C P E

ZCOMAX

A I R R U N N E R

CPE-25(x) Series

Preface

The CPE-2(x) series modular 802.11b wireless radio solution was designed to meet the growing needs of The ISP, System Integrator and other professional developers. The CPE-2(x) series product is intended for long distance point to point communications over the wireless medium. This manual will demonstrate how the equipment is to be used in a safe an lawful manner.

FCC STATEMENT

** IMPORTANT **

The installation of the PCMCIA module into an enclosure requires that the integrator label the outside of the enclosure with the FCC ID printed on the module.

Changes or modifications not expressly approved by Zcomax Technologies, Inc. may void the user's 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

- **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 changed in performance, or
    - The product has been dropped, or the enclosure has been damaged.

This product should only be installed by a qualified professional.

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

Check Product Contents.

Check product for complete contents. The following items should be included in the box.

a. CPE-2(x) Series (See components of CPE)
b. AC Adaptor*
c. Power Injector*
d. 6' Category-5 Cable*
e. 5" Category-5 patch cable
f. Category 5 feed line 1-300'
g. Software CD
h. This Guide
i. 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.

Components of CPE:

o **Single board computer (SBC)** – The SBC is a ARM PCMCIA Platform that is used to interface with the RF PC Card. It is used to control the PCMCIA firmware as well as Convert all Ethernet 802.3 packets to wireless 802.11b, using the PCMCIA Card.

o **Wireless RF card** – The PCMCIA card is an 802.11b wireless radio module that is used to transmit all data intended for the link it is attached to.

o **Antenna** – The PCB panel antenna is tuned for the 2.4 – 2.8 frequency range. It comes in two sizes, 15dBi and an 18dBi. The antenna selection is used to determine the out power needed to establish a reliable connection.

Configuration:

Connections
o The PCMCIA Card is inserted into SBC, The PCMCIA rails are keyed so as to avert a wrong insertion method.
o The Antenna feed line is terminated with an MMCX reverse polarity plug that is used to connect to the PCMCIA's primary antenna jack (Jack closets to the PCMCIA's LEDs.

Mounting

o The antenna can be mounted with the use four predrilled mounting holes to assure it will be firmly held in place

o The SBC has four mounting holes that are grounded to the main electrical ground of the SBC.
o The POE splitter has pre drilled mounting holes that allow it to be firmly held in place

Cable connections

o The 6" Category 5 patch cable is used to connect to the SBC's ethernet jack and the POE splitters Etherent jack.

o The DC power cord is used to connect the DC splitter board (main power feed) to the SBC's dc jack.

o The main Ethernet feed line can now be connected to the input Ethernet jack located on the POE splitter and connected to the DC injector box, once in place the compression fitting cap can be tightened.

o The 6' Category 5 patch cable can now be connected to the main Ethernet connector located on the desired device.

o The device is now connected and ready to go.

WEP Key: _____

INSTALLATION

1. 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.

j. Password:___default_____

k. ESSID: _____

l. IP Address: _____

m. Netmask: _____

n. Gateway: _____

o. Enable DHCP client:
    YES ___ NO ___

p. Enable Internal Router:
    YES ___ NO ___

q. Internal Router's WAN Port on:
          WLAN _____
          Ethernet _____

r. NAT:
    YES _____   NO_____

Internal Router's LAN port IP address:
          _____

s. Internal Router's LAN port Netmask:
          _____

t. Enable Internal DHCP server:

YES _____ NO _____

Begin IP_____

End IP_____

Netmask_____

Gateway_____

Primary DNS_____

Secondary DNS_____

Primary WINS _____

Secondary WINS _____

2. 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.

3. 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.

4. 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.

5. 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.

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*).