

C P E



2.4 GHz
Wireless
Network
Station/Router
With Integrated Antenna

QUICK START GUIDE

CPE-250HP Series

FCC STATEMENT

**** IMPORTANT ****

Changes or modifications not expressly approved by Zcomax Technologies, Inc. may void the users authority to operate the equipment.

“Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense”.

IMPORTANT SAFETY INSTRUCTIONS

- **READ INSTRUCTIONS**
 - All safety and operating instructions should be read before operating the product.
- **RETAIN INSTRUCTIONS**
 - The safety and operating instructions should be retained for future reference.
- **HEED WARNINGS**
 - All warnings on the product and in the operating instructions should be adhered to.
- **FOLLOW INSTRUCTIONS**
 - All operating and use instructions should be followed.
- **CLEANING**
 - Unplug this product from the wall outlet before cleaning. Use only a damp cloth for cleaning.
- **ATTACHMENTS**
 - Do not use attachments not recommended by the product manufacturer as they may cause hazards.
- **WATER AND MOISTURE**
 - Do not submerge this product in water. Do not use the indoor-use only accessories near water.
- **WALL OR MAST MOUNTING**
 - This product should be mounted to a wall or mast only as recommended by the manufacturer. Do not stand in front of product during operation.
- **VENTILATION**
 - The product should be situated so that its location or position does not interfere with its proper ventilation.
- **POWER SOURCES**
 - This product should be operated only from the type of power source indicated on the marking label.
- **GROUNDING OR POLARIZATION**
 - Precautions should be taken so that the grounding or polarization means of this product is not defeated.
- **POWER CORD PROTECTION**
 - Power supply cord should be routed so that they are not likely to be walked on or pinched by the items placed upon or against them, paying particular attention to cord at plugs, convenience receptacles, and the point where they exit from the product.
- **OVERLOADING**
 - Do not overload wall outlet or extension cords, as this can result in a risk of fire or electric shock.
- **OBJECT AND LIQUID ENTRY**
 - Never push objects of any kind in this product as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never allow liquid of any kind to enter the product.
- **SERVICING**
 - Do not attempt to service this product yourself beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

▪ HEAT

- The product should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

▪ OUTDOOR ANTENNA GROUNDING

- Be sure the product is grounded so as to provide some protection against voltage surges and built up static charges.
- Section 810 of the National Electrical Code (NEC), ANSI/NFPA No. 70-1990, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to ground electrodes, and requirements for the grounding electrode.
- **Note to Installer: This reminder is provided to call the installer's attention to article 820-40 of the NEC that provide guidelines for proper grounding and in particular, specifies that the cable ground should be connected to the grounding system of the building, as close to the point of cable entry as practical.**

▪ DAMAGE REQUIRING SERVICE

- This product should be serviced by qualified service personnel when:
 - The power supply cord or plug has been damaged, or
 - An object or liquid has entered into the product, or
 - The product does not operate normally or exhibits a marked change in performance, or
 - The product has been dropped, or the enclosure has been damaged.

INSTALLATION

This product should only be installed by a qualified professional.

The unit must only be installed with the antennas that are approved for use. Following is a list of approved antenna types:

***18dBi Flat Panel
15dBi Flat Panel***

Use of higher gain antennas or different style antennas are forbidden and void the authority to operate the equipment.

1. Check Product Contents.

- Check product for complete contents. The following items should be included in the box.
- a. CPE-250HP Series unit
 - b. AC Adaptor*
 - c. Power Injector*
 - d. 6' Category-5 Cable*

- e. Software CD
- f. This Guide
- g. Mast-mount Hardware:
 - i. Brackets x 2
 - ii. Clamps x 2
 - iii. Screws x 4
 - iv. Washers x 8
 - v. Nuts x 4

* **WARNING:** Items "b", "c" and "d" are for indoor-use only.

2. Prepare For Installation.

The following tools and items are required for installing the product.

- a. A flat-head screw driver
- b. A drill
- c. A wall feed-thru tube
- d. An antenna mast*

* *Note: The product is designed to be mast-mounted. Alternatively, the product may be wall mounted (hardware not included).*

3. Gather Basic Information.

Gather the following information and write it in the space provided for future reference. Enter "NA" for not applicable. Refer to end of this Guide for sample configurations.

- a. Password: default
- b. ESSID: _____
- c. IP Address: _____
- d. Netmask: _____
- e. Gateway: _____
- f. Enable DHCP client: YES ☐ NO ☐
- g. Enable Internal Router: YES ☐ NO ☐
- h. Internal Router's WAN Port on:
 - WLAN ☐ Ethernet ☐
- i. NAT: YES ☐ NO ☐
- j. Internal Router's LAN port IP address: _____
- k. Internal Router's LAN port Netmask: _____
- l. Enable Internal DHCP server:
 - YES ☐ NO ☐
 - Begin IP _____
 - End IP _____
 - Netmask _____
 - Gateway _____
 - Primary DNS _____
 - Secondary DNS _____
 - Primary WINS _____
 - Secondary WINS _____
- m. WEP Key: _____

4. Install Software.

Install the software on a PC connected to the same Ethernet segment as the product.

- a. Insert the CD into your CD-ROM drive. Run SETUP.EXE from the CD's root directory.
- b. Follow the on-screen prompts to install the software on to your system.

5. Connect All Cables.

Connect cables as follows:

- a. Insert the Category-5 cable to the Power Injector port marked "NETWORK". Insert the other end of the cable to an Ethernet hub.
- b. Insert the CPE-250HP's RJ-45 connector to the Power Injector port marked "CPE".
- c. Insert the AC adaptor connector to the Power Injector port marked "DC In". Insert the AC adaptor to a wall AC outlet. The Power LED on the CPE-250HP should turn on.

6. Configure Product.

On a PC that is attached to the same Ethernet segment as the CPE-250HP, run the installed CPE-250 Manager software to configure the product.

- a. On the Windows desktop, click on **START/PROGRAMS/ZCOMAX CPE-250 MANAGER/CPE-250 MANAGER** to start the software.
- b. Once started, the CPE-250 Manager will browse the Ethernet segment to locate any attached CPE-250HP Series products. It will display all CPE-250HP units that it can locate during this discovery process. Each CPE-250HP unit is displayed in the form of an icon with its default name listed below. This default name is formed by concatenating "AP" with the last 6 numbers of the CPE-250HP's MAC address (example: AP123456).
- c. Double click on the CPE-250HP product you wish to configure.
- d. Enter "default" at the password prompt.
- e. Once logged into the CPE-250HP, the software will display the main screen. Click on the tab labeled "**CONFIGURATION**".
- f. The **CONFIGURATION** screen is now displayed. Click on the tab labeled "**IEEE 802.11**".
- g. The **IEEE 802.11** screen is now displayed.

- h. Enter the ESSID you have gathered from Step 2. **Do not** click on the "APPLY" button now.
- i. Click on the tab labeled "**IP Address**".
- j. If you would like to enable the internal router, select "IP Router" in the TCP/IP mode selection box and continue to the next step.

Otherwise choose "Bridge Only" and perform the following **two** sub-steps:

- i. Enter the IP Address information from Step 2, or choose to use DHCP to automatically obtain IP address, netmask and gateway information from a DHCP server by clicking on the "DHCP status" radio button.
 - ii. Skip the steps below by continuing onto **Step "v"**.
- k. Configure the router's WAN port using information from Step 2 by clicking on one of the following two radio buttons:
 - i. WAN on WLA (WLAN)
 - ii. WAN on Eth (Ethernet)
- l. Click on the "SETUP" button just **ABOVE** the radio buttons in Step "l" (above) to setup the WAN port.
- m. A new window pops up over the current window. Click on the "Manual" radio button to manually configure the WAN port's IP address, netmask, and gateway. Or click on the "DHCP" radio button to automatically assign IP address, netmask, and gateway information from a DHCP server.
- n. If Network Address Translation (NAT) is required (i.e., private LAN) place a check mark next to "NAT (IP Sharing) through this port".
- o. Click on the "Close" button to close this pop-up window.
- p. You are now returned to the original **IP Address** tab window. Click on the "SETUP" button **BELOW** the WAN port radio buttons (WAN on WLA, WAN on ETH) to setup the LAN port.
- q. A new windows pops over the current windows. Enter the Router's LAN port IP Address and netmask.
- r. If you would like to use the built-in DHCP server to centrally assign IP resources to PCs on the private LAN, place a check mark next to "Enable DHCP server".
- s. Enter the Start and End IP address for the DHCP server to assign to DHCP clients on the private LAN.

- t. Enter netmask, gateway, DNS and WINS server information for the DHCP server to assign, or click on the radio buttons under "Use DHCP Wizard" to automatically obtain this information from the WAN port.
- u. Click on the "Close" button to close this pop-up window.
- v. Click on the tab labeled "**WEP**".
- w. The **WEP** screen is now displayed.
- x. If WEP is required, enter WEP key from information gathered in Step 2.
- y. The product is now fully configured. Click the "Apply" button. The software will prompt you that the product will reset to apply the changes. Click on the "YES" button to reset the product. Click on the "LOGOFF" icon to exit the software.

7. Mount Product And Align Internal Antenna.

Warning: As a wireless communication device, the product has been designed to radiate microwave (2.4GHz) energy and should only be installed by qualified professionals. Observe all safety instructions when performing installation, specifically, to reduce potential long-term health hazard, do not stand in front (or within the beam-width) of the product when it is operating, or position the product so as to allow exposure of microwave energy toward human body.

- a. Unplug the product from the Power Injector. Select a suitable outdoor location to mount the product. Install an antenna mast as per instruction furnished with mast and in accordance with National Electrical Code requirements*

* Note: Be sure the product is grounded so as to provide some protection against voltage and built-up static charge. Section 810 of the National Electrical Code (NEC), ANSI/NFPA No. 70-1990, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to ground electrodes, and requirements for the grounding electrode.

- b. Mount the product by following the instructions in the section "Using the Mounting Hardware" (see next section below). Do not completely tighten the mounting clamps at this time.
- c. Align the product's internal antenna by pointing the product directly at the Access

Point in which the product is programmed to associate with.

- d. Select a suitable location on an exterior wall as the cable entry point into the building. Create an opening at this entry point using a drill with the proper bit.
- e. Insert a wall feed-thru tube into the opening at the entry point.
- f. Route the product's Ethernet cable into the building via the wall feed-thru tube*.

**Note: Make sure to create a "drip loop" in the cable just before it enters the building. Water easily runs along the slick surface of the Ethernet cable, and can run right down the cable and into the building. A drip loop allows the runoff water to collect and drip off before it enters the building.*

- g. Seal the wall feed-thru tube as necessary.
- h. Reconnect the product's RJ-45 connector into the Power Injector port marked "CPE."
- i. The "POWER" LED should turn on. The "LINK" LED should turn on once the product associates with an **Access Point**. Adjust the product's position for better antenna alignment if necessary*. Tighten the mounting clamps and secure all cables against the walls as necessary.

Note: You may optionally fine-tune the antenna alignment by checking the received signal strength via the following telnet command: **STAT*

8. Change The Default Password.

It is recommended that you change the default password. To change the password, run the CPE-250 Manager software and login with the default password ("default"). Click on the tab labeled "**CONFIGURATION**". Within the **CONFIGURATION** screen, click on the tab labeled "**ADMINISTRATION**". Enter the new password in both "New Password" and "Confirm Change" text boxes. Click on the "APPLY" button. The software prompts that the product will reset for the changes to take effect. Click on the "YES" button to reset the product. It is recommended that you confirm this change by logging in with the new password.

1. Mount Screws.

Insert one screw from the front of the product through one of its top mounting holes with a sealing washer on either side of the mounting hole. Ensure the seal side of both washers is against the product. Repeat process for the other mounting hole near by.

2. Mount Brackets.

Align the screw holes in the mounting bracket with the screws used in Step 1 so that the bracket points outward from the product when mounted. Insert the bracket. Tighten one nut into each screw.

3. Repeat Steps 1 & 2.

Repeat Steps 1 & 2 for the bottom mounting holes.

4. Mount Clamps.

Secure the mounting brackets to mast by using the mounting clamps. Adjust the mounting clamps using a flat-head screwdriver so that the product stays in position yet allows for movements for alignment adjustment. Tighten the clamps only *after* the antenna has been aligned.

The CPE device **MUST** be installed to provide a separation distance of at least **35cm** from all persons and must not be collocated or operating in conjunction with any other transmitter or antenna

MANAGING THE CPE

The product can be managed via any one of the following three methods. Refer to the Users Manual for complete details.

- **CPE-250 Manager:** Run the CPE-250 Manager Software. Default password: **default**.
- **Web-based Management:** Point your browser at the Product's IP address (default IP address: **192.168.1.1**; Default password: **default**).
- **Telnet:** Open a Telnet session at the product's IP address (default IP address: **192.168.1.1**; Default password: **default**).

SAMPLE CONFIGURATIONS

Station/Router Configuration (multiple users)

Below is a sample configuration for Wireless ISPs to deliver wireless broadband access with to remote (customer) site. The product is installed at the customer site as a Station with DHCP client turn on. Its internal router is turned on and NAT is

USING THE MOUNTING HARDWARE

enabled to service a private Ethernet LAN at the customer site. Within the product, the DHCP server is enabled to centrally assign IP resources to PCs on the private LAN. No WEP.

- a. Password: default
- b. ESSID: ABC
- c. IP Address: NA
- d. Netmask: NA
- e. Gateway: NA
- f. Enable DHCP client: YES X NO
- g. Enable Internal Router: YES X NO
- h. Internal Router's WAN Port on:
WLAN X Ethernet
- i. NAT: YES X NO
- j. Internal Router's LAN port IP address:
192.168.1.1
- k. Internal Router's LAN port Netmask:
255.255.255.0
- l. Enable Internal DHCP server:
YES X NO
Begin IP 192.168.1.10
End IP 192.168.1.200
Netmask Use DHCP Wizard
Gateway Use DHCP Wizard
Primary DNS Use DHCP Wizard
Secondary DNS Use DHCP Wizard
Primary WINS Use DHCP Wizard
Secondary WINS Use DHCP Wizard
- m. WEP Key: NA

- l. Enable Internal DHCP server:
YES NA NO NA
Begin IP NA
End IP NA
Netmask NA
Gateway NA
Primary DNS NA
Secondary DNS NA
Primary WINS NA
Secondary WINS NA
- m. WEP Key: NA

Station Configuration (one user)

Below is a sample configuration for the product as used in a "one PC only" application. The product is installed at the customer site as a Station with DHCP client turn on so that the product will receive IP resources (address, netmask, etc.) from an upstream DHCP server. Its internal router is turned off. No WEP. The product should be connected directly to a PC using

- a. Password: default
- b. ESSID: ABC
- c. IP Address: NA
- d. Netmask: NA
- e. Gateway: NA
- f. Enable DHCP client: YES X NO
- g. Enable Internal Router: YES NO X
- h. Internal Router's WAN Port on:
WLAN NA Ethernet NA
- i. NAT: YES NA NO NA
- j. Internal Router's LAN port IP address:
NA
- k. Internal Router's LAN port Netmask:

Copyright 2002 Zcomax Technologies, Inc. All rights reserved.

P/N: QSG15-130. Rev 1.3

Zcomax and AirRunner are registered trademarks

All other registered marks are the property of their respective owners