CAP2315A
802.11b/g AP Cradle

Installation Guide

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802.11b/g AP Cradle

IEEE 802.11b/g Wireless Access Point,
with Cradle Charger for Wi-Fi Phone

CAP2315A
E072006-EK-R01
150xxxxxxxxxxx

Compliances

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:
FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters (8 inches) between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

Japan VCCI Class B

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

EC Conformance Declaration CE

Marking by the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:

- EN 60950-1 (IEC 60950-1) - Product Safety
- EN 300 328 - Technical requirements for 2.4 GHz radio equipment
- EN 301 489-1, EN 301 489-17 - EMC requirements for radio equipment
- EN 50385 - The Compliance of Radio Base Stations and Fixed Terminal Stations for Wireless Telecommunication Systems with the Basic Restrictions or the Reference Levels Related to Human Exposure to Radio Frequency Electromagnetic Fields (110 MHz - 40 GHz)

This device is intended for use in the following European Community countries:

- Austria
- Belgium
- Denmark
- Finland
- France
- Germany
- Italy
- Luxembourg
- Netherlands
- Norway
- Spain
- Sweden
- Switzerland
- United Kingdom
- Portugal
- Greece
- Ireland
- Iceland

Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

- In Italy the end-user must apply for a license from the national spectrum authority to operate this device outdoors.
- In Belgium outdoor operation is only permitted using the 2.46 - 2.4835 GHz band: Channel 13.
- In France outdoor operation is only permitted using the 2.4 - 2.454 GHz band: Channels 1 - 7.

Contents

Chapter 1: Introduction

The Cradle Access Point is an IEEE 802.11b/g (Wi-Fi) access point that provides a quality wireless Voice over Internet Protocol (VoIP) service for Wi-Fi phones, and high-speed data communications between a wired LAN and other 802.11b/g mobile devices. The access point also includes a cradle for charging a Wi-Fi phone.

The access point software provides two “virtual” wireless interfaces that separate the Wi-Fi Phone traffic from the regular data traffic. Quality of Service (QoS) features ensure sustained high throughput for the voice traffic and channel hopping avoids radio interference, which helps maintain high-quality voice communications.

The data wireless interface provides gateway functions, such as a DHCP server and Network Address Translation (NAT), that route data from wireless clients to the wired network.

In addition, the access point offers full network management capabilities through an easy-to-use web interface.

Package Checklist

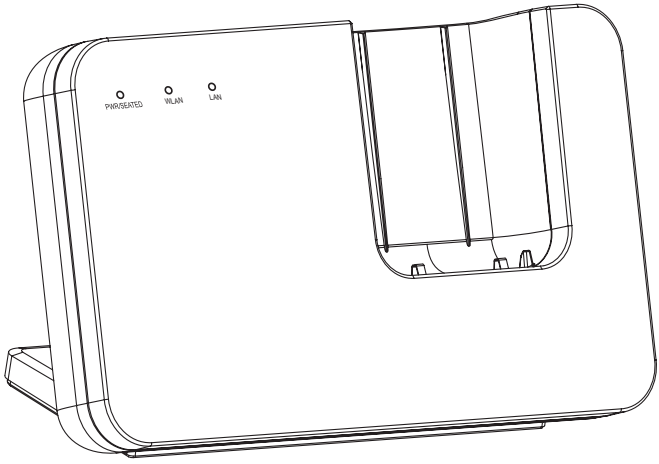
The Cradle Access Point package includes:

- Cradle Access Point
- One Category 5 network cable
- One AC power adapter
- This Installation Guide
- Management Guide CD

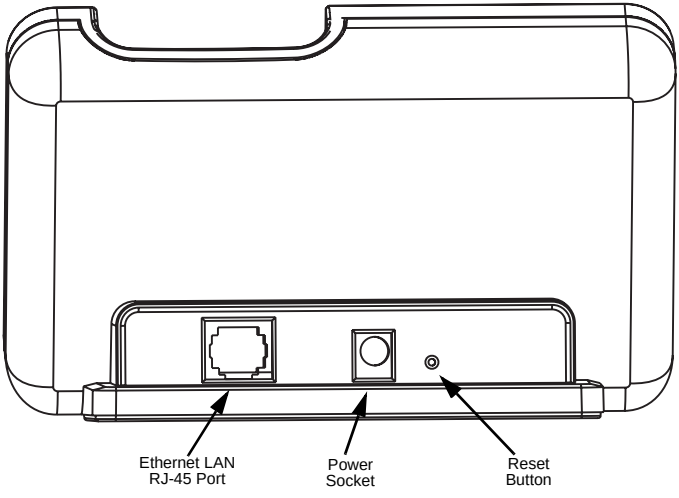
Inform your dealer if there are any incorrect, missing or damaged parts. If possible, retain the carton, including the original packing materials. Use them again to repack the product in case there is a need to return it.

Hardware Description

Front Panel



Back Panel

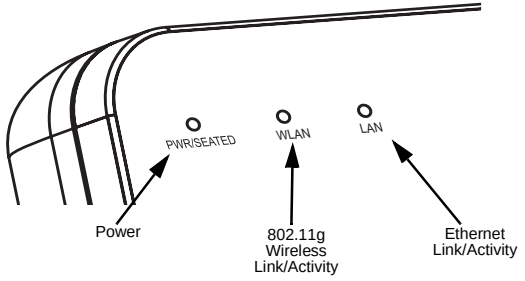


Wi-Fi Phone Cradle

The access point accepts a Wi-Fi Phone in its cradle for charging the battery. When the access point is powered on, just place the phone in the cradle and charging starts immediately.

LED Indicators

The access point includes three status LED indicators, as described in the following figure and table.



LED	Status	Description
PWR/SEATED	On Green	Indicates that the system is working normally.
	On Red	The system is working normally with a Wi-Fi phone seated in the cradle.
WLAN	On/Flashing Green	Indicates the 802.11g radio is enabled and transmitting or receiving data through wireless links. The flashing rate is proportional to network activity.
	Off	Indicates the 802.11g radio is disabled.
LAN	On/Flashing Green	Indicates a valid link on the Ethernet port and that the access point is transmitting or receiving data. The flashing rate is proportional to network activity.
	Off	The Ethernet port has no valid link.

Ethernet Port

The access point has one 10BASE-T/100BASE-TX RJ-45 port that can be attached directly to 10BASE-T/100BASE-TX LAN segments. These segments must conform to the IEEE 802.3-2005 specifications.

This port supports automatic MDI/MDI-X operation, so you can use straight-through cables for all network connections to PCs, switches, or hubs.

Reset Button

The Reset button is used to restart the access point or restore the factory default configuration. If you hold down the button for less than 5 seconds, the access point will perform a hardware reset. If you hold down the button for 5 seconds or more, any configuration changes you may have made are removed, and the factory default configuration is restored to the access point.

Power Connector

The access point does not have a power switch. It is powered on when connected to the AC power adapter, and the power adapter is connected to a power source. The power adapter automatically adjusts to any voltage between 100-240 volts at 50 or 60 Hz. No voltage range settings are required.

Chapter 2: Hardware Installation

To install the Cradle Access Point, follow these steps:

1. **Select a Site** – Choose a proper place for the access point. In general, the best location is at the center of your wireless coverage area, within line of sight of all wireless devices. For optimum performance, consider these points:
   - Mount the access point as high as possible above any obstructions in the coverage area.
   - Avoid mounting next to or near building support columns or other obstructions that may cause reduced signal or null zones in parts of the coverage area.
   - Mount away from any signal absorbing or reflecting structures (such as those containing metal).
   - Avoid radio interference by mounting away from other 2.4 GHz devices, such as other 802.11b or g wireless devices, regular cordless phones, and microwave ovens.
2. **Mount the Access Point** – The access point is designed to be mounted on any horizontal surface, such as a desktop.
3. **Connect the Power Cord** – Connect the power adapter to the access point, and plug the power adapter into an AC power outlet.

Caution: Use ONLY the power adapter supplied with the access point. Otherwise, the product may be damaged.

4. **Observe the Indicator LEDs** – When you power on the access point verify that the Power LED turns on and that the other LED indicators start functioning as described under “LED Indicators” on page 1-3.
5. **Connect the Ethernet Cable** – The access point can be connected to any 10 or 100 Mbps Ethernet network device, such as a hub or a switch. Connect your network to the RJ-45 port on the back panel using category 3, 4, or 5 UTP Ethernet cable. When the access point and the connected device are powered on, the LAN LED should turn on indicating a valid network connection. If the LAN LED fails to turn on, refer to “Troubleshooting” on page A-1.

Note: The RJ-45 port on the access point supports automatic MDI/MDI-X operation, so you can use straight-through cables for all network connections to PCs, switches, or hubs.

Access Point Configuration

The access point can be configured by connecting a PC to its Ethernet port and accessing the web interface. The default IP address of the access point is 192.168.1.20, with login user name “admin” and no default password.

For information on configuring the access point, refer to the *Management Guide*.

Appendix A: Troubleshooting

Diagnosing Access Point Indicators

Troubleshooting Chart	
Symptom	Action
PWR/SEATED LED is Off	• AC power adapter may be disconnected. Check connections between the access point, the power adapter, and the wall outlet.
LAN LED is Off	• Verify that the access point and attached device are powered on. • Be sure the cable is plugged into both the access point and corresponding device. • Verify that the proper cable type is used and its length does not exceed specified limits. • Check the cable connections for possible defects. Replace the defective cable if necessary.

Note: For information on troubleshooting wireless connectivity issues, refer to the *Management Guide*.

Appendix B: Cables and Pinouts

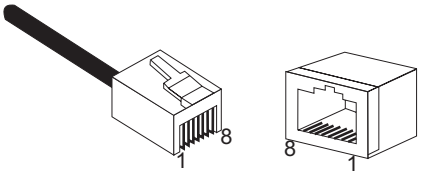
Twisted-Pair Cable Assignments

For 10/100BASE-TX connections, a twisted-pair cable must have two pairs of wires. Each wire pair is identified by two different colors. For example, one wire might be green and the other, green with white stripes. Also, an RJ-45 connector must be attached to both ends of the cable.

Caution: Each wire pair must be attached to the RJ-45 connectors in a specific orientation. (See “Straight-Through Wiring” on page B-2 and “Crossover Wiring” on page B-2 for an explanation.)

Caution: DO NOT plug a phone jack connector into the RJ-45 port. Use only twisted-pair cables with RJ-45 connectors that conform with FCC standards.

The following figure illustrates how the pins on the RJ-45 connector are numbered. Be sure to hold the connectors in the same orientation when attaching the wires to the pins.



10/100BASE-TX Pin Assignments

Use unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable for RJ-45 connections: 100-ohm Category 3 or better cable for 10 Mbps connections, or 100-ohm Category 5 or better cable for 100 Mbps connections. Also be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).

The RJ-45 port on the access point supports automatic MDI/MDI-X operation, so you can use straight-through or crossover cables for all network connections to PCs, switches, or hubs. In straight-through cable, pins 1, 2, 3, and 6, at one end of the cable, are connected straight through to pins 1, 2, 3, and 6 at the other end.

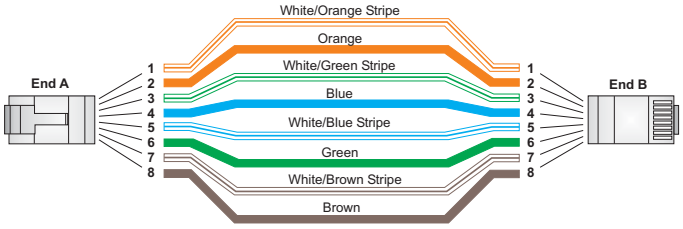
Pin	MDI Signal Name	MDI-X Signal Name
1	Transmit Data plus (TD+)	Receive Data plus (RD+)
2	Transmit Data minus (TD-)	Receive Data minus (RD-)
3	Receive Data plus (RD+)	Transmit Data plus (TD+)
6	Receive Data minus (RD-)	Transmit Data minus (TD-)
4,5,7,8	Not used	Not used

Note: The “+” and “-” signs represent the polarity of the wires that make up each wire pair.

Straight-Through Wiring

If the twisted-pair cable is to join two ports and only one of the ports has an internal crossover (MDI-X), the two pairs of wires must be straight-through.

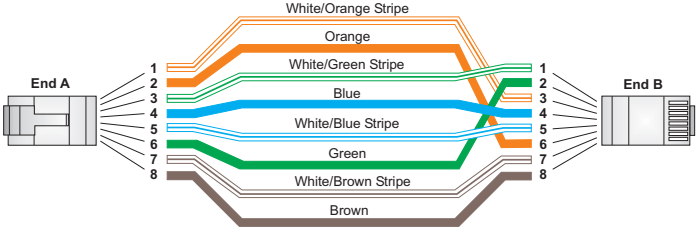
EIA/TIA 568B RJ-45 Wiring Standard
10/100BASE-TX Straight-through Cable



Crossover Wiring

If the twisted-pair cable is to join two ports and either both ports are labeled with an “X” (MDI-X) or neither port is labeled with an “X” (MDI), a crossover must be implemented in the wiring.

EIA/TIA 568B RJ-45 Wiring Standard
10/100BASE-TX Crossover Cable



Appendix C: Specifications

Maximum Channels
FCC/IC: 1-11
ETSI: 1-13
France: 10-13
MKK: 1-14
Taiwan: 1-11

Maximum Clients
32 per VAP interface

Data Rate
802.11g: 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps per channel
802.11b: 1, 2, 5.5, 11 Mbps per channel

Modulation Type
802.11g: CCK, BPSK, QPSK, OFDM
802.11b: CCK, BPSK, QPSK

Network Configuration
Infrastructure

Operating Frequency
2.4 ~ 2.4835 GHz (US, Canada, ETSI)
2.4 ~ 2.497 GHz (Japan)
2.400 ~ 2.4835 GHz (Taiwan)

Wireless Output Power
802.11b: 20 dBm (typical)
802.11g: 18 dBm @ 6 Mbps, 15 dBm @ 54 Mbps

Wireless Receive Sensitivity
802.11b: -90 dBm @ 1 Mbps, -84 dBm @ 11 Mbps
802.11g: -86 dBm @ 6 Mbps, -68 dBm @ 54 Mbps

AC Power Adapter
Input: 100-240 VAC, 50-60 Hz
Output: 5 VDC, 2 A

Unit Power Supply
DC Input: 5 VDC, 2 A maximum
Power Consumption: 6.5 W maximum

Physical Size
14.7 x 9.0 x 2.8 cm (5.79 x 3.54 x 1.1 in)

Weight
300 g (10.6 oz)

LED Indicators
PWR/SEATED (Power), LAN (Ethernet Link/Activity), WLAN (Wireless Link/Activity)

Network Management
Web-browser

Temperature
Operating: 0 to 50 °C (32 to 122 °F)
Storage: -20 to 70 °C (32 to 158 °F)

Humidity
15% to 95% (non-condensing)

Compliances
FCC Part 15B Class B
VCCI ClassB
EN 55022 Class B
EN 55024
EN 50385
EN61000-3-2
EN61000-3-3

Radio Signal Certification
FCC Part 15C 15.247, 15.207 (2.4 GHz)
EN 300-328
EN 301 489-1
EN 301 489-17
ARIB STD-T66
ARIB STD-33

Safety
EN 60950-1
IEC 60950-1 (CB)

Standards
IEEE 802.3-2005 10BASE-T, 100BASE-TX
IEEE 802.11b, g
Wi-Fi 11b/g, WPA, WPA2, WMM

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