SPECTRUM
POWER
Management Systems
A Spectrum Control Business

Installation and Operation Manual

72A-196BAREM Series
72A-190BQREM Series

3-Phase Power Monitoring and Distribution Unit

Contents

Introduction & Safety Information

Introduction

The Spectrum Control PDU is an AC power distribution unit designed to distribute power for up to eighteen (18) AC loads. The PDU distributes 3 phase power to six individual, over current protected, output banks. The unit has multiple alarm capabilities and includes an audible alarm circuit. Voltage and current are monitored and displayed locally on a liquid crystal display and remotely through a LAN connection. Operation/control is accomplished by use of 16A breaker actuators.

This product complies with FCC, CE, TUV, UL60950-1 and IEC60950 requirements.

Related Terms

LCD – Liquid Crystal Display
LED – Light Emitting Diode
LL – Lower Limit
PDU – Power Distribution Unit.
BANK – Any power source entering a PDU that is then distributed to an output.
UL – Upper Limit

Manual Conventions

The following actions should be taken when these symbols are present in various instructions throughout the manual:

Symbol	Action	Example
< >	Click on the items contained within these symbols with your mouse.	<Start>
[ ]	Press all keys that are contained within these brackets.	[Ctrl]
" "	Type all characters that are placed between quotations	"1234"

Safety Information

This installation and operation manual contains information about the Power Distribution Unit and basic installation instructions. The person installing or integrating the PDU into an electronic system must be supplied with this manual and read it to become familiar with the installation precautions. Spectrum Control, Inc. cannot be held liable for any damage to persons or property if the safety information in the installation and operation manual is not followed.

If the safety information is not observed, personnel could be put at risk. Only authorized personnel who have been properly trained may operate the device. There are no user serviceable parts inside. Therefore, any modifications made to the unit by any organization or persons other than the factory are not permitted.

The general regulations governing the use of electricity in the country in which the device or integrated system is installed must be observed.

Technical Specifications

Input

	Global	**Domestic**
Power Entry Connector	IEC 309, 4pole, 5 wire, 32A, WYE connected	NEMA L21-30P 5 pin, Delta connected
Nominal Input Voltage	3 ϕ 400/230VAC ±10%	3 ϕ 208/208VAC ±10%
Input Frequency	50 – 60 Hz	50 – 60 Hz
Input Current	72A maximum	41.6A maximum

Output

	Global	**Domestic**
Outlet Connectors	(18) IEC C13	(18) IEC C13
Load Current per Bank	16A maximum	13.9A maximum
Load Current per Output Connector	10A maximum	10A maximum
Load Current per PDU	72A maximum	41.6A maximum

Environmental

- Operating temperature: 0-55°C (32-131°F)
- Operating humidity: 0-95% (non condensing)
- Operating elevation: 0-10,000 ft (0-3000 m)

Physical

- Unit height: 0U, 55.5 inches (141 cm)
- Unit width: 1.75 inches (4.45 cm)
- Unit depth: 5.2 inches (13.3 cm)
- Unit weight: 32.5 pounds (14.74 kg)
- Cord length: 10 feet (Approx. 3 m)
- Rack mountable
- Finish: Black powder coat

Declaration of Conformity

Manufacturer's Name: Spectrum Power Management Systems, a Spectrum Control Business

Manufacturer's Address: 1900 West College Avenue
State College, PA 16801

Declares that the product:

Product Name: 3-Phase Power Monitoring and Distribution Unit

Model Number: 72A-196BAREM-01
72A-190BQREM-01

Conforms to the following Product Specifications:

Safety: UL 60950-1 File E149758-A8 Volume X3, First Edition; CSA C22.2 No. 60950-1-03, First Edition; IEC 60950-1, First Edition.

Product Category: NWGQ-INFORMATION TECH-NOLOGY EQUIPMENT INCLUDING ELECTRICAL BUSINESS EQUIPMENT - COMPONENT

EMC: Emissions per:
EN 55022 (1998): Class A
FCC P.15
ANSI C63.4

Immunity per :
EN 55024
EN 61000-4-2: Criteria B
EN 61000-4-3: Criteria A (@ 10V/m)
EN 61000-4-4: Criteria B
EN 61000-4-5: Criteria B
EN 61000-4-6: Criteria A (Power @ 10V/m)

Chuck Drew
_____
Lead Engineer

Mike Esposit
_____
Quality Engineer

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Power Management Systems
1900 West College Avenue
State College, PA 16801
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11/16/2007

Connections and Installation

Operating Environment

- Locate PDU in dry area.

- Rack Mount in equipment rack using mounting brackets.

- Restricted Access Location not required.

- This PDU relies on protective devices in the building installation for short circuit and over current protection.

- Elevated Operating Ambient- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ratings of the product.

- Reduced Air Flow- Installation of the equipment should be such that the amount of airflow required for safe operation of the equipment is not compromised.

- Mechanical Loading- Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

- Circuit Overloading- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- Reliable earthing of equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). Consult the local electrical code for additional information.

Connections and Installation

Electrical Connections

•   Depress rocker handle of all circuit breakers to "off" position.

Example: Breaker Off   Example: Breaker On

•   Connect input supply cord to a grounded power source rated for the input voltage and current of the PDU.

•   Connect equipment to AC output connectors. Continuous current draw for all connected units must not exceed the current rating per output.

CAUTION:

     •   Power source for PDU must be properly grounded.

     •   Total current for all connected units must not exceed the current rating per input.

     •   Current must not exceed the current rating per output.

     •   Do not conduct any DWV testing greater than 300 VAC.

Input and Output Connections

Input cord and output connections are located on the front side of the unit. Pluggable mating connectors are not supplied with the unit.

Connections and Installation

LAN Module and Communications

RJ45
LAN Connection

LAN Module Interface

The LAN Module provides an interface between a computer network and the power distribution unit using the front RJ-45 jack. Communications between the PDU and a computer can take place via a Telnet session or SNMP manager. If you are connecting the PDU directly to a PC without a router, a crossover cable is required. The module operates at 10/100MB/sec via an Ethernet communication for both of these configurations and uses a RJ45 connector for the interface jack.

Crossover Cable

8
7
6
5
4
3
2
1

1
2
3
4
5
6
7
8
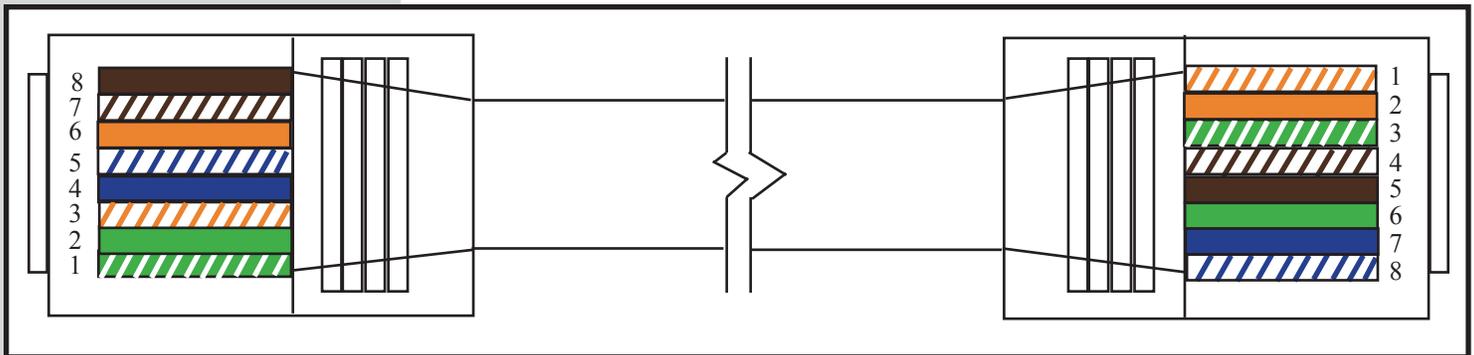
LAN LED Status Guide

LED	Description
Top left (Yellow)	Network link status: Off - no link has been detected. On - a link has been detected.
Top right (Green)	Serial port activity/Network activity: Off - the serial channel is idle. Blinking - serial data is transmitted or received.

Connections and Installation

The LAN module consists of integrated hardware and a network agent software program. These components provide the ability to configure, control, and monitor aspects of multiple units using a standard web browser. The network interface can operate using Telnet and SNMP.

The LAN module is configured at the factory to an IP Address of 192.168.1.110 and subnet mask of 255.255.255.0. A default gateway address of 192.168.1.1 and a SNMP trap address of 192.168.1.200 are also provided.

The Login dialog box requests a username and password. The factory default username and password are "root" and "1234", respectively. This username has full privileges to set up, maintain, and control the unit.

Other Factory Defaults:

SNMP	Enabled
SNMP Community Name	Public
Telnet Setup	Enabled
FTP Download	Enabled
Web Server	Disabled - Can enable with future Firmware Update
Web Setup	Disabled
ECHO	Disabled

LAN Module IP Address, DHCP, and Auto IP

The LAN module supports three IP assignment methods: Static IP address, DHCP, and Auto-IP. If a static address is enabled, it will be used. If a static address is not enabled, and Auto-IP is enabled, it will be used to generate an address ONLY if DHCP is disabled, or if DHCP is enabled and a DHCP server has not responded to the DHCP query. If both are enabled, Auto-IP has assigned an address, and then a DHCP server responds. The Auto-IP address will be discarded and the DHCP address will be used.

AutoIP allows the unit to obtain an address in a network that does not have a DHCP server. AutoIP assigns a random valid address to the LAN module in the range of 169.254.x.x to 169.254.x.x where x is between 0 and 255 and a Netmask of 255.255.0.0.

Connections and Installation

Device Discovery

The discovery tool "digi_dev_disc.exe" has the following:
1. "Configure Network Settings" is to configure the IP/Subnet/Gateway.
2. "Restart Device" is to reboot the PDU after assigning the new network configuration .
3. "Refresh View" is to search again.
4. "Open Web Interface" is to launch the web page.

This program is part of the PDU tools and should be placed in C:\Program Files
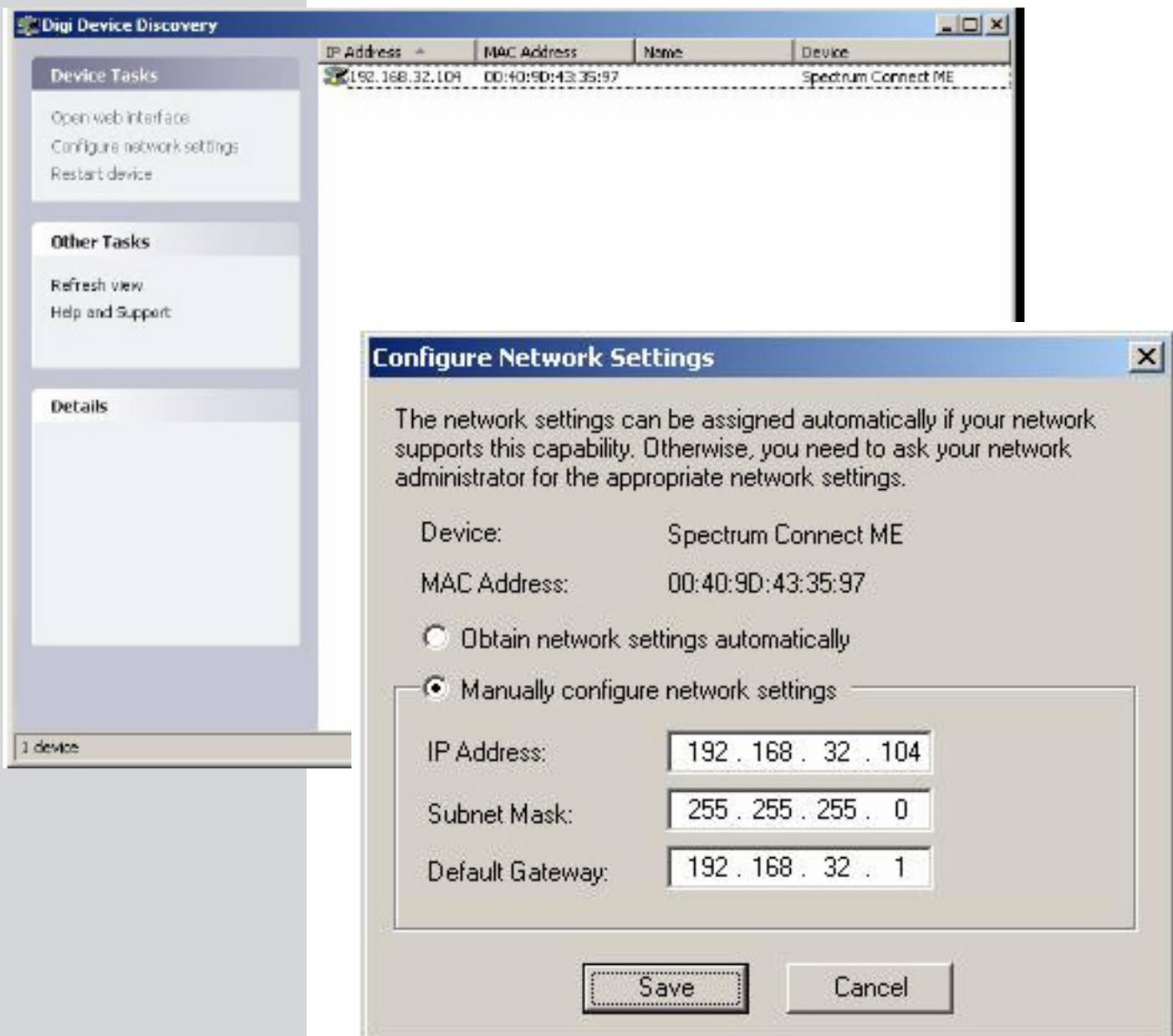
Connections and Installation

Testing the IP Address Configuration

Once the IP address is assigned, you should test the IP address configuration to be sure it works as configured.

Prerequisite
This procedure assumes that you have configured the device server with an IP address.

Procedure
1.   Access the command line of a PC or other networked device.
2.   Issue the following command: ping ip-address (where ip-address is the address you assigned to the device server).

Example:
ping 192.168.1.110
A reply should be returned.

Telnet Configuration Password

Setting the Telnet configuration password prevents unauthorized access of the setup menu via a Telnet connection to port 9999. The password is limited to 32 characters. Option 7 allows the user to change the telnet configuration password.

LAN Module Configuration Using a Telnet Connection

To configure the LAN Module over the network, establish a Telnet connection to port 9999. From the Windows Start menu, click Run and type the following command, where x.x.x.x is the IP address and 9999 is the LAN Module's fixed network configuration port number.

telnet x.x.x.x 9999

Note: *Be sure to include a space between the IP address and 9999.*

The default IP Address is 192.168.1.110, so the command should look like "telnet 192.168.1.110 9999". At login, type "root" for the username and "1234" for the password. This command will launch the configuration menu.   After the first sentence appears, press [Enter] to go into the setup mode.

Connections and Installation

Set PDU and LAN Module to Factory Defaults

Menu option 8 restores all PDU and LAN module defaults back to the factory settings. This command will ensure that both the LAN module and internal PDU microprocessor are returned to identical communication settings. PDU with LAN modules should have all configuration changes made using the LAN module configuration menu selections.

Items that get restored back to default settings:

- snmpReadCommunityName
- snmpRead-WriteCommunityName
- SNMP TRAP_IP
- TRAPDSTPORT
- HTTPPORT
- USER NAME
- PASSWORD

```
Telnet 192.168.32.104

login: root
Password: **********

Change SNMP Setup:
    0 SNMP Trap Address
    1 SNMP Read Community Name
    2 SNMP Read-Write Community Name
    3 Change Trap Dst Port
    4 Change HTTP Port
    5 Change DHCP Enable/Disable
    6 Log-In User Name
```

```
login: root
Password: **********

Change SNMP Setup:
   0 SNMP Trap Address
   1 SNMP Read Community Name
   2 SNMP Read-Write Community Name
   3 Change Trap Dst Port
   4 Change HTTP Port
   5 Change DHCP Enable/Disable
   6 Log-In User Name
   7 Log-In Passwords
   8 Set to Factory Defaults
   9 Exit without save
  10 Save and exit                    Your choice ? _
```

Connections and Installation

Exit Configuration Mode

Select 9 to exit the configuration mode without saving any changes, or select 10 to exit and save all changes. All values are stored in nonvolatile RAM. The LAN Module will automatically reset, but the state of the PDU outputs will not be affected.

LAN Module Reflash Instructions

Run "digi_dev_disc.exe" utility to set up unit's IP, if necessary. These are part of the LAN tools.
Locate the update file.

A. If any network setting(s) on the LAN module are changed, you must click <Restart device> to apply the changes.
B. Place the update file "image.bin" in C:\release.
C. In command window, navigate to C:\release directory. Type "ftp <IP Address>".
D. Then log-in (User name is "root", and password default is "1234".)
E. Type "binary" and press [Enter].
F. Type "put image.bin" and press [Enter]. **Wait for the completion message** Do not interrupt download.
G. Type "quit" after the "Transfer Complete" message appears. It may take up to 1 minute, including PDU reboot.
H. In "C:\release\bin", type "ping <IP Address> -t" until the communication is re-established. Press [Ctrl+C] to exit ping.

Operational Control of PDU

Front Panel Menu

The unit's LCD is used to monitor incoming power and configure the software. The LCD has two modes of operation: Monitor or Menu. The system menu is organized in a top down tree structure. The unit has four buttons that are used to navigate through the menu system. The buttons are labeled with universal symbols for Menu, Select, Left, and Right as shown in the following figure.
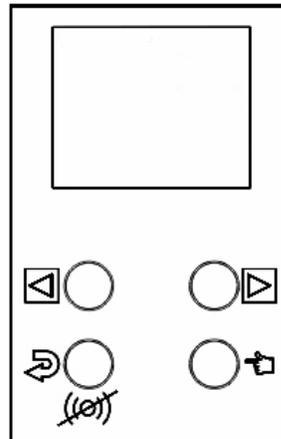
MENU - Enters the menu system or moves one level up the tree.

SELECT - Moves one level down the tree or accepts a parameter input.

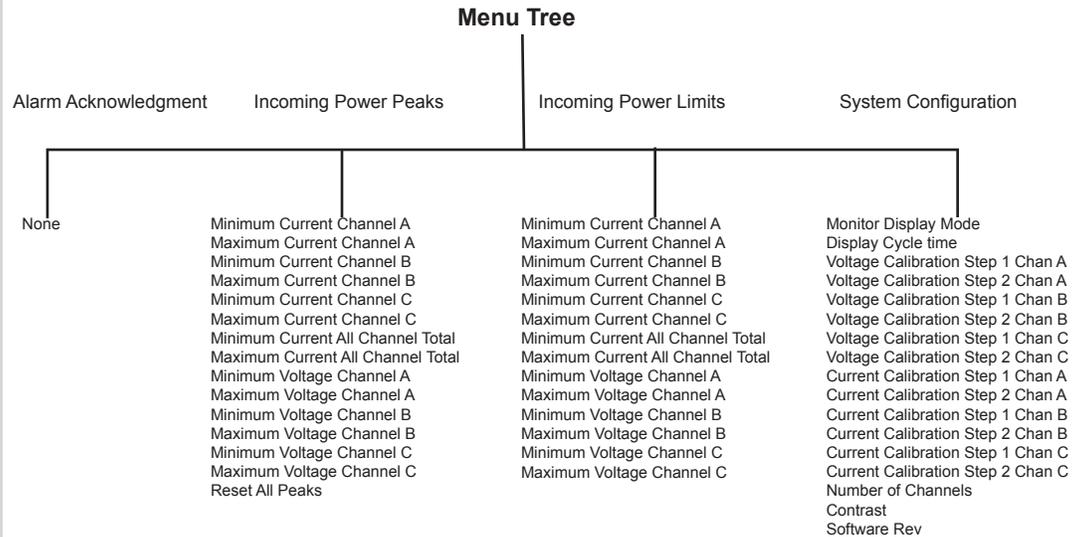LEFT, RIGHT - Moves horizontally through menu items or parameters.

Alarm Acknowledgment – Silences audible alarm.

Menu Navigation

Selecting the MENU button while the unit is in monitor mode will bring up the system top level menu. The top level menu contains parameters for Alarm Acknowledgement, Incoming Power Peak Readings, Incoming Power Limit Settings, and System Configuration.

Operational Control of PDU

Menu Tree

Alarm Acknowledgment   Incoming Power Peaks   Incoming Power Limits   System Configuration

None	Incoming Power Peaks	Incoming Power Limits	System Configuration
	Minimum Current Channel A	Minimum Current Channel A	Monitor Display Mode
	Maximum Current Channel A	Maximum Current Channel A	Display Cycle time
	Minimum Current Channel B	Minimum Current Channel B	Voltage Calibration Step 1 Chan A
	Maximum Current Channel B	Maximum Current Channel B	Voltage Calibration Step 2 Chan A
	Minimum Current Channel C	Minimum Current Channel C	Voltage Calibration Step 1 Chan B
	Maximum Current Channel C	Maximum Current Channel C	Voltage Calibration Step 2 Chan B
	Minimum Current All Channel Total	Minimum Current All Channel Total	Voltage Calibration Step 1 Chan C
	Maximum Current All Channel Total	Maximum Current All Channel Total	Voltage Calibration Step 2 Chan C
	Minimum Voltage Channel A	Minimum Voltage Channel A	Current Calibration Step 1 Chan A
	Maximum Voltage Channel A	Maximum Voltage Channel A	Current Calibration Step 2 Chan A
	Minimum Voltage Channel B	Minimum Voltage Channel B	Current Calibration Step 1 Chan B
	Maximum Voltage Channel B	Maximum Voltage Channel B	Current Calibration Step 2 Chan B
	Minimum Voltage Channel C	Minimum Voltage Channel C	Current Calibration Step 1 Chan C
	Maximum Voltage Channel C	Maximum Voltage Channel C	Current Calibration Step 2 Chan C
	Reset All Peaks		Number of Channels
			Contrast
			Software Rev

PEAKS - MAX, MIN, RESET

Selecting PEAKS in the menu system allows the user to view the maximum and minimum values that have been recorded for both voltage and current for each distribution bank. This feature also gives the user the option to reset these values.

LIMITS - MAX, MIN

Selecting LIMITS in the menu system allows the user to set the desired maximum and minimum values to monitor for each bank. These values will be used by the unit as comparison limits while monitoring bank voltage and current levels. Decisions concerning minor and major alarms will be based on this comparison.

CONFIG - DISPLAY MODE

While in Monitor Mode, the unit can display the incoming voltage and current readings. The menu system allows the user to select one of three display modes: CYCLE, FIXED, and BAR.

Selecting CYCLE causes the system to cycle the display of channel measurements. Measurements will be shown in order of voltage channels and then current banks.

Selecting FIXED turns off the measurement display cycle. Pressing the LEFT or RIGHT menu buttons while in FIXED mode moves to the next reading in the cycle list.

In BAR mode, a bar graph is displayed to show all measured bank currents at the same time. The values are displayed on a 30 amp scale.

Operational Control of PDU

CONFIG - CYCLE TIME
The CYCLE TIME parameter sets the amount of time to wait before displaying the next bank measurement. The parameter can be set to FAST, MEDIUM, or SLOW.

CONFIG - NUMBER OF CHANNELS
The unit can be configured to work for 1, 2, or 3 power bank devices. Note that reducing the number of banks to 1 removes the total current monitoring processes.

CONFIG - CONTRAST
The CONTRAST feature allows the user to adjust the contrast of the LCD screen to a desired level.

CONFIG – SOFTWARE REV
Selecting the REV parameter will display the current revision of software loaded into the meter.

CONFIG - METERING CALIBRATIONS
The unit's onboard voltage and current monitoring devices require a two-step calibration procedure to achieve maximum accuracy. Each power bank has adjustable parameters in the menu system for voltage and current. This calibration is performed at the factory before shipment.

Alarm Capabilities

Each power bank has four major alarm thresholds that can be adjusted. There is an upper and lower limit for input voltage. There is also an upper and lower limit for distributed current. An alarm is also signaled if the current reaches two minor limits: 80% of upper limit, 90% of upper limits.

If a major alarm threshold is surpassed the unit will respond by setting the power bank indicator LED to red and setting the audible alarm buzzer.

If a minor alarm threshold is surpassed the unit will toggle the LED indicator and audible alarm. The 80% alarm toggles the LED and buzzer once per second. The 90% alarm toggles twice per second.

If an alarm condition exists and the PDU is in monitor mode, the audible alarm may be silenced by pressing the Alarm Acknowledge button. If the PDU is not in monitor mode and is in the system menu, select the Alarm Acknowledge menu item. The audible alarm will remain silenced until another alarm threshold is exceeded.

Networking Functions

Introduction

The PDU LAN Port supports the Telnet and SNMP networking functions, which allow remote monitoring through the network environment. Table 1 lists the available Telnet commands. Table 2 lists the content of SNMP functions – Read/Set/Trap in detail. An SNMP Manager PC Tool is needed in order to implement the SNMP functions. To implement the Telnet and SNMP functions, the device must be configured properly, such as assigning a valid IP address or subnet mask by using the recommended device discovery tool.

Telnet always has the higher priority than SNMP with the timeout value of 30 seconds, which can be adjusted later.

**Telnet
Communication**

You can access the PDU by typing "telnet <IP> 10001" and entering the username and password (Default username is "root". Default password is "1234"). The telnet session has a 30 second timeout.

A list of commands is in the following table.

Networking Functions

Telnet Commands   telnet <IP Address> 10001 [space before and after address]

Table 1

List of Commands:

Command	Description	Response
@AACK	Alarm Acknowledgement	#AACK
@SYSF	Save settings to EEPROM	#SYSF OK
@BNKV A,?	Voltage Bank A	#BNKV 120.2
@BNKV B,?	Voltage Bank B	#BNKV 120.2
@BNKV C,?	Voltage Bank C	#BNKV 120.2
@BNKC A,?	Current Bank A	#BNKC 22.5
@BNKC B,?	Current Bank B	#BNKC 22.5
@BNKC C,?	Current Bank C	#BNKC 22.5
@BNKC T,?	Total Current on PDU (All banks)	#BNKC 65.3
@MAXV A,?	Read Maximum Voltage Bank A	#MAXV 138
@MAXV B,?	Read Maximum Voltage Bank B	#MAXV 138
@MAXV C,?	Read Maximum Voltage Bank C	#MAXV 138
@MINV A,?	Read Minimum Voltage Bank A	#MINV 75.0
@MINV B,?	Read Minimum Voltage Bank B	#MINV 75.0
@MINV C,?	Read Minimum Voltage Bank C	#MINV 75.0
@MAXV A,0	Reset Maximum Voltage Bank A	#MAXV OK
@MAXV B,0	Reset Maximum Voltage Bank B	#MAXV OK
@MAXV C,0	Reset Maximum Voltage Bank C	#MAXV OK
@MINV A,999.9	Reset Minimum Voltage Bank A	#MINV OK
@MINV B,999.9	Reset Minimum Voltage Bank B	#MINV OK
@MINV C,999.9	Reset Minimum Voltage Bank C	#MINV OK
@BULV A,135.3	Set High Threshold Voltage Bank A	#BULV OK
@BULV B,135.3	Set High Threshold Voltage Bank B	#BULV OK
@BULV C,135.3	Set High Threshold Voltage Bank C	#BULV OK
@BULC A,22.5	Set High Threshold Current Bank A	#BULC OK
@BULC B,22.5	Set High Threshold Current Bank B	#BULC OK
@BULC C,22.5	Set High Threshold Current Bank C	#BULC OK
@BULC T,77.5	Set High Threshold Current Bank T	#BULC OK
@BLLC A,10.0	Set Low Threshold Current Bank A	#BLLC OK
@BLLC B,10.0	Set Low Threshold Current Bank B	#BLLC OK
@BLLC C,10.0	Set Low Threshold Current Bank C	#BLLC OK
@BLLC T,10.0	Set Low Threshold Current Bank T	#BLLC OK
@BULV A,?	Read High Threshold Voltage Bank A	#BULV 135.3
@BULV B,?	Read High Threshold Voltage Bank B	#BULV 135.3
@BULV C,?	Read High Threshold Voltage Bank C	#BULV 135.3
@BULC A,?	Read High Threshold Current Bank A	#BULC 22.5

Networking Functions

@BULC B,?	Read High Threshold Current Bank B	#BULC 22.5
@BULC C,?	Read High Threshold Current Bank C	#BULC 22.5
@BULC T,?	Read High Threshold Current Bank T	#BULC 77.5
@BLLV A,?	Read Low Threshold Voltage Bank A	#BLLV 135.3
@BLLV B,?	Read Low Threshold Voltage Bank B	#BLLV 135.3
@BLLV C,?	Read Low Threshold Voltage Bank C	#BLLV 135.3
@BLLC A,?	Read Low Threshold Current Bank A	#BLLC 10.0
@BLLC B,?	Read Low Threshold Current Bank B	#BLLC 10.0
@BLLC C,?	Read Low Threshold Current Bank C	#BLLC 10.0
@BLLC T,?	Read Low Threshold Current Bank T	#BLLC 22.0
@MAXC A,?	Read Maximum Current Bank A	#MAXC 22.5
@MAXC B,?	Read Maximum Current Bank B	#MAXC 22.5
@MAXC C,?	Read Maximum Current Bank C	#MAXC 22.5
@MAXC T,?	Read Maximum Current Bank T	#MAXC 90.0
@MINC A,?,	Read Minimum Current Bank A	#MINC 15.0
@MINC B,?	Read Minimum Current Bank B	#MINC 15.0
@MINC C,?	Read Minimum Current Bank C	#MINC 15.0
@MINC T,?	Read Minimum Current Bank T	#MINC 45.0
@MAXC A,0	Reset Maximum Current Bank A	#MAXC OK
@MAXC B,0	Reset Maximum Current Bank B	#MAXC OK
@MAXC C,0	Reset Maximum Current Bank C	#MAXC OK
@MAXC T,0	Reset Maximum Current Bank T	#MAXC OK
@MINC A,999.9	Reset Minimum Current Bank A	#MINC OK
@MINC B,999.9	Reset Minimum Current Bank B	#MINC OK
@MINC C,999.9	Reset Minimum Current Bank C	#MINC OK
@MINC T,999.9	Reset Minimum Current Bank T	#MINC OK

Networking Functions

Simple Network Management Protocol (SNMP)

An SNMP-managed network consists of three key components:

1. Managed devices
2. Agents
3. Network Management Systems (NMSs)

A managed device is a network node that contains an SNMP agent and that resides on a managed network. Managed devices collect and store management information and make this information available to NMSs using SNMP. Managed devices, sometimes called network elements, can be any type of network based device including this PDU.

The agent running in this PDU has local knowledge of measurement information and translates that information into a form compatible with SNMP.

An Network Manager system executes applications that monitor and control managed devices. One or more NMSs may exist on any managed network.

The model on the following page illustrates the basic elements of an SNMP-managed network.

SNMP-Managed Network
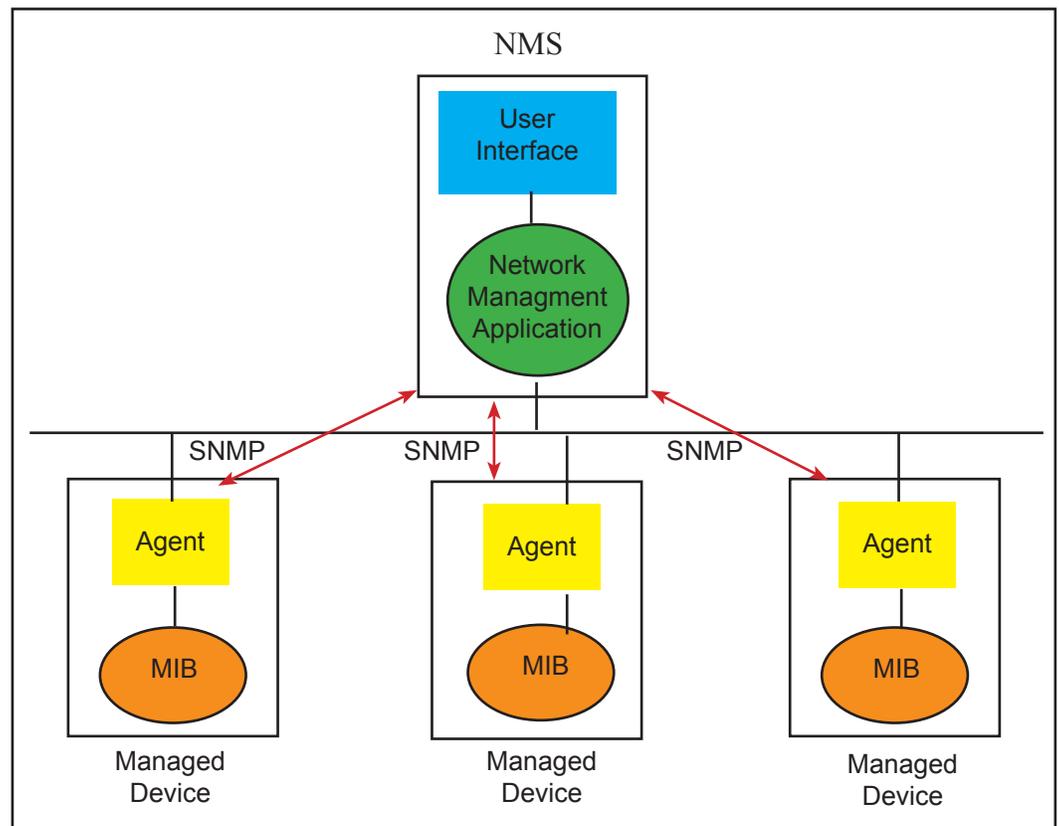
Networking Functions

Interactions between the NMS and managed devices can be any of four different types of commands: reads, writes, traversal operations, and traps.

- **Reads** - To monitor managed devices, NMSs read variables maintained by the devices.

- **Writes** - To control managed devices, NMSs write variables stored within the managed devices.

- **Traversal operations** - NMSs use these operations to determine which variables a managed device supports and to sequentially gather information from variable tables (such as IP routing tables) in managed devices.

- **Traps** - Managed devices use traps to asynchronously report certain events to NMSs.

Accessing the SNMP Interface

Accessing the SNMP interface requires a tool, such as a network management station. The management station relies on an agent at a device to retrieve or update the information at the device, including device configuration, status, and statistical information. This information is viewed as a logical database, called a Management Information Base (MIB). MIB modules describe MIB variables for a variety of device types and computer hardware and software components.

Networking Functions

```
login: root
Password: **********

Change SNMP Setup:
  0 SNMP Trap Address
  1 SNMP Read Community Name
  2 SNMP Read-Write Community Name
  3 Change Trap Dst Port
  4 Change HTTP Port
  5 Change DHCP Enable/Disable
  6 Log-In User Name
  7 Log-In Passwords
  8 Set to Factory Defaults
  9 Exit without save
  10 Save and exit                    Your choice ? 0

SNMP Trap IP-1 (192.168.32.102):
SNMP Trap IP-2 (0.0.0.0):
SNMP Trap IP-3 (0.0.0.0):_
```

Key SNMP Settings

SNMP read community name	"public"
SNMP read/write name	"public"

You can access the SNMP settings using Telnet <unit IP address> 9999. The default username and password is "root" and "1234", respectively.

Option 0 thru 3 on the Setup page:

Option 0 - Up to three SNMP trap addresses may be entered.
Option 1 - Read Community Name [default = "public"]
Option 2 - Read-Write Community Name [default = "public"]
Option 3 - SNMP Trap Destination Address

SNMP Security

- Authorization: Changing public and private community names is recommended to prevent unauthorized access to the device.
- You can disable SNMP set commands to make use of SNMP read-only.

SNMP MAX and MIN Data

MAX and MIN data fields are calculated by the PDU.
To reset a MAX field, write a "0" (zero) to the data location.
To reset a MIN field, write "999" to the data location.
The data location will then refresh with new calculated values.

Networking Functions

SNMP v2 Functions

Table 2

SNMP v2 Functions	
Variables	**SNMP v2 MIB**
Voltage Bank A	READ & TRAP
Voltage Bank B	READ & TRAP
Voltage Bank C	READ & TRAP
Current Bank A	READ & TRAP
Current Bank B	READ & TRAP
Current Bank C	READ & TRAP
Total Current on PDU (All banks)	READ & TRAP
Maximum Voltage Bank A	R/W
Maximum Voltage Bank B	R/W
Maximum Voltage Bank C	R/W
Minimum Voltage Bank A	R/W
Minimum Voltage Bank B	R/W
Minimum Voltage Bank C	R/W
High Threshold Voltage Bank A	R/W
High Threshold Voltage Bank B	R/W
High Threshold Voltage Bank C	R/W
High Threshold Current Bank A	R/W
High Threshold Current Bank B	R/W
High Threshold Current Bank C	R/W
High Threshold Current Bank T	R/W
Low Threshold Current Bank A	R/W
Low Threshold Current Bank B	R/W
Low Threshold Current Bank C	R/W
Low Threshold Current Bank T	R/W
Low Threshold Voltage Bank A	R/W
Low Threshold Voltage Bank B	R/W
Low Threshold Voltage Bank C	R/W
Maximum Current Bank A	R/W
Maximum Current Bank B	R/W
Maximum Current Bank C	R/W
Maximum Current Bank T	R/W
Minimum Current Bank A	R/W
Minimum Current Bank B	R/W
Minimum Current Bank C	R/W
Minimum Current Bank T	R/W
Software Revision	READ
PDU Model	READ
Number Of Banks	READ
Serial Communication Timeout	TRAP

Networking Functions

General MIB Usage

This section addresses the loading and compiling of MIBS into Network Management Systems (NMS). Alternatively, you can consult the documentation of other NMS on MIB loading and compilation. Below are the instructions for HP OpenView and IBM NetView, but you should still consult HP or IBM documentation, as the products may change.

From the GUI of HP OpenView or IBM NetView
Follow these steps to load the PDU MIBt:

Copy the files into the directory /usr/OV/snmp_mibs of the network management station.

This is the default directory where HP OpenView and IBM NetView look for MIB documents. If you place them elsewhere, specify the explicit path names in the loadmib graphical interface.

Set the permissions so that you have read access to the MIBs.

From the GUI menu, choose Options > Load/Unload MIBs.

Follow the instructions in the platform documentation, to compile or load the PDU MIB.

From the Command Line Interface of HP OpenView or IBM NetView
Issue the /opt/OV/bin/xnmloadmib -load filename command, to load the MIB file.

MIB Use With Vista Infrastructure Monitoring

There is no need to compile MIBs for use with Vista Infrastructure Monitoring (VIM) [formerly Enterprise Device Manager]. However, there are a few steps to take before VIM can communicate with a device, and these are mostly the same for every device.

1.   The device must be configured with network settings including an IP address, subnet mask, and default gateway.

2.   The device must be configured to allow the VIM software to be an SNMP manager. This usually involves entering the IP address of the VIM server into the device's NMS list or device access list.

3.   The device must be configured to send traps to the VIM server. This involves entering the IP address of the VIM server into a table along with the SNMP community string.

# Maintenance & Warranty

Maintenance and Replacement parts

There are no user serviceable parts inside the PDU. In the event there is an electronic problem with the unit, please contact the factory.

Warranty

Under normal use and specified operation conditions the PDU is warranted from the day of delivery for a period of three years. During this period, if the product should fail, the device can be sent back to the factory for repair or replacement at the discretion of Spectrum Control.

If the device is misused or tampered with in any way, the warranty becomes invalid. SCI is not liable for any damage caused by products that have been modified or serviced by other parties.

PDU Front Panel
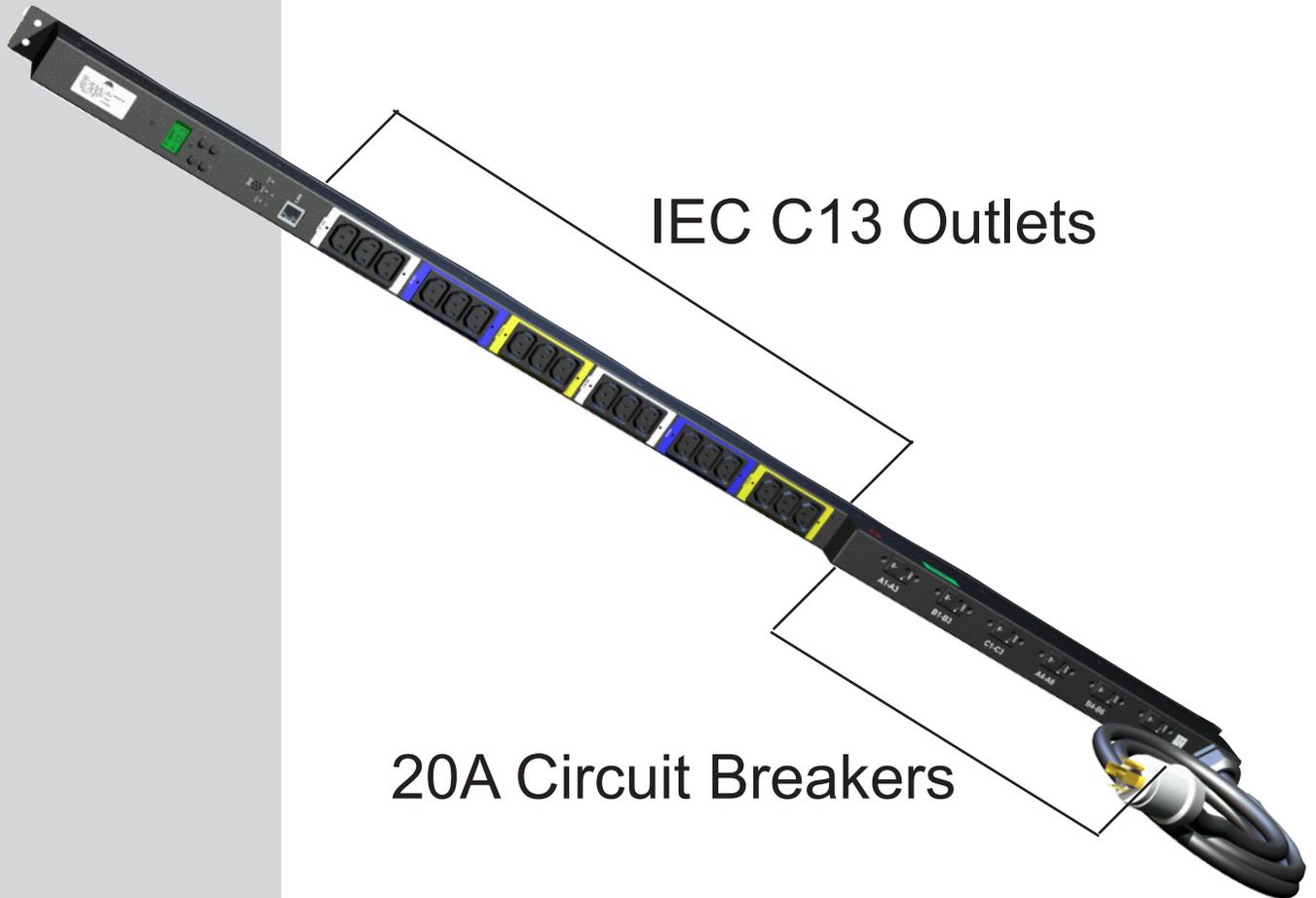
IEC C13 Outlets

20A Circuit Breakers