

AirRunner CPE 80 Series

Zcomax Technologies, Inc. has released its outdoor CPE Series. The Zcomax AirRunner 802.11g CPE Series is a weather resistant unit designed with the wireless ISP in mind. The all-in-one design allows for quick and cost effective deployment of wireless networks without high installation and cable costs. The elimination of cabling also eliminates degradations associated with cable attenuation. The CPE can be mast-mounted or wall-mounted for added flexibility. The unit features 50 feet of Category-5E cable that carries both DC power and the Ethernet signal. A DC Injector is included with the product as well as mast-mounting hardware and an AC/DC adapter.

The AirRunner 802.11g CPE series supports multiple clients in Station “client” mode with, or without MAC cloning. The unit also features support for use as a DHCP client, allowing the AirRunner 802.11g CPE IP resources to be centrally managed.

The AirRunner series is also the solution of choice for linking networks that are impossible to connect using wired alternatives, including networks separated by difficult terrain, or bodies of water. The AirRunner 802.11g CPE comes with two antenna choices for further flexibility the 15dBi or the 18dBi



CPE Series at a Glance

- All-in-one outdoor design
- Built in router
- Removable Ethernet Cable
- External LED Display
- On-board flash firmware allows for rapid field upgrades.
- Mast mounting kit included
- Optional feature set includes AP and Point to multi point modes.
- Windows Utility, Web management and Telnet configuration methods.

Physical Specification:**CPE-80 Enclosure**

| | |
|------------------------|-------------------------------|
| Dimensions (L x W x H) | 32.9cm x 25.9cm x 9.2cm |
| Gross Weight | 4lbs |
| CPE Weight | 2.5lbs (CPE + Ethernet cable) |

Electrical Specification:

| | |
|---------------------------------|-----------------|
| Supply Voltage | 5 Vdc, +/- 5% |
| Supply Voltage Ripple | 120mV (pp) max. |
| Power-on startup time | <600 ms |
| Power consumption (Idle) | 520mA, +/- 3% |
| Power consumption (Constant Tx) | 655mA, +/- 3% |

RF Specification:

| | |
|------------------------------|---|
| Frequency Range (GHz) | 2.412 ~ 2.472 |
| Frequency Drift | <25KHz |
| Antenna Impedance | 50 ohms |
| Media Access Protocol | CAMA/CA w/ACK |
| Data Rate with auto fallback | 11b mode: 1, 2, 5.5, 11Mbps 11g mode: 54,48,36,24,18,12,9, 11g mode : |
| Modulation | 64QAM,16QAM,QPSK,BPSK 11b mode : CCK,DQPSK,DBPSK |

Output power / Receive sensitivity Specification:**CPE-80**

| | |
|--------------------------------|-------------------------|
| Output Power | 2500m(W) (34dBm) |
| Receive Sensitivity @ PER < 8% | -80 dBm @ 54Mbps |
| | -97 dBm @ 11Mbps |

* Include antenna gain

CPE-88

| | |
|--------------------------------|-------------------------|
| Output Power | 4000m(W) (36dBm) |
| Receive Sensitivity @ PER < 8% | -83 dBm @ 54Mbps |
| | -100 dBm @ 11Mbps |

* Include antenna gain

Ethernet Connector Specification

| | |
|-----------------|--|
| Connector Type | 10/100BaseT R-45 LAN port with Auto-MDIX |
| Wiring Standard | TIA/EIA 568B |

LED Display

| | |
|-------------------|---|
| Power | Indicates unit has power |
| Wireless activity | Flashing light determine activity |
| Link | Confirms a wireless link when in Station mode |

Operating Conditions

| | |
|-----------------------|-----------------------------------|
| Operating Temperature | -15 ~ 60°C, 95% relative humidity |
|-----------------------|-----------------------------------|

Security

The AirRunner CPE Series product includes a high performance hardware WEP engine supporting 64-bit, 128-bit WEP as well as WPA/PSK for enhanced security. No driver-level coding for WEP operation is required to integrate the module. 64-bit WEP requires a 40-bit key plus a 24-bit initialization vector. 128-bit WEP utilizes a 104-bit key plus a 24-bit initialization vector.

Interoperability

The AirRunner CPE Series product interoperates with any IEEE 802.11g or 802.11b compliant devices.

International Frequencies

Regulatory requirements at different countries mandate different operating frequencies (channels). Allowable channels for each typical Domains are listed below.

| Domain | Allowable channels |
|--------------------------|---------------------------|
| Africa | Channels 1 ~ 13 |
| Asia | Channels 1 ~ 13 |
| Australia | Channels 1 ~ 13 |
| Canada | Channels 1 ~ 11 |
| Europe | Channels 1 ~ 13 |
| France | Channels 10 ~ 13 |
| Israel | Channels 5 ~ 7 |
| Japan | Channels 1 ~ 13 |
| Mexico | Channels 11 |
| South America | Channels 1 ~ 13 |
| United States of America | Channels 1 ~ 11 |

Feature List

Function

| | Station | AP | AP Repeating |
|-------------------------|---------|----|--------------|
| AP List | Y | | |
| Station List | | Y | Y |
| Rescan | Y | | |
| Country Region | Y | Y | Y |
| Roaming | Y | | |
| Link Status (WEB) | Y | | |
| Factory Default (WEB) | Y | Y | Y |
| Firmware Upgrade (WEB) | Y | Y | Y |
| MAC Clone | Y | | |
| DHCP Client | Y | Y | Y |
| WINS support | Y | Y | Y |
| Multiple Client support | Y | | |
| WEB Based Management | Y | Y | Y |

Protocol List

| | Station | AP | AP Repeating |
|---------|---------|----|--------------|
| TCP/IP | Y | Y | Y |
| IPX/SPX | | Y | Y |
| NetBEUI | | Y | Y |

Ordering Information

Part Number: **CPE-80 (15dBi antenna)**

Part Number: **CPE-88 (18dBi antenna)**

Performance – Distance Comparison Chart

Fade Margin is the allocation of received power above the minimum, needed to establish a connection. We recommend a 15dB fade margin above the calculated “theoretical Value” to account for Atmospheric, Environmental and other intangibles that will attenuate the signal. Below are two charts one with a 15dB fade margin calculated into the distance, check both Transmitter and receiver distance, the lowest distance is the maximum distance obtained based on configuration.

All calculations are based upon 802.11b CCK modulation running at **11 Mbps**

Distance based on a 15dB Fade Margin

| Transmitter | Receiver | | | | |
|--------------------|--------------|--------------|--------------|--------------|--------------|
| | CPE-80 | CPE-88 | CPE-25(x)H | CPE-25(x)HP | CPE-38(x)HP |
| CPE-80 | 3.5M / 5.6Km | 4.5M / 7.2Km | 8M / 12.8Km | 8M / 12.8Km | 10M / 16Km |
| CPE-88 | 4.5M / 7.2Km | 5.5M / 8.8Km | 10M / 16Km | 10M / 16Km | 12M / 19.Km |
| CPE-25(x)H | 3.5M / 5.6Km | 4.5M / 7Km | 8M / 12.8Km | 8M / 12.8Km | 10M / 16Km |
| CPE-25(x)HP | 5M / 8Km | 6M / 9.7Km | 11M / 17.7Km | 11M / 17.7Km | 14M / 22.5Km |
| CPE-38(x)HP | 6M / 9.7Km | 8M / 12.9Km | 14M / 22.5Km | 14M / 22.5Km | 17M / 27 Km |

All calculations are based upon 802.11g OFDM modulation running at **54 Mbps**

Distance based on a 15dB Fade Margin

| Transmitter | Receiver | | | | |
|---------------|--------------|--------------|------------|-------------|-------------|
| | CPE-80 | CPE-88 | CPE-25(x)H | CPE-25(x)HP | CPE-38(x)HP |
| CPE-80 | 0.5 / 0.8Km | 0.7 / 1.13Km | N/A | N/A | N/A |
| CPE-88 | 0.7 / 1.13Km | 0.9 / 1.45Km | N/A | N/A | N/A |