

Installation & Operation Manual

Phoenix PowerAgent EXM - Microsoft Internet Explorer
 Address: http://192.168.0.29

PowerAgent™
 Power Supply Transponder

HFC Network Power Supply

[Power Supply Manuals](#)
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Location:	User supplied device name	
PS Type:	Alpha XM with PBT EXM Xpndr	
Input Voltage:	120.54 VAC	Input Voltage:
Inverter Status:	OFF	Test Alarm:
Inverter ON Time (H:M:S):	0:0:0	Cabinet D:
Total String Voltage:	51.35 VDC	
String A:		
Battery 4 Voltage:	12.56 VDC	Delta:
Battery 3 Voltage:	13.12 VDC	Delta:
Battery 2 Voltage:	13.18 VDC	0.75 VDC
Battery 1 Voltage:	13.31 VDC	0.70 VDC
Output Voltage:	60.05 VAC	Output Alarm:
Output Current:	5.16 A	OK
Firmware Version:	00.2	Power Supply Comms:
Agent Temperature:	29 C, (84 F)	Normal
		Agent MAC Address:
		0-20-4a-8d-ed-21

Updated.

Embedded Power Supply Monitoring Transponder

For Alpha XM Power Supplies

Revision History

Release	Date	Revision Description
Rev 1	4/09/07	Initial Draft

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1. FOREWORD

1.1. Some Notes About This Document

This document will always be a work in process. The printed form of the document that you are reading is not necessarily the most up-to-date version available. The most recent version can always be downloaded from the Phoenix Broadband Technologies web site at:

<http://www.phoenixbroadband.com/Downloads/Manuals/PowerAgentManual.pdf>

2. UNPACKING & INSPECTION

2.1. Package Contents

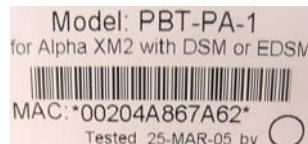
Each **PowerAgent™** unit is individually packed in a cardboard container. This carton also contains a wire harness for connection to the monitored power supply and for powering the DOCSIS modem.



2.2. Inspection

Verify that the carton contains the appropriate model of **PowerAgent™** for use with the target equipment and the appropriate interface wire harness for power supply being monitored.

A label on the outside of the individual shipping carton indicates the MAC address of the **PowerAgent™** unit contained inside.

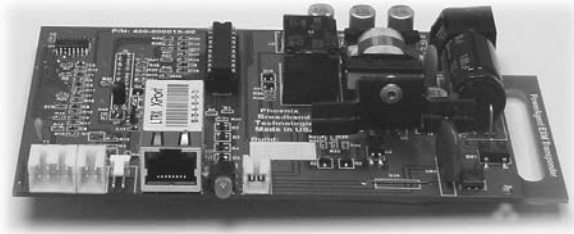


This MAC address matches the MAC address printed on the top of the **PowerAgent**. It is suggested that MAC addresses be recorded before the unit is sent out for installation so that the provisioning process can proceed in parallel with the hardware installation process.

3. INSTALLATION

3.1. Before You Start...

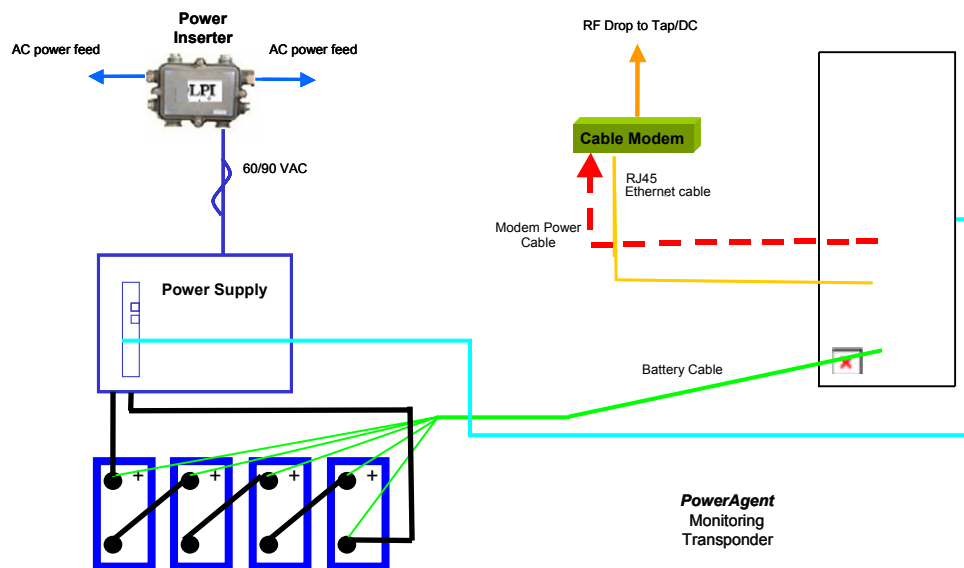
The Phoenix Broadband Model PBT-PA-EXM is a special-purpose status monitoring transponder for Alpha XM power supplies.



The EXM works in conjunction with the power supply's existing APM status monitoring interface card, but it eliminates and replaces the optional Alpha USM status monitoring interface adaptor. Once the EXM transponder is installed inside the power supply, all that is needed to complete a DOCSIS-compliant monitoring solution is any available DOCSIS cable modem. 12 VDC power for the modem is supplied by the transponder.

3.2. Installation diagram

Installation Block Diagram



The EXM monitors the following parameters:

Parameter	Num	Type	Indication
Output AC voltage	1	Analog	0 to 100VAC RMS
Output AC current	1	Analog	0 to 25 amps RMS
Input AC voltage	1	Analog	95 to 130 VAC
Battery string voltage	1	Analog	0 to 60 VDC
Individual battery voltage ¹	8	Analog	0 to 15 VDC
Inverter status	1	Digital	Off; local test; remote test
Cabinet tamper	1	Digital	Open; closed
Battery mat status ²	1	Digital	Off; On

The following parameters can be remotely controlled:

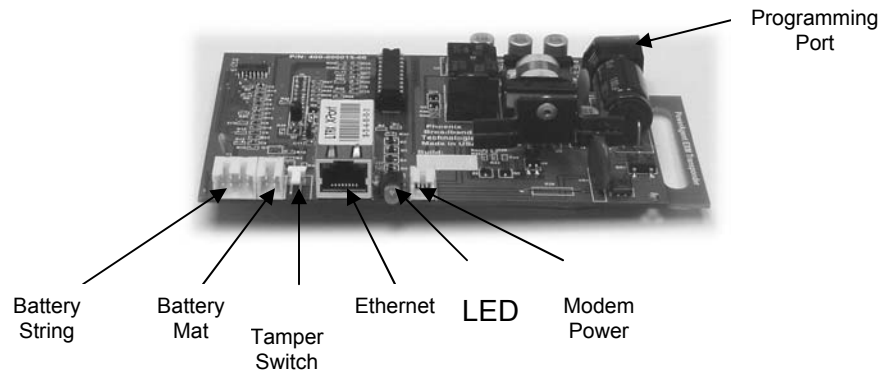
Parameter	Num	Type	Indication
Inverter control	1		Inverter on; inverter off
Battery mat control ²	1		On; Off

Notes: 1) Individual battery monitoring requires an optional 8-wire harness. The standard 2-wire harness can only monitor the total string voltage.
 2) Battery mat control is a transponder order-time option. Contact Phoenix Broadband for details.

Power for the EXM is obtained from the monitored battery string, and is typically 5-7 watts total (24-60VDC), depending on the power consumption of the external cable modem. The unit operates over a temperature range of – 40 deg C to +85 deg C

3.3. Connectors & Indicators

Refer to the photograph below for an explanation of the connectors and indicators on the EXM transponder:



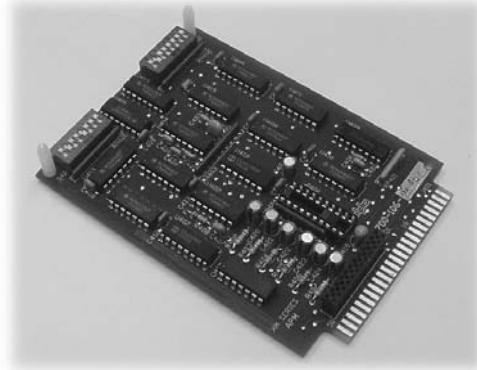
The functions of these connectors & indicators are

- Battery String – This 8 pin connector interfaces to up to 8 monitored batteries in 2 strings. The total string voltage is used to power the transponder.
 - Battery Mat – This optional feature is used to control and monitor a battery heating mat for climates where battery run-time is severely impacted by cold temperatures.
 - Tamper Switch – This connector is used to interface to a door-closure switch on the power supply cabinet.
 - Ethernet – This connector is typically connected to either a local-area network or to a cable modem.
 - LED – This bi-color LED is used to indicate the status of the transponder.
 - Modem Power – This connector supplies a nominal 12VDC power to the cable modem.
- Programming Port – This connector is used for factory programming and for low-level field reprogramming of the unit. Reprogramming can also be done over the data network.

3.4. Installing in the XM Inverter

3.4.1. Attaching to the APM Card

The EXM transponder attaches and connects to the Alpha APM card which is already in the power supply. The photograph to the right shows what the APM card looks like.

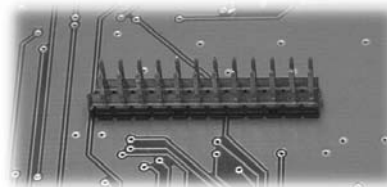


Carefully remove the APM card from the Alpha XM inverter module by pulling it firmly out of the socket.

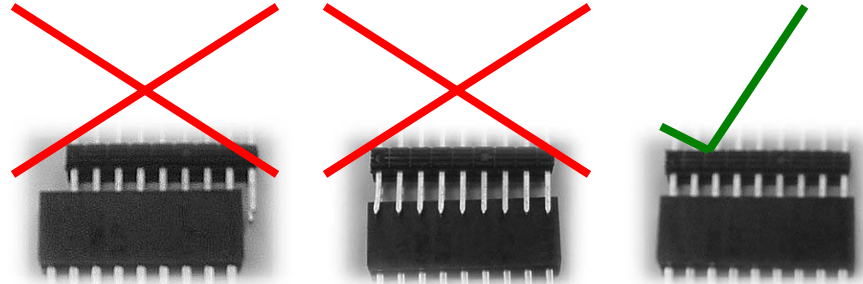
Notice the two plastic board-to-board spacers installed on the left side of the APM card in the picture. If these are not already installed in your APM card, you can use the two additional spacers that are supplied in the EXM ship-kit.

Position the EXM transponder so that the male pins on the back side of the board line up with the female pin connector on the APM card. Snap the plastic spacers on the APM card into the holes on the EXM board. Carefully plug the male pins on the EXM card into the female socket on the APM card, being careful to observe the pin alignment as shown in the photos below:

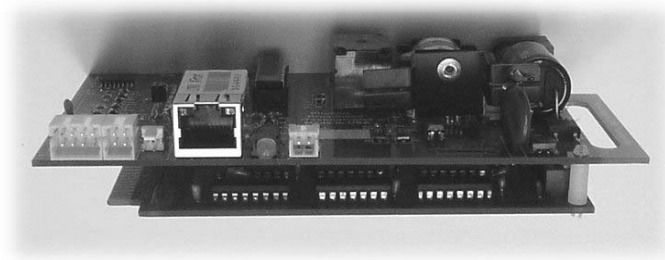
Cutaway view of the multi-pin interface connector on the bottom side of the EXM transponder board.



Be certain that all of the EXM male pins are properly seated in the APM socket.



The complete EXM/APM assembly should look like the photograph below:



3.4.2. Finishing the Installation

Carefully slide the EXM/APM assembly back into the Alpha XM inverter module in the position where the APM card was located before it was removed. Ensure that the edge fingers on the APM card are firmly seated in the card-edge socket inside the inverter module. In the assembly has to be removed for any reason, do so by pulling firmly on the handle feature of the EXM transponder board.

Replace the XM inverter module inside the XM power supply



3.5. Connecting the Cable Modem

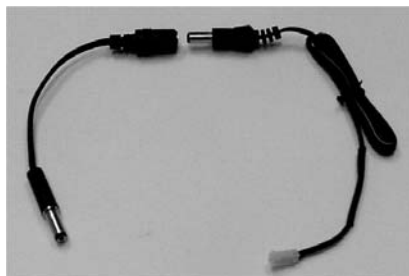
The eXM transponder will work with any cable modem that uses a wall transformer with an output of approximately 12 VDC. The power supply Interface cable assembly contains a cable modem power connection with a 2.5 x 5.5 mm, center positive, cable modem power plug. This plug will fit most cable modems. Cables are available from Phoenix Broadband for cable modems with other power connectors. Be sure the adapter provided is the correct adaptor for your cable modem. Check the voltage and polarity of the transformer that came with your cable modem to make sure it matches the power provided by the transponder. If you have any questions please contact Phoenix Broadband Technologies.

The following Table is a partial list of cable modems that have been tested with the **PowerAgent**. If your modem is not in the list we will be happy to test it for you if you provide us with a working sample.

Manufacturer	Model	Power Connector	Nominal Voltage	Polarity
Motorola	SURFboard SB5100	5.5 x 2.5 mm	12 VDC	Center positive
Scientific-Atlanta	WebStar DPC2100	5.5 x 2.1 mm	12 VDC	Center positive

Caution! Using the 2.5 mm cable on a modem with a 2.1 mm center pin will result in a poor connection, possibly causing intermittent operation.

The Cable Modem is powered from the transponder. Connect the supplied modem power cable to the transponder 2-pin modem power connector, and connect the other end (cylindrical connector) to the modem power input.



Connect the Ethernet cable supplied with the cable modem to the eXM Ethernet connector. Connect the other end of the cable to the cable modem's Ethernet connector. Connect the cable modem RF connector to a suitable RF interface on the cable network.

3.6. Other Connections

Connect the cabinet tamper switch to the tamper switch connector on the eXM transponder. If the tamper switch cable supplied with your cabinet is incompatible with the connector on the eXM, then contact Phoenix Broadband.

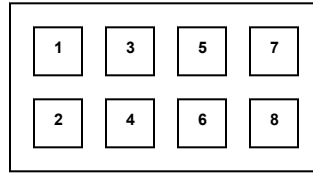
Connect the optional battery mat control harness to the battery mat control connector on the eXM. Connect the other end of this harness to the interface connector on the Trivision battery mat control unit.

3.7. Connecting the Batteries

This transponder is powered from the batteries. Connect the battery harness to the 8-pin battery connector on the transponder board. This cable supplies power from the batteries to operate the transponder and Cable Modem. Connect the lug on the end of the red wire to the battery string "+" voltage, and connect the black wire to the battery string "-" voltage.

Once the red and black wires are connected the LED's on the Ethernet connector will begin an illumination sequence, indicating that the transponder is receiving power. After a short period, the cable modem's 'ready' light should illuminate indicating that the modem has registered itself with the CMTS.

If the 4 or 8 battery harness is being used, connect the remaining wires as indicated in the following battery harness hookup diagram.



Battery Connector Pin-Out
Wire-side View

8-Battery Harness (PBT-PAC-8BATT)

This cable is for use with 1 or 2 strings of 3 or 4 batteries.

Pin	Color	String	Battery
1	Black	Both	String -
2	Brown+	B	12V
3	Orange	A	12V
4	Yellow+	B	24V
5	Green	A	24V
6	Blue*	B	36V
7	White*	A	36V
8	Red	Both	String +

Notes:

* These wires not used for 3-battery strings

+ These wires not used for single-string setup

Unused wires can be connected to string "-" terminal or taped-off & stowed.

4-Battery Harness (PBT-PAC-4BATT)

This cable is for use with 1 string of 3 or 4 batteries.

Pin	Color	String	Battery
1	Black	A	String -
2			
3	Brown	A	12V
4			
5	Green	A	24V
6			
7	White*	A	36V
8	Red	A	String +

0-Battery Harness (PBT-PAC-BATT)

This cable is used when individual battery voltage monitoring is not used.

Pin	Color	String	Battery
1	Black	A	String -
2			
3			
4			
5			
6			
7			
8	Red	A	String +

4. OPERATION

4.1. Initial Checkout

In order for the EXM transponder to work properly over the DOCSIS network, some initial “provisioning” work will have to be done by the network operations center, or whichever organization administers cable modem provisioning. If you merely want to make an initial “bench test” of the transponder/power supply, you can do so by eliminating the cable modem & DOCSIS network, and create a small “private network” for evaluation purposes. This small network will consist of:

- The transponder/power supply under test
- An inexpensive consumer router.
- A PC with a web browser. Optional software utility programs that will allow advanced evaluation of the EXM include:
 - A “Ping” program
 - A Telnet client program
 - An SNMP MIB browserThe Ping and Telnet programs are standard components of the Windows operating system.

Connect the PC, the router, and the EXM transponder into a small network according to the instructions in the router operating manual. Power up the EXM transponder as described previously. Within a few seconds, the router should assign an IP address to the EXM transponder. This address can be ascertained by looking through the router's built-in web-based configuration screens – check the router manual for details on how to do this.

Once the IP address is known, type it into your browser's address field. The EXM transponder should respond by serving a web page that looks like the following:

HFC Network Power Supply Power Supply Manuals PowerAgent Manual Phoenix Web Site Update Info Click here for latest firmware update info	Location:	User supplied device name		
	PS Type:	Alpha XM with PBT EXM Xpndr		
	Input Voltage:	120.54 VAC	Input Voltage:	Ok
	Inverter Status:	OFF	Test Alarm:	Ok
	Inverter ON Time (H:M:S):	0:0:0	Cabinet Door:	Open
	Total String Voltage:	51.35 VDC	Battery Mat Status:	Manual - Off
	String A:		String B:	
	Battery 4 Voltage:	12.56 VDC	Battery 4 Voltage:	12.67 VDC
	Battery 3 Voltage:	13.12 VDC	Battery 3 Voltage:	13.37 VDC
	Battery 2 Voltage:	13.18 VDC	Battery 2 Voltage:	13.12 VDC
Battery 1 Voltage:	13.31 VDC	Battery 1 Voltage:	13.31 VDC	
	Delta:		0.70 VDC	
Output Voltage:	60.05 VAC	Output Alarm:	Ok	
Output Current:	5.16 A			
Firmware Version:	00.2	Power Supply Comms:	Normal	
Agent Temperature:	29 C, (84 F)	Agent MAC Address:	0-20-4a-8d-ed-21	
Updated.				

You can now exercise the power supply and observe the monitoring capabilities of the EXM transponder. However, it is important to note that no remote power supply control capability is implemented in the web screen. This is a security feature to prevent unauthorized personnel from causing network problems. Full remote control functionality is implemented in the SNMP/HMS MIB set. An SNMP management program and some understanding of SNMP are necessary to exercise these functions.

4.2. LED Operation

There are two LED's on the front of the **PowerAgent™** Ethernet connector. The left LED is the "Link" LED.

LED Color	Meaning
Off	No Link
Amber	10 Mbps
Green	100 Mbps

The right LED is the "Activity" LED.

LED Color	Meaning
Off	No Activity
Amber	Half Duplex
Green	Full Duplex

Under normal operation the left LED will be green and on continuously. The right LED will be off most of the time but will occasionally flash green when the **PowerAgent™** is interrogated.

4.3. Setting the IP Address

In order to communicate with the **PowerAgent™** over the network the **PowerAgent™** must be assigned an IP address. Generally static IP addresses are used so that the Network Manager can associate the IP address with a physical location.

There are several ways to handle the IP address assignment.

- You can pre-configure your DHCP server to assign a static IP address to the **PowerAgent™** MAC Address. The MAC address is printed on the **PowerAgent™** label. This is the method most commonly used for field installations.
- You can let your DHCP server assign an address and then interrogate the DHCP server to determine what address was used. This technique works well in the lab environment where the DHCP server

may be in a router. For field installations you obviously do not want the IP address to keep changing.

- You can program a static IP address in the **PowerAgent™** using a temporary connection to a router with a built-in DHCP server and the **PowerAgent™** Telnet configuration port.
- You can program a static IP address in the **PowerAgent™** directly using the Programming Adapter cable and a PC as described in the next section.

The **PowerAgent™** is shipped from the factory configured to obtain an IP address automatically from a DHCP server.

4.4. Configuring the PowerAgent

The **PowerAgent™** is configured over the network through a telnet connection. Support of telnet is a standard part of Windows so virtually any PC can configure the **PowerAgent**.

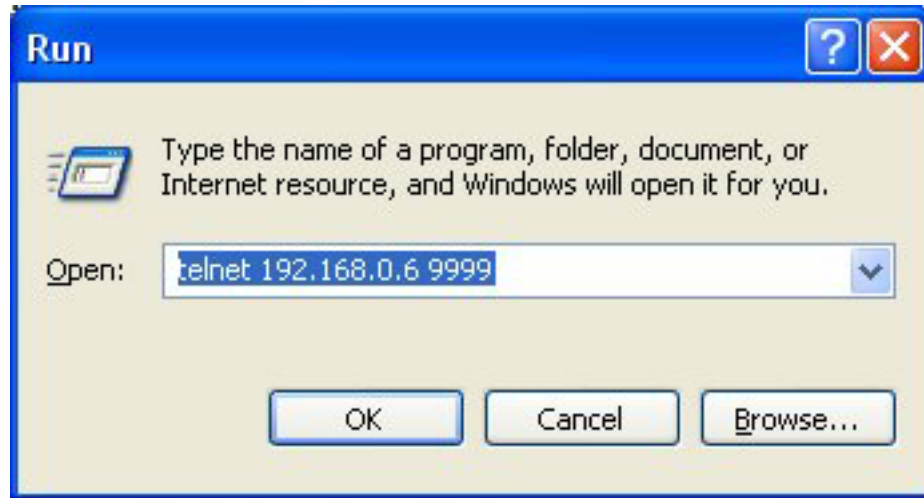
The **PowerAgent™** is also equipped with a local interface that allows a PC to be connected directly to the **PowerAgent™** to access the configuration program described below. A PC with a serial communications program such as HyperTerminal is required. The serial port uses 9600 baud, 8 data bits, 1 stop bit, and no parity. A Programming Adapter cable is required which may be obtained by contacting Phoenix Broadband. To use the local interface to program the **PowerAgent**, connect the special cable to the PC serial port and hold down the “x” key while applying the power to the **PowerAgent**. Follow the Telnet instructions below.

Another way to configure the **PowerAgent™** is to connect the **PowerAgent™** to a router that supports DHCP. The router will automatically assign an IP address to the **PowerAgent™** which will enable network access to the **PowerAgent™** for configuration. Your router should have a built in Web Server or some other method of determining what IP address was assigned to the **PowerAgent**. Once the IP Address has been assigned and is known the **PowerAgent™** can be configured through a telnet connection as described below.

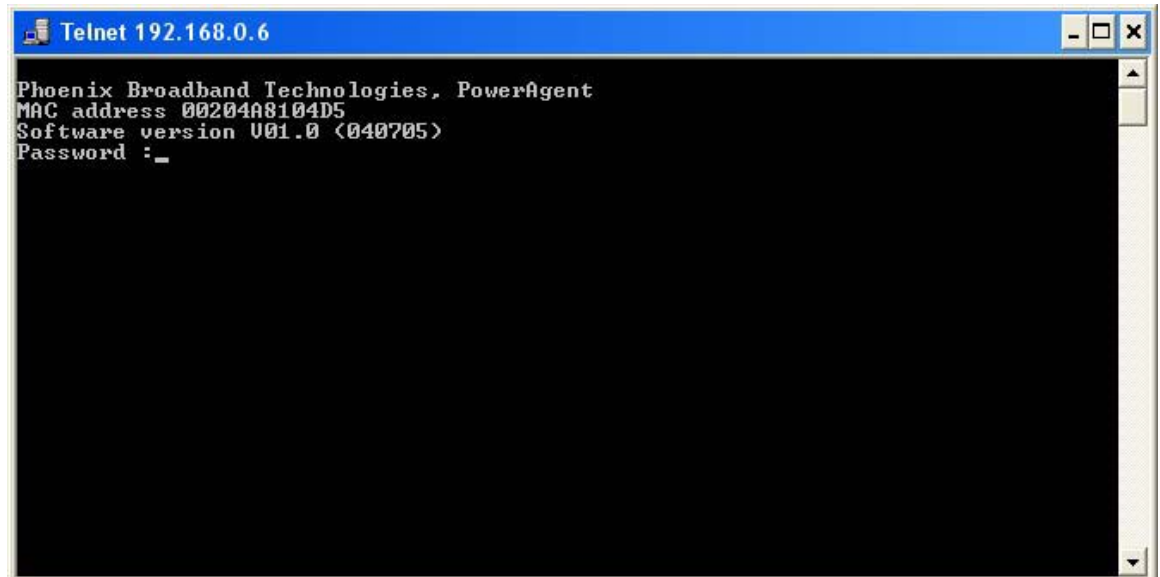
4.4.1. Running the PowerAgent™ Telnet Setup

To open a telnet connection to the **PowerAgent™** select “Run” from the Windows “Start” menu. Enter “telnet” followed by a space, then, the IP

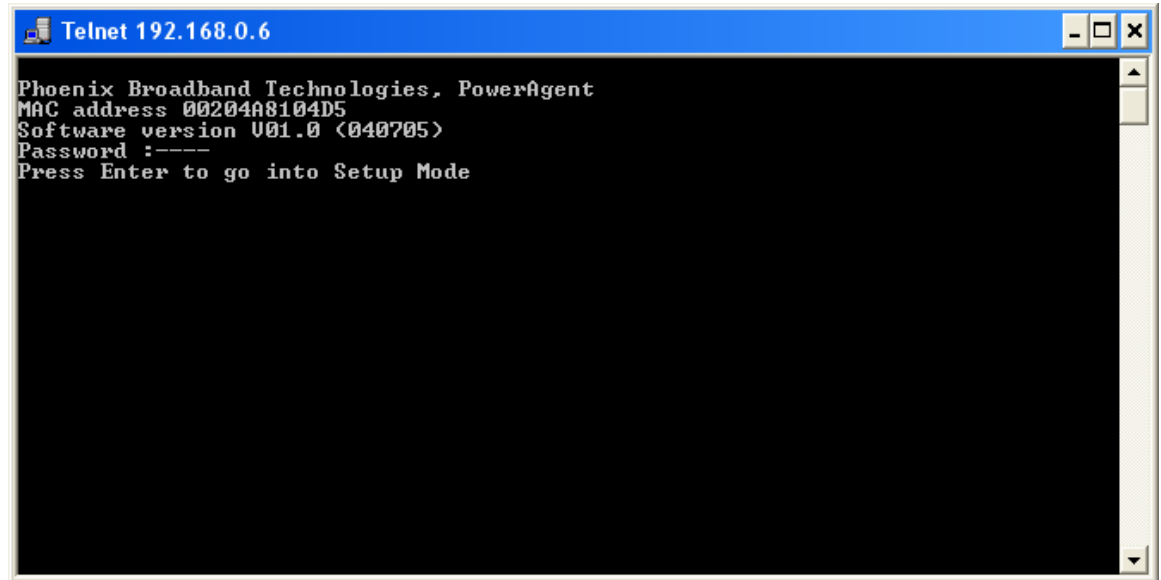
address of the **PowerAgent™** followed by a space, and then the port number “9999” followed by “Enter”.



If the **PowerAgent™** is on, line and the telnet password is enabled the following screen will be displayed. If the telnet password is not enabled, skip to the next step.

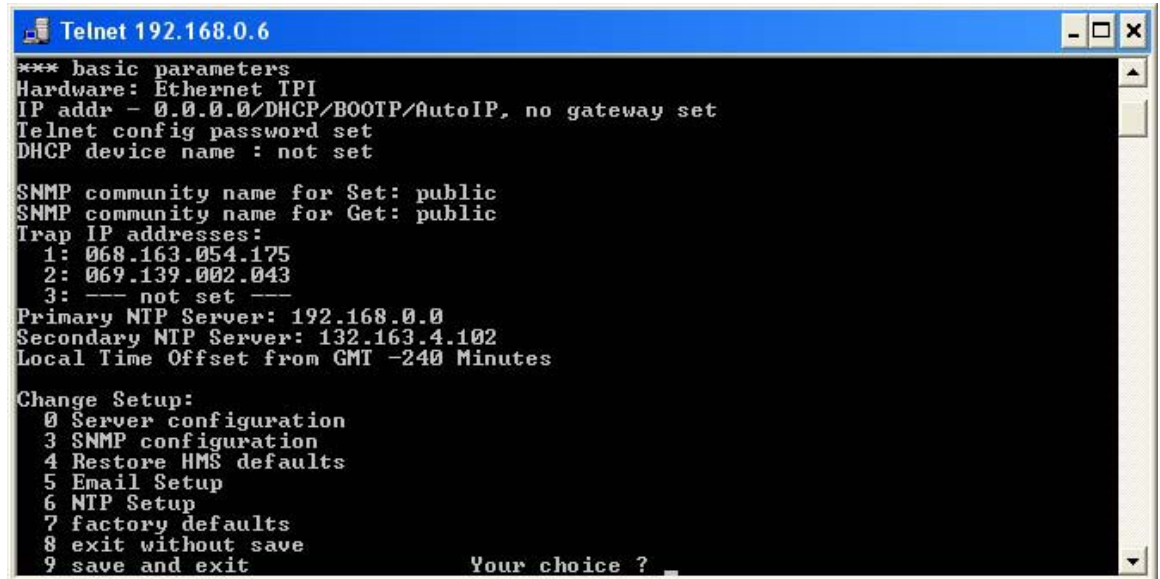


Enter the password. If the password is accepted the following screen will be displayed, if the password is not accepted the telnet session will be terminated.



Type "Enter" to begin the setup process. If "Enter" is not typed in a few seconds the telnet session will be terminated by the **PowerAgent**.

The Setup Menu will then be displayed as shown below.



```
Telnet 192.168.0.6
*** basic parameters
Hardware: Ethernet TPI
IP addr - 0.0.0.0/DHCP/BOOTP/AutoIP, no gateway set
Telnet config password set
DHCP device name : not set

SNMP community name for Set: public
SNMP community name for Get: public
Trap IP addresses:
 1: 068.163.054.175
 2: 069.139.002.043
 3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

Change Setup:
 0 Server configuration
 3 SNMP configuration
 4 Restore HMS defaults
 5 Email Setup
 6 NTP Setup
 7 factory defaults
 8 exit without save
 9 save and exit
Your choice ?
```

4.4.1.1. Setting the PowerAgent™ IP Address

The **PowerAgent™** can be configured with a fixed IP address or it can obtain an IP address automatically. When the **PowerAgent™** IP address is set to 0.0.0.0 the IP address will be obtained automatically from the DHCP server or by AutoIP. The **PowerAgent™** is shipped with the IP address set to 0.0.0.0.

To change the IP Address select option 0 from the setup menu by typing a 0 followed by “Enter”. The following screen will appear.

```

Telnet 192.168.0.6
IP addr - 0.0.0.0/DHCP/BOOTP/AutoIP, no gateway set
Telnet config password set
DHCP device name : not set

SNMP community name for Set: public
SNMP community name for Get: public
Trap IP addresses:
  1: 068.163.054.175
  2: 069.139.002.043
  3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

Change Setup:
  0 Server configuration
  3 SNMP configuration
  4 Restore HMS defaults
  5 Email Setup
  6 NTP Setup
  7 factory defaults
  8 exit without save
  9 save and exit
                                Your choice ? 0

IP Address : <000>
    
```

The current value of the first byte of the IP address will be shown in parenthesis. This indicates that the first byte of the IP address is 0. To change the byte, type the new number followed by "Enter". To move on without making any changes, just type "Enter". In the following example the first byte of the IP address was changed to 192.

```

Telnet 192.168.0.6
IP addr - 0.0.0.0/DHCP/BOOTP/AutoIP, no gateway set
Telnet config password set
DHCP device name : not set

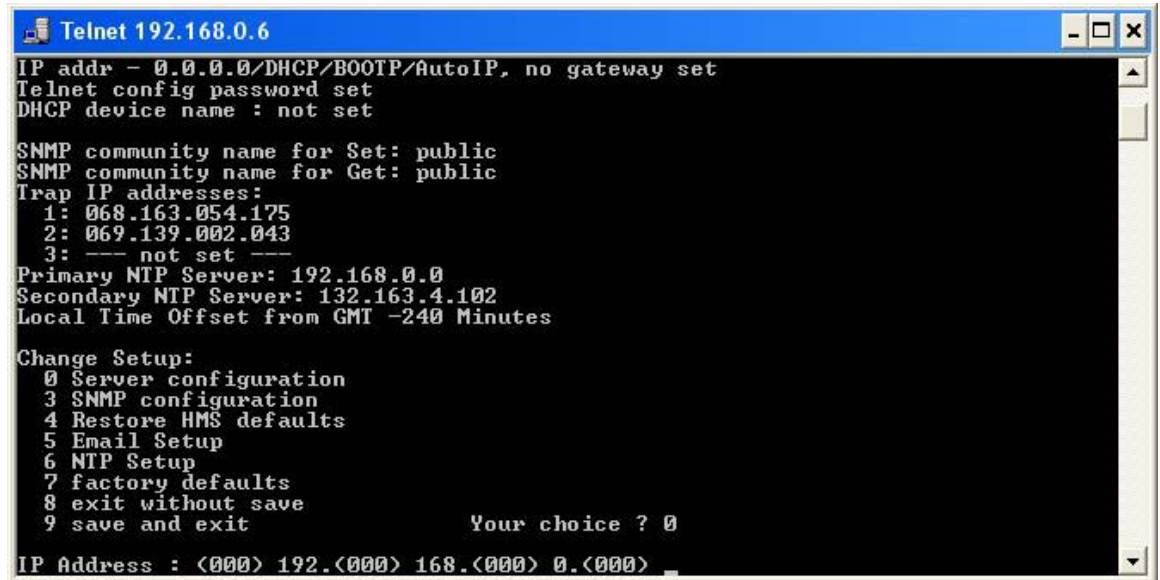
SNMP community name for Set: public
SNMP community name for Get: public
Trap IP addresses:
  1: 068.163.054.175
  2: 069.139.002.043
  3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

Change Setup:
  0 Server configuration
  3 SNMP configuration
  4 Restore HMS defaults
  5 Email Setup
  6 NTP Setup
  7 factory defaults
  8 exit without save
  9 save and exit
                                Your choice ? 0

IP Address : <000> 192.<000>
    
```

+

Continue entering each byte of the IP address until all 4 bytes have been entered. To skip any entry without making any changes type “Enter” without typing any numbers.



Next the **PowerAgent™** will ask if you would like to set the Gateway IP Address. The Gateway address is required for the **PowerAgent™** to initiate communications with other devices on the network; such as the time or email servers. This address is obtained automatically when running with DHCP, however when a static IP address is assigned to the **PowerAgent™** the Gateway Address must be set manually. The Gateway Address is normally set to the IP Address of the first router encountered by outbound network traffic. To change the address, type a “Y” and enter the IP address as described above. To skip the address, type an “N”.

The **PowerAgent™** will now ask for the Network Mask. To change the mask, enter the number of bits required for the local network. Example; For 255.255.255.0 enter 8, for 255.255.252. 0 enter 10. Verify the net mask was set correctly by observing the displayed value when the menu returns to the screen.

Next the **PowerAgent™** will ask if a telnet password is desired. A four character password can be selected to secure telnet access to the Agent. Use caution when selecting a password. If you forget the password or enter it incorrectly the **PowerAgent™** must be returned to the factory for repair. To set the password, enter a “Y” and then the password following the prompt. To remove a password enter a “Y” and then an enter at the prompt.

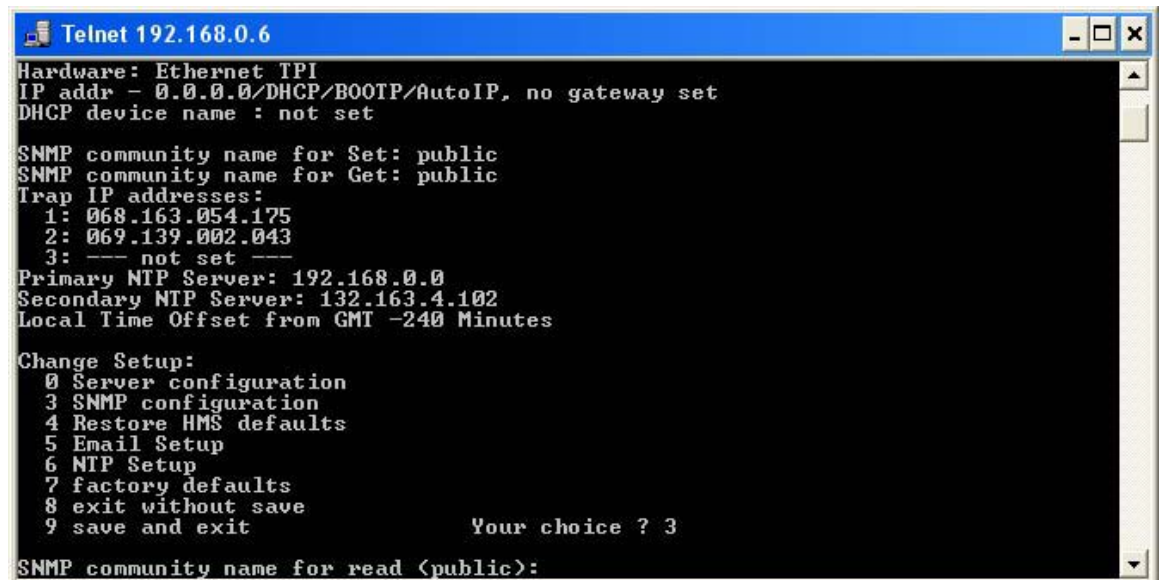
Finally the **PowerAgent™** will ask if you would like to change the DHCP device name. We recommend that you do not change this setting. Type enter to return to the menu.

To save your changes type 9. The changes will be saved in nonvolatile memory, the telnet session will be terminated, and the **PowerAgent™** will reset.

4.4.1.2. SNMP Agent Configuration

The SNMP Community strings and Trap destinations are configured from the SNMP Configuration.

The default community strings are set to “public”. To change the community string type “3” followed by “Enter”. The present read (Set) community string will be displayed in parenthesis as shown below.

A screenshot of a Telnet window titled "Telnet 192.168.0.6". The window shows a configuration menu with the following text:

```
Hardware: Ethernet TPI
IP addr - 0.0.0.0/DHCP/BOOTP/AutoIP, no gateway set
DHCP device name : not set

SNMP community name for Set: public
SNMP community name for Get: public
Trap IP addresses:
 1: 068.163.054.175
 2: 069.139.002.043
 3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

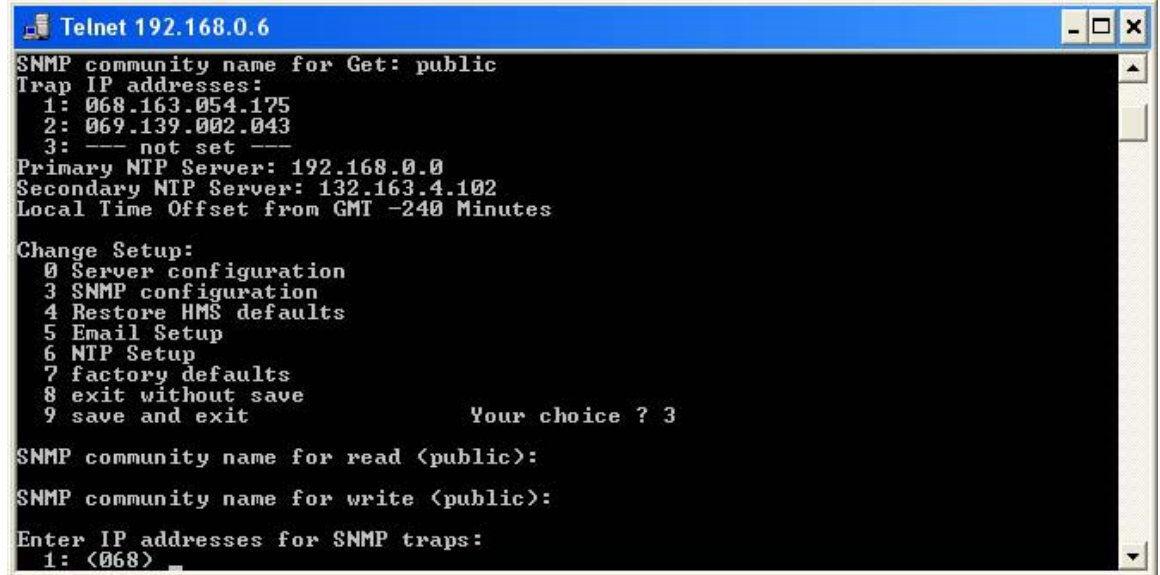
Change Setup:
 0 Server configuration
 3 SNMP configuration
 4 Restore HMS defaults
 5 Email Setup
 6 NTP Setup
 7 factory defaults
 8 exit without save
 9 save and exit
Your choice ? 3

SNMP community name for read (public):
```

To change the community string, type the new string followed by “Enter”. To move to the next item without changing the community string just type “Enter”. The write (Set) community string is next and is handled the same way.

Up to 3 Trap destinations can be configured. The IP address of the Trap destinations are set similar to the **PowerAgent™** IP address described

above. To disable sending Traps to any of the three IP address enter zeros for the IP address.



```
Telnet 192.168.0.6
SNMP community name for Get: public
Trap IP addresses:
 1: 068.163.054.175
 2: 069.139.002.043
 3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

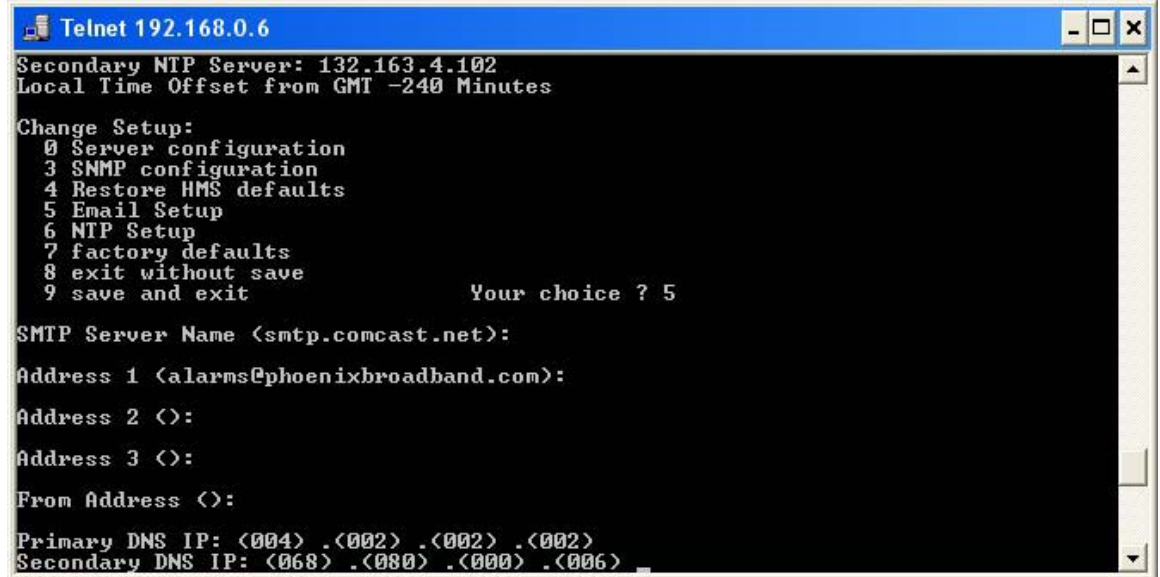
Change Setup:
 0 Server configuration
 3 SNMP configuration
 4 Restore HMS defaults
 5 Email Setup
 6 NTP Setup
 7 factory defaults
 8 exit without save
 9 save and exit
Your choice ? 3

SNMP community name for read <public>:
SNMP community name for write <public>:
Enter IP addresses for SNMP traps:
1: <068>
```

The menu will be redisplayed at the end of the SNMP Configuration. Select “9” to save the changes and close the telnet session.

4.4.1.3. Mail Client Configuration

The **PowerAgent™** can be configured to Email alarm message to up to 3 different email addresses.



```
Telnet 192.168.0.6
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

Change Setup:
 0 Server configuration
 3 SNMP configuration
 4 Restore HMS defaults
 5 Email Setup
 6 NTP Setup
 7 factory defaults
 8 exit without save
 9 save and exit                Your choice ? 5

SMTP Server Name (smtp.comcast.net):
Address 1 (alarms@phoenixbroadband.com):
Address 2 (<):
Address 3 (<):
From Address (<):
Primary DNS IP: (<004> .<002> .<002> .<002>)
Secondary DNS IP: (<068> .<080> .<000> .<006>)
```

To configure the Email client select option 5 from the main menu. The **PowerAgent™** will request the name of the SMTP Server. The present name will be shown in parentheses. To change the server name type the new name followed by “Enter”. To move on without changing the name, type “Enter”. To change the server name value to Null, type “0 Backspace Enter”. Setting the mail server name to Null disables the sending of Email.

Next, up to 3 Email addresses can be configured. To disable sending mail to an address, set the address to Null as described in the previous paragraph.

Next enter the “From” Email address if required. Some SMTP mail servers require a valid “From” address before they will transmit the mail.

Next enter the IP addresses for two Domain Name Servers (DNS). The DNS is used to get the current IP address of the Named Mail Server. Enter the IP addresses as described previously.

Note: The present implementation does not support SMTP accounts that require passwords.

4.4.1.4. Time Server Configuration

The **PowerAgent™** can set its internal clock from any internet time server that supports Network Time Protocol (NTP). There are many such servers around the world. Many of these servers are operated by government standards organizations.

The **PowerAgent™** is shipped with the NTP configuration set to get the time from two different US National Institute of Standards time servers. The IP addresses of these servers can be changed in the NTP Configuration. If the time server addresses are not configured or the **PowerAgent™** is unable to contact either time server the **PowerAgent™** will initialize the time to 00:00:00 GMT 6/30/04. If communications is not established with a time server the internal clock will run from this point.

The time provided by most time servers is Greenwich Mean Time (GMT). The **PowerAgent™** will convert this to Local Time using a time offset that can be entered in the NTP Configuration.

To configure the NTP select option 6 from the Configuration main menu.

There are two Time Server addresses. The **PowerAgent™** will use the primary server unless it fails to respond and then it will switch to the secondary. It will not switch back unless the secondary server fails to respond or the **PowerAgent™** is reset. To change a default Time Server IP address to undefined, enter zeros for the IP address.

The **PowerAgent™** will reset the cable modem and itself if there is no communications with either time server for a little over 2 hours. To disable the reset function enter zero for the primary time server IP address. The **PowerAgent™** will use the secondary time server to set the time if the second IP address valid.

The time read from the time servers is GMT. There is an option in the NTP Setup to enter a time offset to correct for this. If the time offset is positive, east of the UK, simply enter the offset in minutes. If the time offset is negative, west of the UK, the offset must be entered in 2's compliment form. To compute the value subtract the time offset in minutes from 65536 and enter the result. For example the offset to Eastern Daylight time is 4 hours. $65536 - 240 = 65296$ Enter 65296 as the time offset for Eastern Daylight time.

```

Telnet 192.168.0.6
DHCP device name : not set
SNMP community name for Set: public
SNMP community name for Get: public
Trap IP addresses:
 1: 068.163.054.175
 2: 069.139.002.043
 3: --- not set ---
Primary NTP Server: 192.168.0.0
Secondary NTP Server: 132.163.4.102
Local Time Offset from GMT -240 Minutes

Change Setup:
 0 Server configuration
 3 SNMP configuration
 4 Restore HMS defaults
 5 Email Setup
 6 NTP Setup
 7 factory defaults
 8 exit without save
 9 save and exit
Your choice ? 6

Primary NTP Server: <192> .<168> .<000> .<000>
Secondary NTP Server: <132> .<163> .<004> .<102>
Local Time offset from GMT <Minutes>: <65296> ?
    
```

5. USING THE POWERAGENT

5.1. Using the PowerAgent™ Web Server

5.1.1. Computer Requirements

The **PowerAgent™** Web Server uses a Java applet to communicate between the Web Browser on your PC and the **PowerAgent**. For this to operate, the Java Runtime Environment must be installed on your PC. This is a common function of many Web Sites so it is likely that the Java Runtime Environment is already loaded on your PC.

If you need to load the Java Runtime Environment go to the Sun Java Web Site at:

http://java.com/en/download/windows_automatic.jsp

and follow the directions to download and install the latest version of the J2SE JRE. This is a free download.

Caution!: The **PowerAgent™** web server has been tested to work with Sun Java Runtime Environment Version 1.4.2. Older versions of the

Java Runtime Environment may not function properly with the PowerAgent™ Web Server.

To check which version you are using on your PC open a Microsoft Internet Explorer and select Tools -> Internet Options -> Advanced. Scroll down to the line that displays Java (Sun). The version number of the Java Runtime environment installed on your PC will be shown. If this line is not present the Sun Java Runtime Environment is not installed on your PC.

5.1.2. Accessing the PowerAgent™ Web Server

To access the **PowerAgent™** Web page type: "<http://xxx.xxx.xxx.xxx/>" from your web browser. Substitute your **PowerAgent's** IP address in place of "xxx.xxx.xxx.xxx".

5.1.3. Web Page Layout

The **PowerAgent™** Web page is divided into 4 main sections. The top graphic banner and the left-side blue menu bar are common to all versions. The gray area to the right of the menu bar is a container for a Java applet that communicates with the **PowerAgent™** and displays real-time information about the status of the equipment. The bottom 'footer' section contains information about the version number of the web server running in the specific **PowerAgent**.

5.1.4. Web Page Common Features

The blue menu bar contains internet hyperlinks to useful information such as a link to the equipment manufacturer's web page where equipment manuals can be obtained, the equipment manufacturer's web Home page, the latest version of the **PowerAgent™** manual served by Phoenix Broadband's web site, Phoenix Broadband's Home page, and a link to **PowerAgent™** product and firmware version information served from Phoenix Broadband's web site.

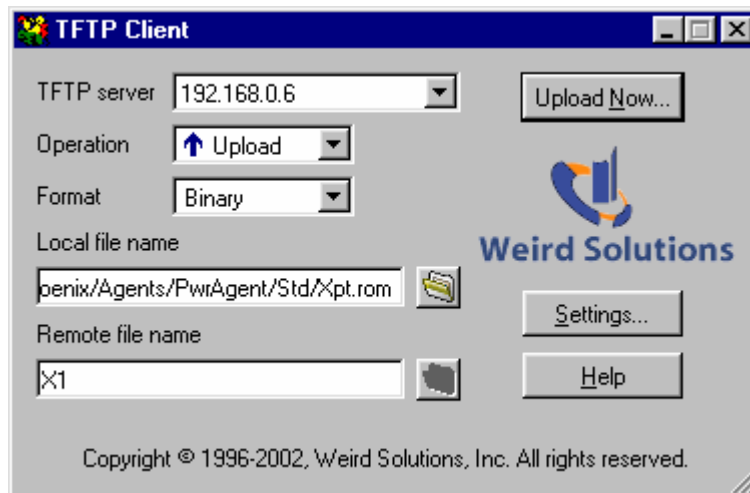
6. FIRMWARE AND WEB PAGE UPDATING

The **PowerAgent™** Firmware can be updated remotely using TFTP. To perform this update you will need a TFTP Client. A free TFTP Client can be downloaded from “<http://www.weird-solutions.com/download/index.html>”. Please read and comply with the software license. There are other TFTP Clients available on the internet.

The following example is based on the Weird-Solutions client.

- Set the “TFTP Server” to the IP Address of the **PowerAgent™** to be updated.
- Set “Operation” to **Upload**.
- Set “Format” to **Binary**.
- Set “Local File Name” so it contains a valid path to the file to be uploaded. For a firmware update the file name is normally path\PaXXX_VVV.rom, where XXX identifies the product and VVV is the version number. For a Web page update, the file name is normally path\PaXXXWebY_VVV.cob where Y is the page number..
- The Timeout setting accessed from the “Settings” button should be checked and the time set to 7 seconds. The other settings should be left at their default values.
- Set “Remote File Name” to **GM** for a **PowerAgent™** update unless instructed otherwise or **WEB1** for a web page update.

Push the “Upload Now” button to perform the upload. The firmware upload normally only takes a few seconds. The Web page upload may take 15 or 20 seconds.



Each different **PowerAgent™** application has different firmware. If the wrong firmware is loaded the power supply interface may not function properly.

At the time of this document release the **PowerAgent™** uses the following Local and remote file names.

Application	Local File Name	Remote File Name
Firmware	PaEXM_0110.rom	GM
Web page	PaEXMweb1_0110.cob	WEB1