha-numeric value, is available from three places:
 - a) A label included with the product CD.
 - b) A label on the inside of the front cover of the DC-UPS.
 - c) A small barcode label on the network card (the red board inside the DC-UPS).
- 6) Click the **Ping** tab at the top-left of the Network Download Utility. Select the **Set Board IP Address** option.
- 7) A **Set Board IP** window will open. Enter the new IP Address in the window.

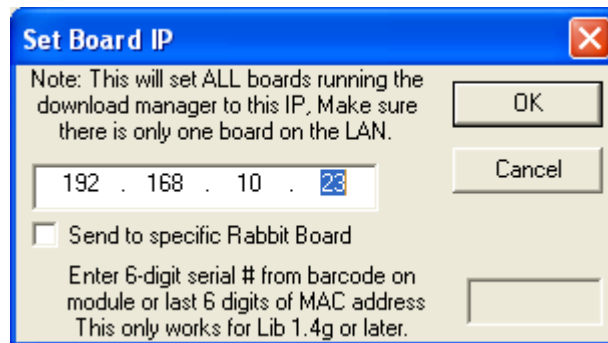


Figure 5 Set Board IP Address

- 8) If only one board appears in the Board List/Status frame, then click **OK**. If there are multiple devices shown in the Board List/Status frame, then check the **Send to specific Rabbit Board** box, and enter the 6-digit MAC address. Then click **OK**.
- 9) The utility will then set the IP Address of the PMP network board. Click the **Search** tab at the top-center of the Network Download Utility. The new IP address should be displayed in Board List/Status frame.
- 10) Now point your browser to the new IP address and proceed with Network Configuration.

5. Network Configuration

Network Configuration is performed via the web page interface. To initialize the IP address so that the web page is viewable on your network, see section 4 above. To configure the network interface:

- 1) Click on the **SYSTEM CONFIGURATION** link on the DC-UPS web page.
- 2) On the System Configuration Page, click the **CHANGE NETWORK CONFIGURATION** link. The Network Configuration page will open.

CHANGE PASSWORD	
ENTER CURRENT PASSWORD:	<input type="text"/>
CHANGE USERNAME:	<input type="text"/> (IF DESIRED)
ENTER NEW PASSWORD:	<input type="text"/>
RE-TYPE NEW PASSWORD:	<input type="text"/>
REMOVE PASSWORD PROTECTION	<input type="checkbox"/>
<input type="button" value="SUBMIT CHANGES"/>	
CHANGE IP ADDRESS	
IP ADDRESS	<input type="text" value="192.168.10.29"/>
NETMASK	<input type="text" value="255.255.255.0"/>
GATEWAY	<input type="text" value="0.0.0.0"/>
<input type="button" value="SUBMIT CHANGES"/>	
WARNING: Changing IP Configuration will result in loss of browser connectivity.	
CHANGE SNMP PARAMETERS	
GET COMMUNITY	<input type="text" value="public"/>
SET COMMUNITY	<input type="text" value="private"/>
<input type="button" value="SUBMIT CHANGES"/>	
DC-UPS MAIN	

Figure 6 Network Configuration Page

- 3) There are 3 separate sections of the Network Configuration page. Each section operates independently. Clicking a **SUBMIT CHANGES** button only changes the section above the button.
 - a) *CHANGE PASSWORD* – A username and password may be set to restrict access to the DC-UPS web page – 10 characters maximum. Enter the desired username and

password and click **SUBMIT CHANGES**. The web browser will then prompt you to enter the username and password.

- b) *CHANGE IP ADDRESS* – Enter the desired values for IP address, Netmask and Gateway. Click **SUBMIT CHANGES**. The addresses you enter will be checked for valid format. If any values are invalid, you will be prompted to re-enter the data. If all the addresses are valid, the new values will be displayed. Verify that the settings are correct and re-click the **SUBMIT CHANGES** button. At this point the browser connection to the PMP will be lost, even if the IP address was not changed. Enter the new IP address into your browser to reconnect.
 - c) *CHANGE SNMP PARAMETERS* – The GET COMMUNITY and SET COMMUNITY names for the SNMP interface can be set – 20 characters maximum. The Get Community and Set Community default values are “public” and “private” respectively.
- 4) To quit with no changes click the DC-UPS MAIN link.

7. SNMP Interface

The DC_UPC PMP SNMP interface is SNMPv1. SEI’s Enterprise number is 20364. The DC_UPS MIB is available on the enclosed CD. Updated versions of the MIB will be available on the SEI web page.

All variables that can be read or set through the WEB page are available through the SNMP interface. Detailed explanations of these variables are available in their respective section of the manual and in the MIB.

The following additional parameters are settable only via the SNMP interface:

- *seiDCupsMainTrapDestinationIPAddr*– The IP address to which SNMP traps will be sent. Initially set to 0.0.0.0, no traps will be sent until a non-zero value is set.
- *seiDCupsMainTrapReXmitPeriod*– Sets the time period which Fault level traps are re-sent as long as the fault condition continues. The default value is 5 minutes.

SNMP Security

The “Get Community” and “Set Community” default values are “public” and “private” respectively. These can be changed via the web page interface.

SNMP Traps

To enable SNMP traps, you must set the *seiDCupsMainTrapDestinationIPAddr* via the SNMP interface. For detailed information on the contents of the Traps, see the MIB file. The following traps are sent:

- *seiDCupsSystemStatusChange* – Sent whenever there is a change in the System Status. Any fault condition will result in the trap being re-sent until the fault clears.

- *seiDCupsPortStatusChange* – Sent whenever there is a change in the status of an output port. The trap will be re-sent whenever the port status is Overload Fault.
- *seiDCupsBatteryStatusChange* – Sent whenever there is a change in the internal battery status. The trap will be re-sent whenever the battery status is On Battery.
- *seiDCupsBatteryTestStatusChange* – Sent whenever a battery test is performed. The trap will be re-sent whenever the battery test status is Fail.

19. Technical Support

You can find software updates and user documentation on the System Engineering International website at www.seipower.com.

SEI provides free technical support for customers worldwide for the warranty period of the product. Customers can contact SEI technical support by email or by phone.

SEI Technical Support over the Telephone: (800-765-4734)

SEI Technical Support via email: info@seipower.com