OS

MCPA OUTDOOR SYSTEM

INSTALLATION AND SERVICE MANUAL

OS-1933-E0-003

Powerwave®
technologies

This Powerwave product is intended only for installation in a RESTRICTED ACCESS LOCATION and this Powerwave product is designed to operate within the normal operating (typical operating) ranges or conditions specified in this document. Operation of this equipment beyond the specified ranges in this document may cause:

1.Spurious emissions that violate regulatory requirements.

2.The equipment to be automatically removed from service when maximum thresholds are exceeded.

3.The equipment to not perform in accordance with its specifications.

It is the operator's responsibility of the operator to ensure this equipment is properly installed and operated within Powerwave operating specifications to obtain proper performance from the equipment and to comply with regulatory requirements.

For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated in the building permanent wiring.

Revision Record

Revision	Date of Change	Reason for Change
Rev A	June 2008	Initial Release

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Warning, Cautions, and Notes

Warnings, Cautions, and Notes are found throughout this manual where applicable. The associated icons in warnings and cautions are used to quickly identify a potential condition that could result in the consequences described below if precautions are not taken. Notes clarify and provide additional information to assist the user.

WARNING: The warning symbol means danger. You are in a situation that could cause bodily injury or death. Before you work on any equipment, be aware of the hazards involved with electrical and RF circuitry and be familiar with standard practices for preventing accidents.

CAUTION: The caution symbol means the potential exists for equipment damage or loss of data.

NOTE: Notes contain helpful suggestions or references to material not covered in the document.

Safety

Any personnel involved in installation, operation, or service of units included in a Powerwave MCPA Outdoor System must understand and follow the points below:

❑ Units supplied from the mains must be connected to grounded outlets and in conformity with the local prescriptions.

❑ For outdoor use, the power cord should meet at least IP65 encapsulation requirements. Do not turn the main power on until you are ready to commission the equipment.

❑ Power supply units supplied from the mains contain dangerous voltage that can cause electric shock. Disconnect the mains prior to any work in such a unit. Local regulations are to be followed when servicing such units. Only authorized service personnel are allowed to service units while the mains are connected.

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Chapter 1
Product Description

Introduction

This manual provides information and procedures for installation, operation, and maintenance of the OS-1933-E0-003 Multi-Carrier Power Amplifier (MCPA) Outdoor Booster System.

Scope of Manual

This manual is intended for use by service technicians familiar with similar types of equipment. It contains service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date may be incorporated by a complete manual revision or alternatively as additions. General Description

The outdoor system (OS), shown in Figures 1-1 through 1-4, is a three-way system operating in a 60MHz transmit frequency band from 1930 to 1990MHz with an instantaneous bandwidth of any 60MHz within the operating transmit band and an uplink frequency range of 1850 to 1910 MHz.

The OS has a sturdy aluminum IP55 rated cabinet with front and rear locking hinged doors equipped with intrusion alarms. The door latches are 1/4 turn and require a 10 mm hex socket wrench or nut driver to open and close. The doors can be secured with a padlock with a 1/2 inch maximum shank diameter. The front and rear doors contain removable, washable air filters.

Bolt inserts located on the cabinet side and bottom panels are for mounting the OS to a secure fixed location. RF connections are located on the interface bulkhead plate at the bottom rear of the cabinet. External power, communications, and alarm cables are routed through access holes located adjacent to the bulkhead. Cabinet ground is also located next to the interface bulkhead.

The OS system provides three forms of alarm reporting; Form-C contact closure, ethernet (web page), and wireless modem.

Major features of the OS cabinet include the following:

- ❏ Up to three MCPAs. (one per sector, up to 160W)
- ❏ Three RF Conditioning Units (RFCU).
- ❏ One Control Module
- ❏ One power system containing up to four rectifier modules.
- ❏ Two variable-speed fan assemblies, front and rear doors.

MCPA

The MCPA module, shown in Figure 1-5, is a 1900 MHz RF amplifier. The MCPAs operational features include a front panel RF OFF/ON/RESET switch and a multicolored LED indicator to display system status. MCPA faults are reported via the status alarm web page.

RF Conditioning Unit (RFCU)

The RF Conditioning Unit (RFCU) shown in Figure 1-6 combines up to four separate BTS feeds; two duplexed and two simplexed. The RFCU combines, attenuates, and conditions the RF signals. If a critical system failure occurs, the RFCU places the system into bypass mode. The RFCU has two Low Noise Amplifier Units with adjustable gain, each located between the output and input duplexer on the RX path and the diversity RX path. Performance of the RFCU is monitored and reported via the Ethernet web pages. Faults from the RFCU are mapped to Form-C and optional wireless modem alarms.

Controller Module

The Controller Module shown in Fig. 1-7 provides control and monitoring of the OS operation through two Ethernet ports, Form-C alarms, external alarm inputs and LED status indicators. Status and configuration details are available through Ethernet web pages.

Power System

The power system shown in Figure 1-8, contains up to four +28.5 VDC plug-in 1300 watt rectifier modules.The rectifier modules convert the system AC input power to supply +28.5 VDC to each MCPA and the Controller Module. Performance of the power system is monitored and reported via the Ethernet web pages. Power system faults are mapped to Form-C and optional wireless modem alarms

TMA Supply

The two Rx channels per sector provide DC power via Bias-Ts to external Tower Mounted Amplifier (TMA) modules. Each channel is programmable via the Ethernet web pages. The Control Module monitors and reports DC current. Loss of current or excessive current generates a fault and disables the channel. All fault modes are continuously monitored for fault auto recovery. TMA power is provided independent of the bypass status.

Fans

The system is cooled by two variable speed DC fans, located on the front and rear doors, providing air flow through the booster cabinet. The fans draw ambient air through a filter mounted in the front panel vents and send heated air out the filter mounted in the rear panel. The variable speed fans are dependant on the MCPA, power system, Controller Module temperature sensors, and door intrusion status. Fan operation is disabled when any door opens. Pulling out the door intrusion switch plunger emulates a door closure and activates the fan operation. The variable speed fans maintain adequate cooling by operating at the slowest possible speed. All temperature sensors are monitored by the Control Module and the hottest device controls the fan speed. Fan speed increases or decreases by one step per one minute.

Ethernet Web Pages

The Ethernet web pages are accessible via the front panel Ethernet port on the Controller Module. Use a web browser to view the following pages:

- ❑ Status/Static - Displays current firmware and user controllable configurations.
- ❑ Status/Dynamic - Displays the operator performance of the system in real time.
- ❑ Status/Alarm - Displays the status of all the individual alarm parameters.
- ❑ User - Displays Unique I.D. about this system and password entries.
- ❑ System/Configuration - Displays and allows modification to system configurations.
- ❑ System/Download - Firmware related interface.

Form-C Alarms

The Form-C method includes four alarm levels detailing alarm severity as follows:

- ❑ Minor - System requires maintenance.
- ❑ Major - System operating but not at optimum performance.
- ❑ Critical (one per sector, three total)- System disabled and bypass active due to a loss of Tx or Rx.

External Alarms

The OS booster is capable of monitoring and reporting external Form-C alarms. Four channels are provided and each channel is programmed via the Controller Module for NO or NC conditions. For example, NO will fault when shorted to Common (C) and NC will fault when open to Common (C).The four channels are mapped to Form-C alarm outputs configured as such via the Ethernet web pages.

Table 1-1 Faults

Control Module Display	X =	Form-C
Fan XX Fault	FT(front)/ RT(frear)	Minor
RFCU Fault (3)	Sector 1 - 3	Critical
Bypassx DC Fault (3)	Sector 1 - 3	Critical
LNA 1 Fault LNA 2 Fault	Sector 1 - 3	Major (1)
Rect Comm Fault		Minor
Rect VAC High		Major
Rect VAC Low		Major
Rect VDC High		Major
Rect VDC Low		Major
Rect Current Limit		Major
Rect Fault (not all)		Major
Rect Fault (all)		Critical
No MCPA	Sector 1 - 3	Critical
MCPAX VSWR	Sector 1 - 3	Critical
MCPAX Loop	Sector 1 - 3	Critical
MCPAX Ovr Pwr	Sector 1 - 3	Critical
MCPAX Hi Temp	Sector 1 - 3	Critical
MCPAXInt DC	Sector 1 - 3	Critical
MCPAX Ext DC	Sector 1 - 3	Critical
Ext Alarm0		Major (2)
Ext Alarm1		Major (2)
Ext Alarm2		Major (2)
Ext Alarm3		Major (2)
TMA1 Hi Current		Major (1)
TMA 1 Lo Current		Major (1)
TMA 2 Hi Current		Major (1)
TMA 2 Lo Current		Major (1)

(1) Could be critical and bypass if both Rx channels are faulted.

(2) If enabled.
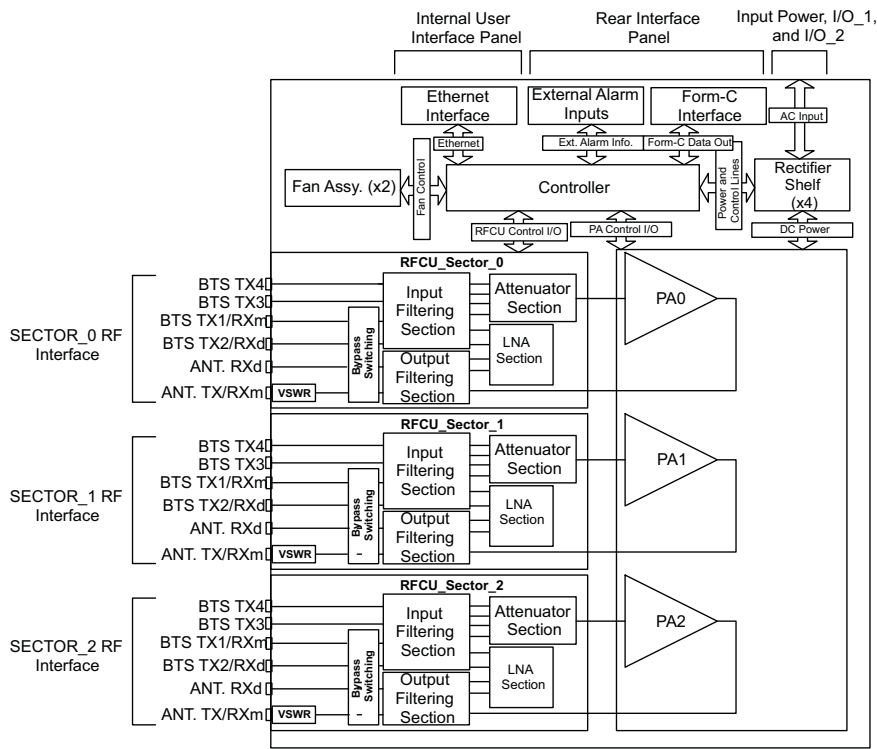
Figure 1-1   Outdoor System Block Diagram

"**A**" locations my be used as lifting points.
Use minimum of two eyebolts.

Front   Rear

Figure 1-2   Outdoor System
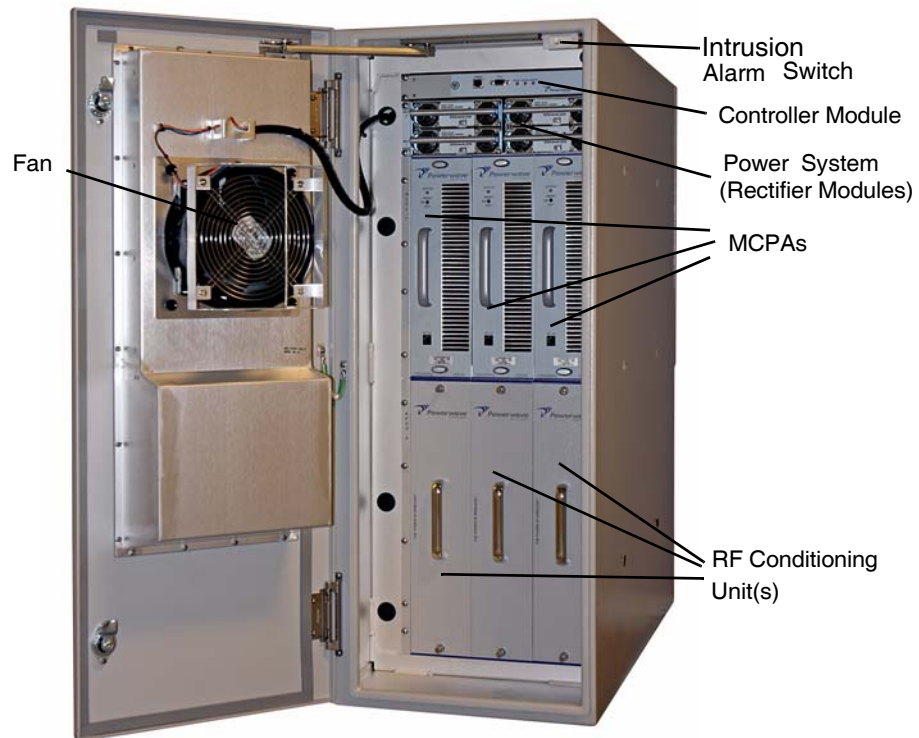
Figure 1-3   Outdoor System, Front View, Door Open
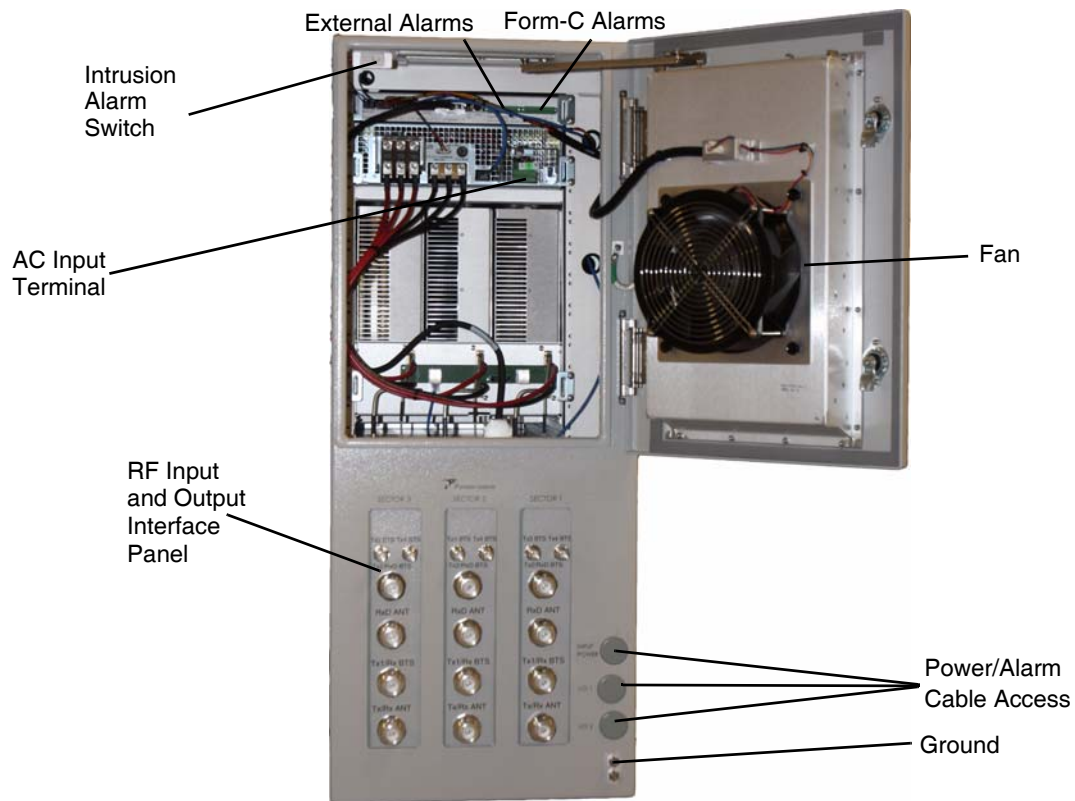
Figure 1-4   Outdoor System, Rear View, Door Open

Front   Rear

Figure 1-5   MCPA

Front   Rear
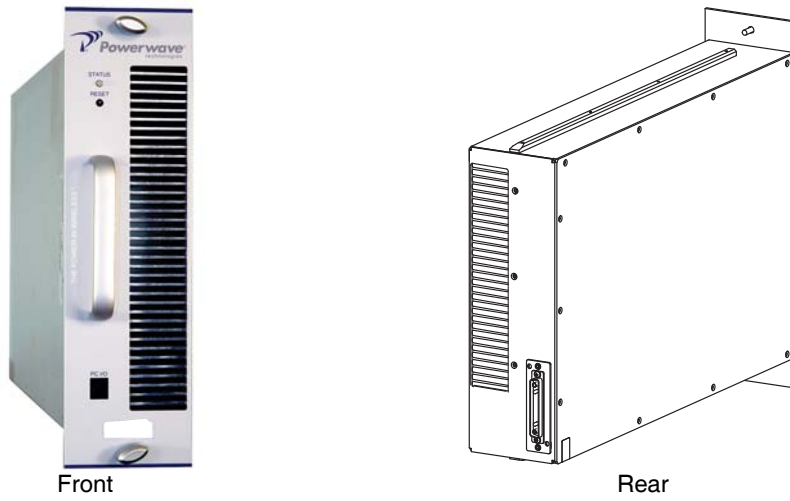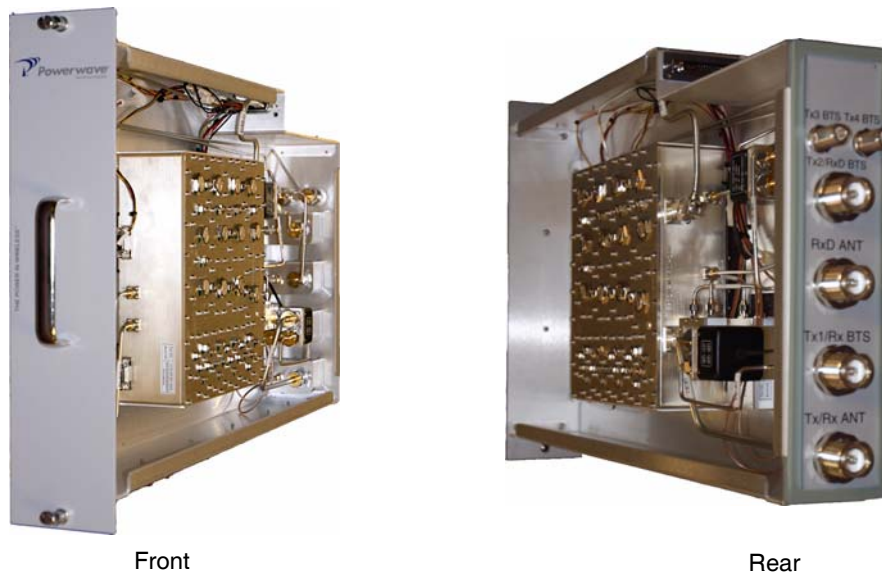
Figure 1-6   RF Conditioning Unit

Figure 1-7   Control Module Front Panel

Rectifier 0   Rectifier 2

Rectifier 1

Rectifier 3

Figure 1-8   Power System

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Introduction

This chapter provides unpacking, inspection, installation instructions, and recommendations for installing the OS-1933-E3-003 Multi-Carrier Power Amplifier (MCPA) Outdoor Booster System.

- Review this chapter prior to equipment installation.
- Review any government and local codes applicable to this installation.
- Read the instructions in Chapter 3 before operating the equipment.

Site Survey

Powerwave recommends that a site survey be performed prior to equipment ordering or installation to reduce or eliminate installation and turn-on delays. Note power plant capacity, cooling, RF/AC cabling/breaker requirements, clearances for proper cooling airflow and maintenance access. System dimensions and weights are listed in Chapter 5, Table 5-2.

Unpacking and Inspection

Perform the steps in Table 2-1: to unpack and inspect the Outdoor System (OS).

Table 2-1: Unpacking and Inspection Instructions

Step	Action
1	Open the containers and carefully remove the cabinet, MCPAs, RFCUs and Rectifier Modules
2	Visually inspect the outdoor system for shipping damage. Check for evidence of water damage, bent or warped chassis, loose screws or nuts, or extraneous packing material in connectors. Inspect the equipment in the presence of the delivery person if possible
3	Retain all packing material that can be reused to return components to the factory

If the equipment is damaged, a claim should be filed with the carrier when the extent of any damage is assessed. Contact the factory for a return material authorization (RMA). Refer to Chapter 4.

Electrical Service Recommendations

The base station AC supply to each OS should have a single phase UL listed AC circuit breaker rated at least 30 amps. The AC supply also requires UL listed external surge protection rated 2500 Vpk or less for 150 to 300 VAC mains installed in accordance with Article 285 of ANSI/NFPA or applicable local codes.

Table 2-2 lists the OS AC and DC current loads.

Table 2-2 Averaged AC and DC Current Loads

Number of MCPAs	AC Current Max at 180 VAC	DC Current (max)	DC Current (Typical)	AC Current (Typical) @ 220 VAC
1	9.0 amps	49 amps	46 amps	6.9 amps
2	16.2 amps	88 amps	82 amps	12.3 amps
3	23.7 amps	127 amps	113 amps	17.7 amps

Installation Instructions

⚠️ **CAUTION**: After commissioning, ensure that all power cable and control cables are properly sealed to prevent moisture and contaminants from entering the cabinet.

The outdoor system is designed for installation in an exterior location. The outdoor system must be installed in a designated location that permits access to the lower rear of the cabinet for connection of AC power, RF, communications, and alarm cables. In hot climate environments, shading of the outdoor system is recommended to reduce external heating of the cabinet.

Verify sufficient space is available in front of the cabinet to remove and replace the MCPA, RFCU, and rectifier modules and allow free movement of ambient air through the front panel air intake and rear panel exhaust vents. The front door must swing open at a 135 degree angle to allow removal of the MCPAs. Cabinets must have at least 11 inches clearance from the mounting surface if mounted on the left side (facing unit) to allow for door swing. Recommended minimum clearances for the front of the cabinet is 36 inches and 20 inches for the rear of the cabinet. Refer to Tables 2-3 and 2-4 respectively for the materials and tools required for a typical outdoor system installation. Refer to Chapter 5 for system dimensions and typical mounting examples.

Table 2-3 Materials Required for System Installation, Not Supplied

Item	Materials Needed	Where Used	Approx. Length (Each)	Quantity Per Cabinet
1	10 AWG AC power cable rated for 24A minimum	From AC breaker panel to cabinet	As needed	1
1	Tie wraps (152 mm or 203 mm)	Cable dressing		As needed
2	Unistrut, 1 5/8 "(41 mm)	System mounting		As needed
3	Terminal Lugs, 2-Hole, 3/4" (19 mm) Centers. M8 bolt, 60 mm Length, Must be UL listed (ZMVV).	Cabinet ground studs		1
4	M10x1.75 hex bolt	System mounting		6 min / 12 max
5	10 mm flat washer	System mounting		6 min / 12 max
6	10 mm lock washer	System mounting		6 min / 12 max
7	0.5 inch foam semi-rigid coax (N male to N male, 7/16 DIN)*	RF input to system and RF output from system to antenna jumper	1.5 M -12 M	2
8	Weatherproofing materials	RF, power, and alarm connectors		As needed

* Specific requirements depending on application.

Table 2-4 Tools Needed for Installation

Tools Needed	Where Used	Tools Needed	Where Used
Crimp tool	Ground cables	Screwdriver, slotted, 2.5mm (0.1 in) maximum width	Securing alarm cables
Electrician's knife	Earth ground	Wire cutters	Cut tie wraps
Cable cutters	Ground cables	Digital volt-ohm meter	Verify voltage
Roto hammer	Mounting unistrut or cabinet	10 mm hex socket wrench or nut driver	Open door latches
Drill bit	Mounting unistrut or cabinet	Screwdriver, slotted, 5 mm (0.2 in) maximum width	AC terminal block
Network Crossover Cable	Connects to PC for communications and set up.	Screwdriver, slotted, 8mm (5/16 in) typical width	RFCU fasteners
Screwdriver, Phillips #2	Rectifier Module latch		

AC Power

Connect AC wiring as instructed in Table 2-5.

WARNING: Turn off external primary AC power before connecting AC power cables to the OS cabinet.

CAUTION: All system enclosures must be connected to a common earth ground to prevent potential equipment damage. To avoid terminal block damage, do not use a screwdriver with a blade larger than 0.20 inches and do not insert screwdriver at an incorrect angle.

Table 2-5 AC Power Connection Procedure

Step	Action
1	Route AC cable through a conduit connected to INPUT POWER access hole located next to RF connector bulkhead as shown in Figure 2-1.
2	Before inserting wires into the AC terminal, strip each wire approximately 12mm (0.5 in).
3	Insert 5 mm (.2 in) maximum flat blade screwdriver horizontally into spring slot and twist to open wire access hole.
4	Insert AC wire (24-6 AWG) into lower slot until wire bottoms out in housing.
5	Twist screwdriver back to release tension and clamp the wire into terminal. Remove screwdriver.
6	Repeat steps 2 through 5 for remaining wires.

NOTE: Connect the ground wire to terminal G, and the hot and neutral wires to terminal L or N.

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Spring Cage
Terminal Block

L G N
J1

AC Power
Connections

0.5 to 0.625"

Common Earth
Ground Terminal
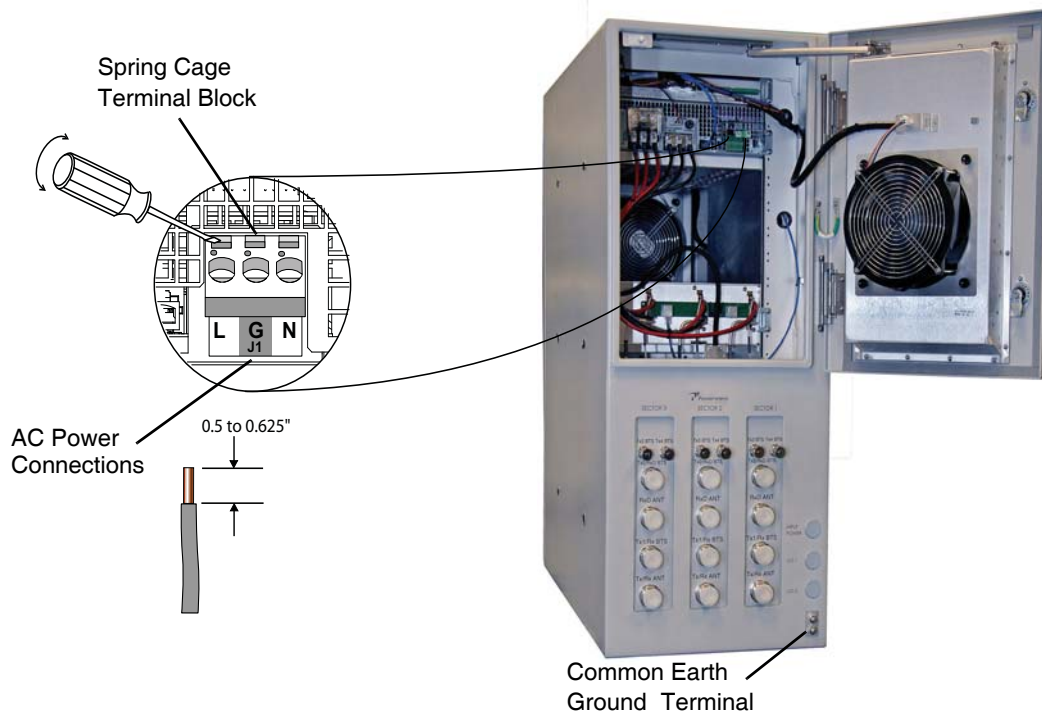
Figure 2-1   AC Power Connections Example

RF Cable

All cable connections are made at the system cabinet lower-rear RF interface bulkhead panel as listed in Table 2-6. Figure 2-2 shows the interface bulkhead ports. Verify the BTS output power does not exceed the requirements detailed in Chapter 5.

> **CAUTION:** Prior to connecting BTS cables, verify booster system power is off.

> **NOTE:** Do not install weatherproofing materials to cables until the booster commissioning is completed.

Table 2-6 OS System RF Cable Connections

Bulkhead Port Connector	Connects between...	
BTS TX1/RX	BTS	OS System
BTS TX2/RX	BTS	OS System
TX3	BTS	OS System
TX4	BTS	OS System
ANT TX/RX	OS System	Antenna
ANT RX	OS System	Antenna

Figure 2-2   Interface Bulkhead RFCU Connections

Figure 2-3   Controller Module Installation
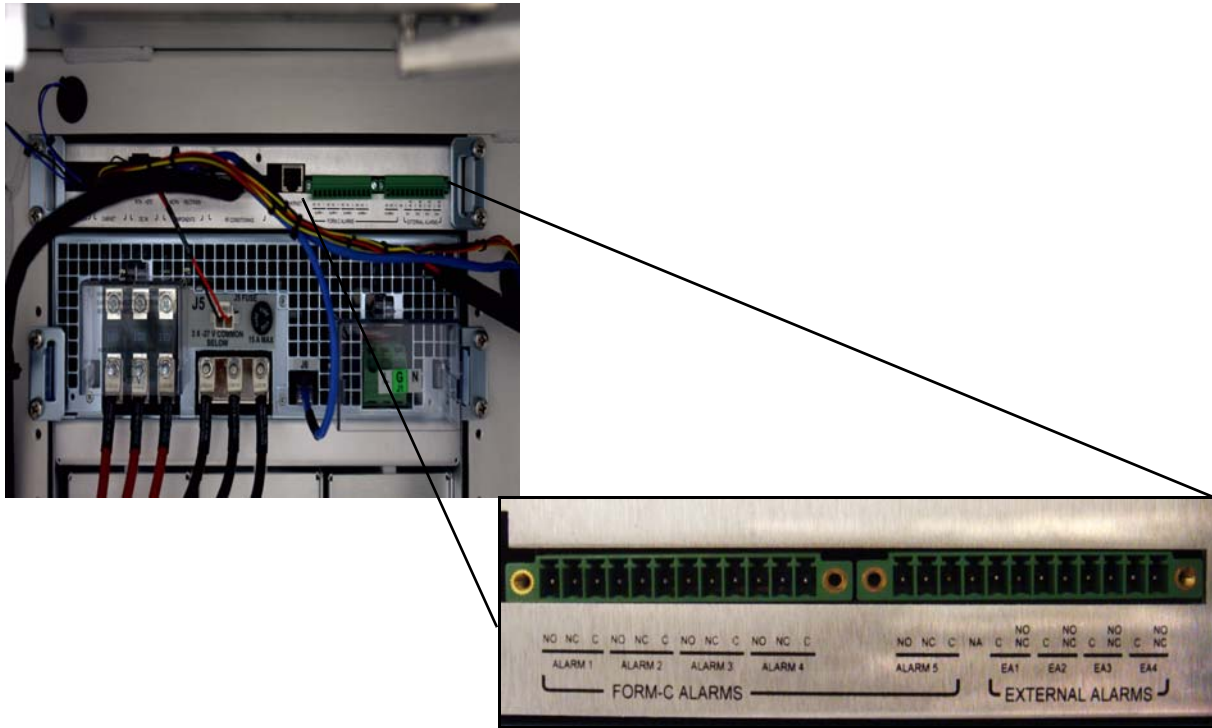
Figure 2-4   Form-C Alarms and External Alarms Connections

Form-C Alarms

The Form-C alarm connections are made at the terminal block located at the rear of the Control Module. The contacts accept a 28 - 16 AWG wire. The alarm cable connection is shown in Figure 2-4 and the alarm wiring and relay conditions are listed in Table 2-7.

The minor, major, critical/bypass, and intrusion alarms are defined as follows:

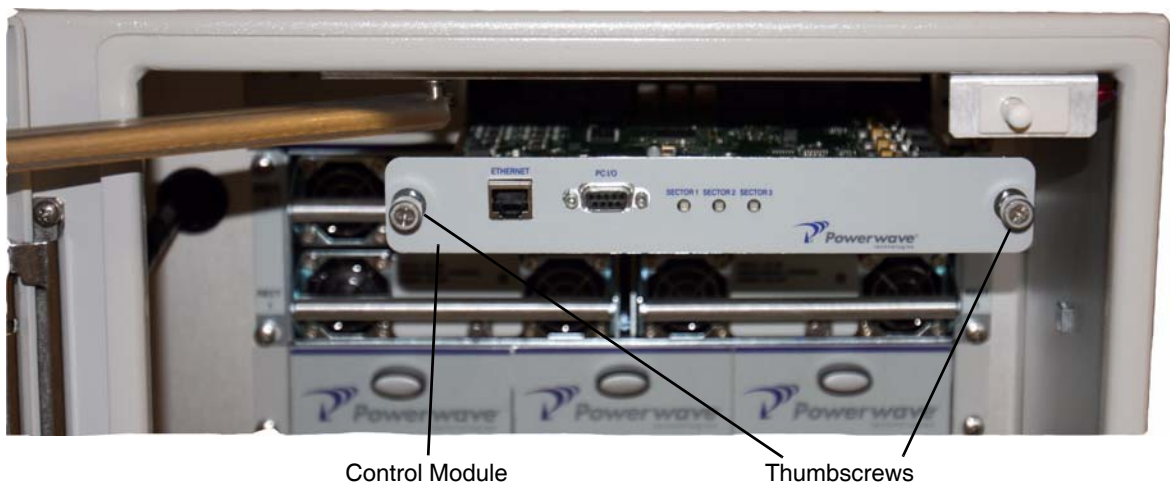|		
Alarm 1	Minor	Any cabinet fan fault, intrusion, or rectifier communication fault. The system requires attention.
Alarm 2	Major	The system performance is degraded.
Alarm 3	Critical 1	Sector 1 is in bypass due to a Tx or Rx fault
Alarm 4	Critical 2	Sector 2 is in bypass due to a Tx or Rx fault
Alarm 5	Critical 3	Sector 3is in bypass due to a Tx or Rx fault

All installed rectifier faulted would result in a loss of power. All Form-C alarms would default to the alarm state.

Connect the Form-C alarms as instructed in Table 2-7.

Table 2-7 Form-C Alarms Connection Procedure

Step	Action
1	To install the appropriate wiring and ease the wiring installation, disconnect the terminal block from the booster.
2	Strip wiring insulation approximately 7 mm (0.3 in).
3	Use a slotted screwdriver with a maximum width of 0.100 inches to back out terminal screws enough to allow wire insertion.
4	Insert stripped wire into terminal and tighten set screw a maximum of 2-inch pounds.

Table 2-8 Form-C Alarm Terminal Block Relay Connections and Conditions

Relay Continuity Measurement - No AC Applied or All Rectifiers Faulted					
Minor		**Major**		**Critical (All)**	
NO - C	Closed	NO - C	Closed	NO - C	Closed
NC - C	Open	NC - C	Open	NC - C	Open
Relay Continuity Measurement - System On, No Alarms					
Minor		**Major**		**Critical (All)**	
NO - C	Open	NO - C	Open	NO - C	Open
NC - C	Closed	NC - C	Closed	NC - C	Closed
Relay Continuity Measurement - System On, All Alarms On					
Minor		**Major**		**Critical (All)**	
NO - C	Closed	NO - C	Closed	NO - C	Closed
NC - C	Open	NC - C	Open	NC - C	Open

External Alarms (EA)

The External Alarm input connections are made at the terminal block located at the rear of the Control Module. The contacts accept a 28 – 16 AWG wire. The alarm cable connector is shown in Figure 2-4 and the wiring procedure is detailed in Table 2-9. The external alarm inputs require activation and configuration via the System/configuration page. The External Alarm channels are default disabled.

Connect the external alarms as instructed in Table 2-9.

Table 2-9 External Alarms Connection Procedure

Step	Action
1	To install appropriate wiring, disconnect terminal block from booster.
2	Strip wiring insulation approximately 7 mm (0.3 in).
3	Use slotted screwdriver with maximum width of 2.5 mm (0.1 in) to back out terminal screws enough to allow wire insertion.
4	Insert stripped wire into terminal and tighten set screw 2 inch pounds maximum.
5	Via the System/Configuration page (see Chapter 3) enable the appropriate external alarm channels.

MCPA

Install the MCPA as instructed in Table 2-10. The MCPA RF switch, indicator and quarter-turn fasteners are shown in Figure 2-7 and the 21-pin D-Sub connector is shown in Figure 2-8.

> **CAUTION:** Do not slam the MCPA into the subrack. Forcing the MCPA into the subrack may cause the pins on the 21-pin D-Sub connector to become recessed or broken.
> A blank panel must be installed in any empty MCPA or RFCU slots before operation of the OS to prevent overheating and ensure proper system airflow.

Table 2-10 MCPA Installation

| Step	Action
1	Inspect MCPA rear-mounted 21-pin D-Sub connector. Verify all pins are straight, not broken or recessed, and alignment shield is not bent.
2	Verify MCPA RF OFF/ON/RESET switch in OFF (down) position.
3	Verify MCPA top and bottom quarter-turn fasteners are in unlocked position as shown in Figure 2-5.
4	Gently slide MCPA into subrack until seated. Turn top and bottom quarter-turn fasteners clockwise to secure MCPA into subrack.
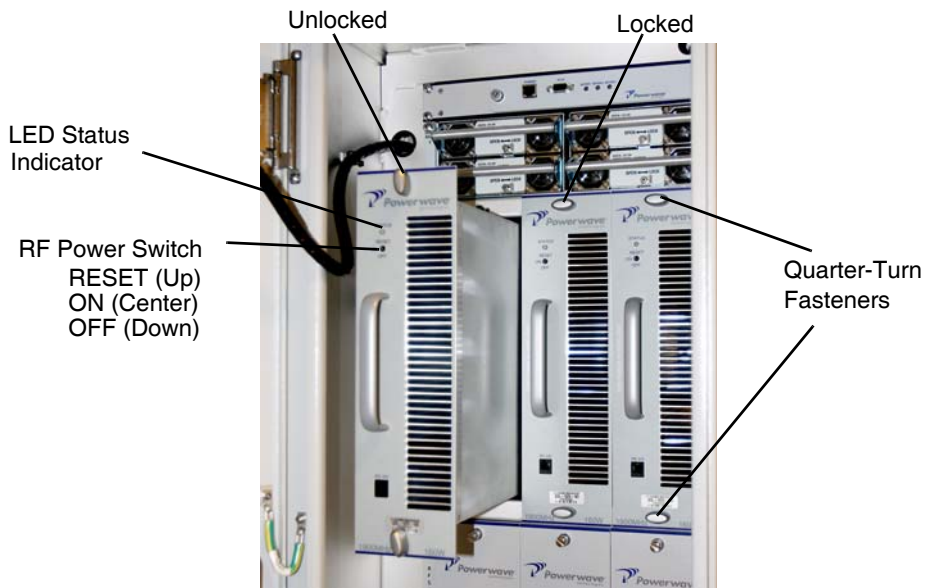
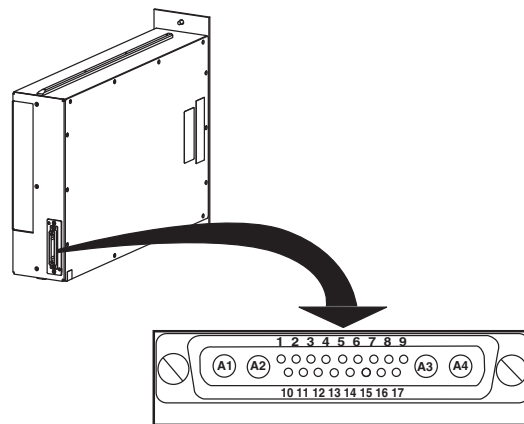Figure 2-5   MCPA Quarter-Turn Fasteners, Status Indicator, and RF Power

Figure 2-6   MCPA 21-Pin D-Sub Connector Location

Power system Installation

The power system is comprised of rectifier modules that are inserted into the rectifier shelf. A minimum of two rectifier modules minimum is a practical consideration. Reference the recommended configurations detailed in Table 2-11. Install the Rectifier modules as instructed in Table 2-12.

CAUTION: Do not slam the Rectifier Modules into the subrack. Forcing the Rectifier Modules into the sub-rack may cause the pins on the connector to become recessed or broken.
A blank panel must be installed in any empty Rectifier Module slots before operation of the OS to prevent overheating and ensure proper system airflow.

Table 2-11 Rectifier Module Configurations

Active sectors	Max DC Power	Number of Rectifier Modules Required	Power System Capacity
1	1112Watts	2	2600Watts
2	2223Watts	3	3900Watts
3	3335Watts	4	5200Watts

Table 2-12 Rectifier Module Installation

Steps	Action
1	Inspect the connector mounted at the rear of the Rectifier.
2	Gently slide the Rectifier Module into the power system until seated.
3	Secure the Rectifier Module by using a #2 Phillips to tighten the screw on the latch.
4	Access the ethernet System/Configuration page and enable the installed rectifier positions. See Chapter 3.

RFCU Installation

Install the RFCU as instructed in Table 2-13.

Table 2-13 RFCU Installation

Steps	Action
1	Inspect the RFCU rear-mounted D-Sub connector. Verify all pins are straight, not broken or recessed. Verify the condition of the D-Shield.
2	Gently slide the RFCU into the sub-rack until seated. Verify the rear gasket compression.
3	Tighten the top and bottom fasteners with a 8mm (5/16 inch) minimum flat blade screwdriver. Torque to 5 N-m (45 in/lbs).

CAUTION: Do not slam the RFCU Module into the subrack. Forcing the module into the subrack may cause the pins on the D-Sub connector to become recessed or broken.

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INTRODUCTION

This chapter provides steps for configuring and operating the OS System.   The main topics are:

- Initial Start-Up Procedure
- OS System Configuration Procedure
- Rectifier
- MCPA
- Controller / Web Page Functions
- Alarm Functions

Initial Start-Up Procedure

Ensure that the OS System is installed per Chapter 2. The OS System should have AC, RF interfaces and possible communication and alarm interfaces. All the required Rectifier, MCPA and RCFU modules are installed. This section walks through the initial power-up and configuration sequence.

CAUTION: Before applying power, refer to Chapter 5 for input power requirements and verify that the OS system input and outputs are properly terminated at 50 ohms. Do not operate the OS system without a load attached. Excessive input power may trigger the overpower alarm disabling or damaging the OS system.

When OS systems are enabled, at least one cabinet door must be closed and secured to provide adequate cooling.

All three OS system slots must be populated with an MCPA, Rectifier, or a blank panel to provide adequate cooling air circulation.

NOTE: The OS system must be warmed up for a minimum of two minutes prior to setting power levels. Failure to properly warm the components may result in lower output power when the components reach operating temperature.

Table 3-1 Initial Start-Up Procedure

Steps	Action
1	Ensure that the AC is connected and disabled to the OS system
2	Ensure that the TX/RX ANT port is terminated properly
3	Open the front and rear door of the OS system. Pull-out the plungers for both front and rear intrusion switches. (Note: this is the only time when both doors should be open).
4	Ensure all unused sectors have blank panels installed.
5	Enable the AC power.
6	Upon power-up the fans will both enable at full speed and then ramp down and possibly disable. Ensure both fans operate.
7	Measure the primary AC voltage (180 to 265VAC). If the AC voltage is above or below the limits consult an Electrician before proceeding.

Table 3-1 Initial Start-Up Procedure (Continued)

8	Measure the output DC voltage. There is a fused output for each MCPA and the Controller. All outputs should be 28.5V +/-0.5Vdc. If the voltage measurements are non-compliant with the limits troubleshoot the power system before proceeding.
9	Close and secure the rear door to ensure the rear fan will operate
10	Enable all of the installed MCPAs. After ~10seconds the MCPAs should display a solid green LED. If not a solid green reference the troubleshooting section in Chapter 4.
11	The LEDs on the front panel of the controller will illuminate solid green for the enabled and functioning sectors. Alarms may be present; the configuration portion of the installation should be performed.

OS System Configuration

Configure PC for Communication

Powerwave products typically have two LAN connections for interfacing with the customer's equipment for control and monitoring of the product, see Figure 3-1.   The "Site LAN" is used to interface with the customer's base station (BTS) equipment for remote control and monitoring and the "Local LAN" is used for walk up or local control and monitoring.   The Site LAN IP address is assigned automatically by DHCP. The Local LAN IP address is fixed from the factory at 192.168.255.1. To communicate with the product via the Local LAN, the user must configure the laptop with a fixed IP address such as "192.168.255.2".

There are several ways to access the Network Connections dialog box and may be different from operating system to operating system. The following steps in Table 3-2 and Figures 3-1 through 3-6 are based on using Windows XP.

Table 3-2 Configure PC for Communication

Step	Action
1	Connect a laptop PC to the front Ethernet port on the control module with a network cross-over cable. See Figure 3-1.
2	Go to Network Connections through either the Control Panel, the Start Menu, or by clicking the Network Connections icon in the system tray. See Figure 3-2.
3	Right click and select "disable" for the "Local Area Connection" or appropriate network connection that will be connected to the Local LAN.
4	Right click and select "properties" to bring up the "Properties" dialog box. See Figure 3-3.
5	In the "This connection uses the following items:" field, deselect all checkboxes except the Internet Protocol (TCP/IP) checkbox. See Figure 3-3
6	Highlight the "Internet Protocol (TCP/IP)" menu item and select Properties to bring up the "Internet Protocol (TCP/IP) Properties" dialog box. See Figure 3-4.
7	Check "Use the following IP address" and enter the fixed IP address such as "192.168.255.2." Enter the Subnet mask of 255.255.255.0. See Figure 3-5.
8	Select "OK" and then "Close."
9	Right click on the network connection and select "Enable." See Figure 3-6.
10	Open a web browser and type in the following web page - http://192.168.0.1.8080.
11	Type in " User" as the User ID and "Password" for the Password.
12	Choose Submit.

The PC's network interface should now be ready to communicate through the Local LAN.

Typical product network configuration

Controller Module PC Local LAN connection (front)
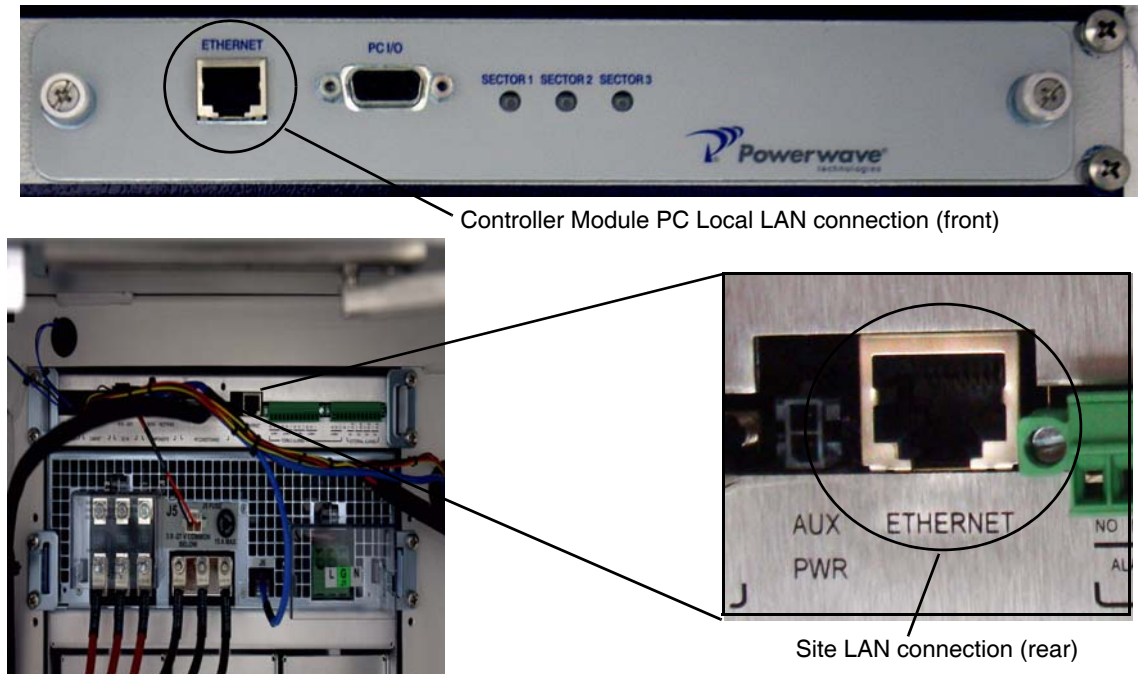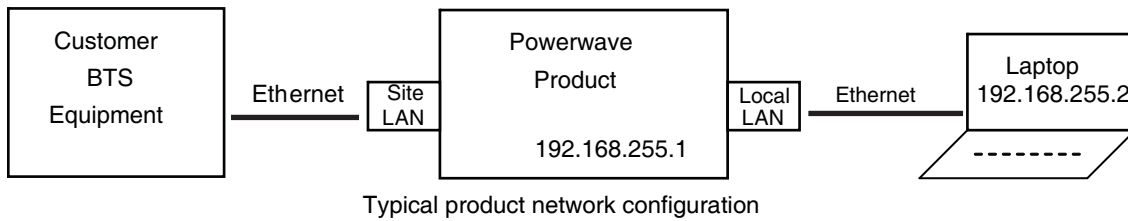
Site LAN connection (rear)

Figure 3-1   Network Configuration and Controller Module Connections
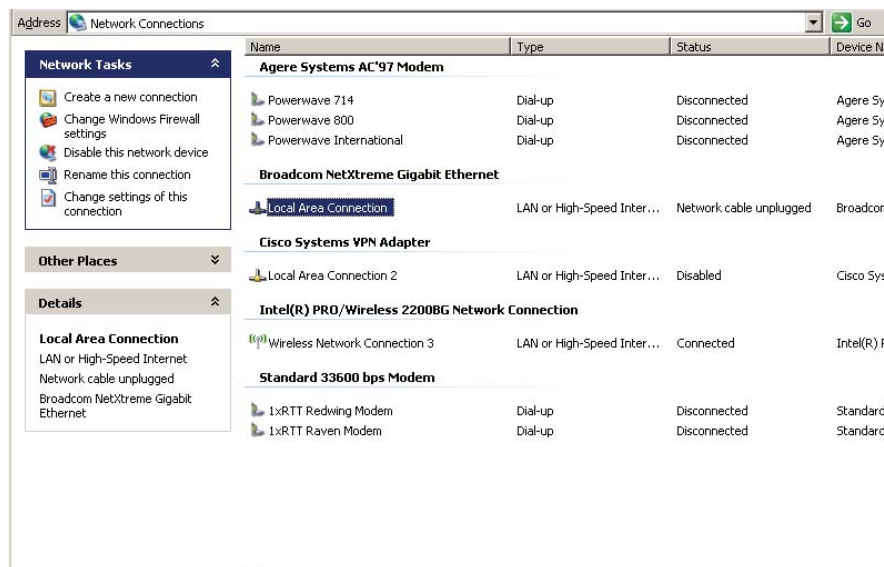

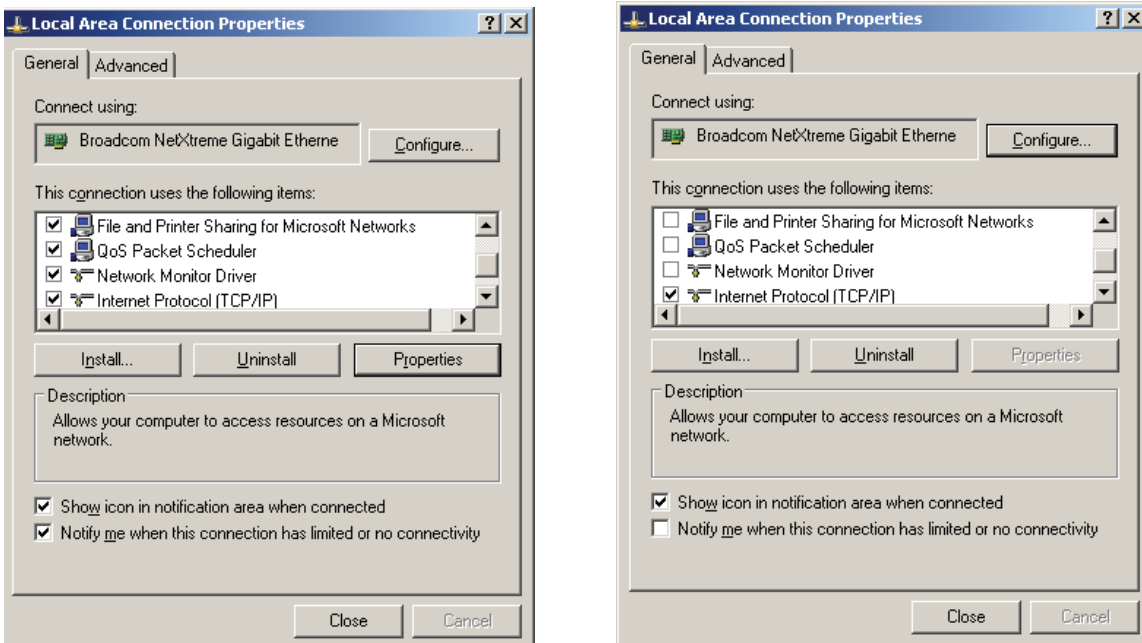Figure 3-2   Network Connections Dialog Box

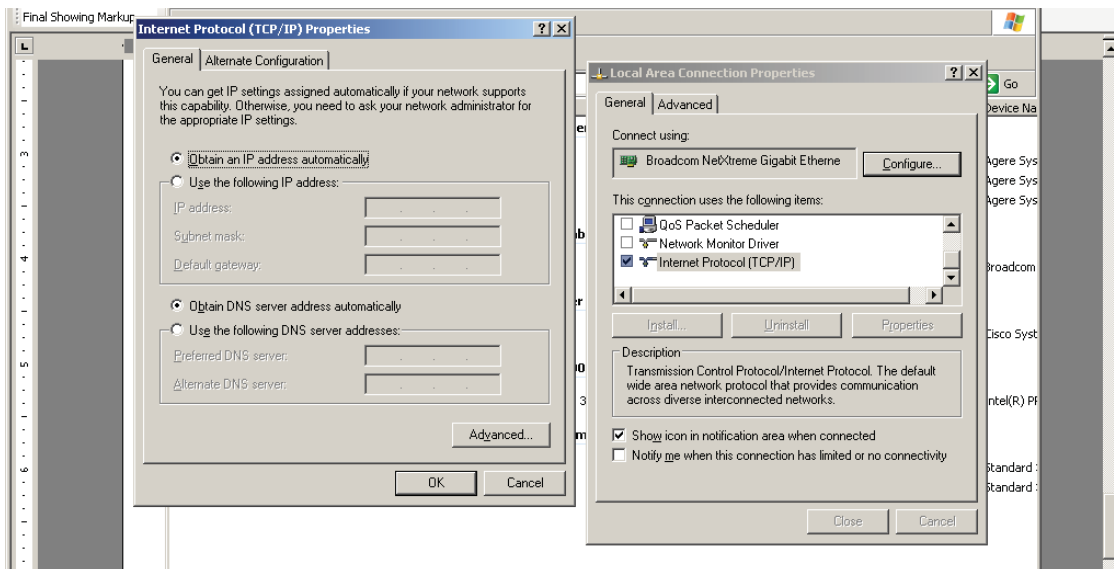Figure 3-3   Local Area Connection Properties Dialog Box
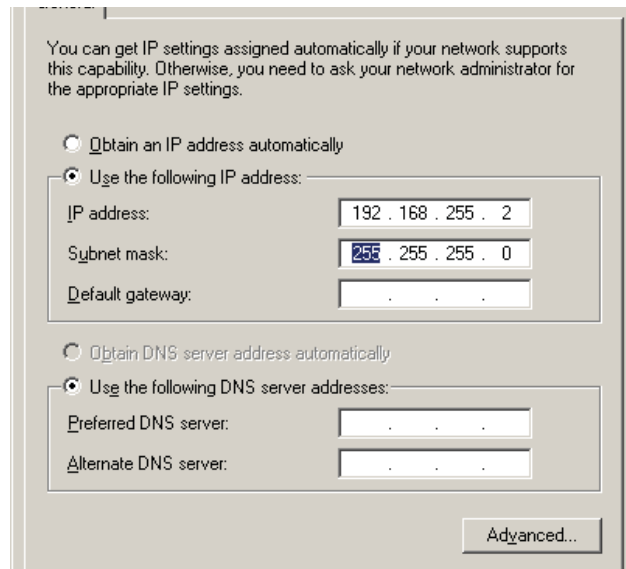

Figure 3-4   Internet Protocol (TCP/IP) Properties.
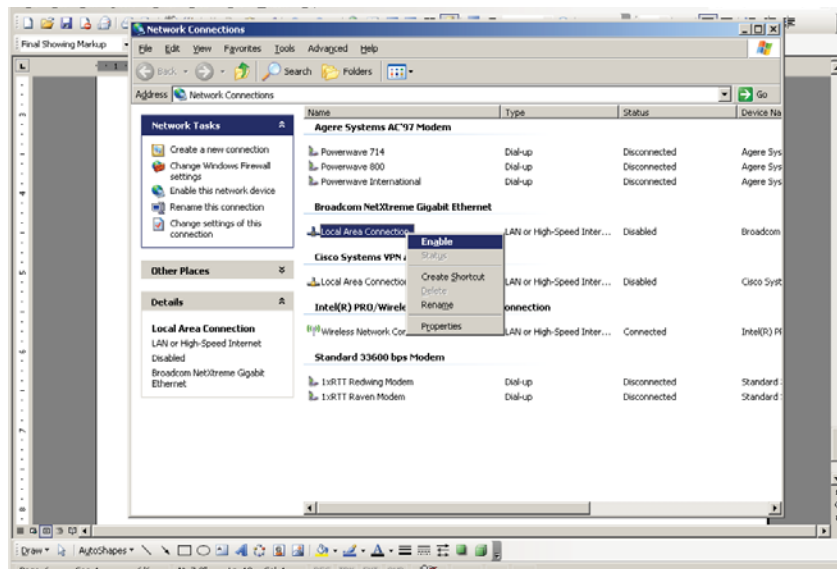
Figure 3-5   Setting the IP Address.

Figure 3-6   Enable the Connection

Activate Sectors

Table 3-3 Activate Sectors

Step	Action
1	Select the System/Configuration Page. See Figure 3-15
2	Using the pull-down menus in the Installed section choose YES for the Sectors to be utilized. The Sectors are 1 (front left), 2 or 3 (front right). Default is NO
3	Choose SUBMIT to accept and apply the changes. To abort changes choose another page without applying submit.