Edge-corE

Powered by Accton

EAP2316A
2.4 GHz
Wireless Access Point

Installation Guide

www.edge-core.com

Installation Guide

2.4 GHz Wireless Access Point

IEEE 802.11b/g Access Point
with Integrated Diversity Antennas

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

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. 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.

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.

Countries of Operation & Conditions of Use in the European Community

This device is intended to be operated in all countries of the European Community. Requirements for indoor vs. outdoor operation, license requirements and allowed channels of operation apply in some countries as described below:

Note: The user must use the configuration utility provided with this product to ensure the channels of operation are in conformance with the spectrum usage rules for European Community countries as described below.

- This device requires that the user or installer properly enter the current country of operation in the command line interface as described in the user guide, before operating this device.

- This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other system. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions and license requirements for each European Community country as described in this document.
- The 2.5 GHz Turbo Mode feature is not allowed for operation in any European Community country. The current setting for this feature is found in the 2.5 GHz 802.11g Radio Settings Window as described in the user guide.
- This device may be operated *indoors or outdoors* in all countries of the European Community using the 2.4 GHz band: Channels 1 - 13, except where noted 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.

Declaration of Conformity in Languages of the European Community

English	Hereby, Edgecore, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Valmistaja Edgecore vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart Edgecore dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
	Bij deze Edgecore dat deze Radio LAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente Edgecore déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE
Swedish	Härmed intygar Edgecore att denna Radio LAN device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede Edgecore erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF

German	Hiermit erklärt Edgecore, dass sich dieser/diese/dieses Radio LAN device in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)
	Hiermit erklärt Edgecore die Übereinstimmung des Gerätes Radio LAN device mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Edgecore ΔΗΛΩΝΕΙ ΟΤΙ Radio LAN device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
Italian	Con la presente Edgecore dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente Edgecore declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Portuguese	Edgecore declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE

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Chapter 1: Introduction

The 2.4 GHz Wireless Access Point is an IEEE 802.11b/g access point that provides transparent, wireless high-speed data communications between the wired LAN and fixed or mobile devices equipped with an 802.11b, or 802.11g wireless adapter.

This solution offers fast, reliable wireless connectivity with considerable cost savings over wired LANs (which include long-term maintenance overhead for cabling). Using 802.11b and 802.11g technology, this access point can easily replace a 10 Mbps Ethernet connection or seamlessly integrate into a 10/100 Mbps Ethernet LAN.

This solution offers fast, reliable wireless connectivity with considerable cost savings over wired LANs (which include long-term maintenance overhead for cabling). Using 802.11b and 802.11g technology, this access point can easily replace a 10 Mbps Ethernet connection or seamlessly integrate into a 10/100 Mbps Ethernet LAN.

The access point radio interface can operate in one of five modes:

• **Access Point** – Providing conectivity to wireless clients in the service area.

• **AP Client** – Act as a wireless clients in the service area.

• **Repeater** – Providing an extended link to a remote access point from the wired LAN. In this mode the access point does not have a connection to a wired Ethernet LAN.

• **Bridge** – Providing links to other access points in "Bridge" or "Root Bridge" mode connecting wired LAN segments.

• **Root Bridge** – Providing links to other access points in "Bridge" mode connecting wired LAN segments. Only one unit in the wireless bridge network can be set to "Root Bridge" mode.

In addition, the access point offers full network management capabilities through an easy to configure web interface, a command line interface for initial configuration and troubleshooting, and support for Simple Network Management tools, such as HP's OpenView.

Radio Characteristics – The IEEE 802.11g standard uses a radio modulation technique known as Orthogonal Frequency Division Multiplexing (OFDM), and a shared collision domain (CSMA/CA). It operates at the 2.4 GHz Unlicensed National Information Infrastructure (UNII) band for connections to 802.1g clients.

IEEE 802.11g includes backward compatibility with the IEEE 802.11b standard. IEEE 802.11b also operates at 2.4 GHz, but uses Direct Sequence Spread Spectrum (DSSS) and Complementary Code Keying (CCK) modulation technology to achieve a communication rate of up to 11 Mbps.

The access point supports a 54 Mbps half-duplex connection to Ethernet networks for each active channel.

Super G– The Atheros proprietary Super G performance enhancements are supported by the access point. Features and benifits of Super G are described in the following table:

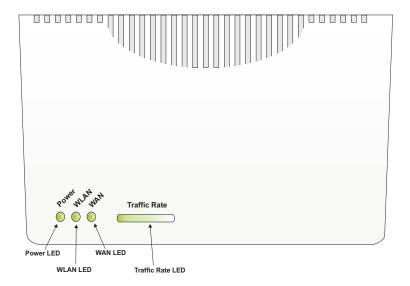| Feature	Characteristics	Benifit
Bursting	More data frames per given time period Standards-based Relevant to STA	Increased throuput via overhead reduction 802.11e subset Advantage applies to any AP
Compression	Real-time hardware data compression Standards-based (Lempel Ziv)	Increased data throughput using compressed frames No impact on host processor
Fast Frames	Utilizes frame aggregation and timing modifications	Increases throughput by transmitting more data per frame
Dynamic Turbo	Similar to trunking techniques used in Fast Ethernet networks, utilizes dual channels to "double" transmission rates Analyzes environment and adjusts bandwidth utilization accordingly	Maximises bandwidth using multiple channels Environment-aware

Package Checklist

The 2.4 GHz Wireless Access Point package includes:

• One 2.4 GHz Wireless Access Point

• One Category 5 network cable

• One AC power adapter and power cord

• Two wall-mounting screws

• This Installation Guide

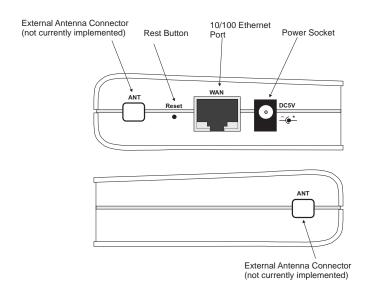• Documentation CD (includes Installation Guide and Management Guide)

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

Top Panel

Power
WLAN
WAN

Traffic Rate

Power LED

WAN LED

WLAN LED

Traffic Rate LED

Side Panels

External Antenna Connector
(not currently implemented)

Rest Button

10/100 Ethernet
Port

Power Socket

ANT

Reset

WAN

DC5V

ANT

External Antenna Connector
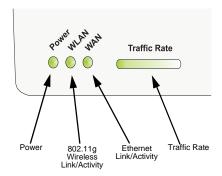(not currently implemented)

Component Description

Antennas

The access point includes integrated internal diversity antennas for wireless comunications. A diversity antenna system uses two identical antennas to receive and transmit signals, helping to avoid multipath fading effects. When receiving, the access point checks both antennas and selects the one with the strongest signal. When transmitting, it will continue to use the antenna previously selected for receiving. The access point never transmits from both antennas at the same time.

LED Indicators

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

LED	Status	Description
Power	On Green	Indicates that the system is working normally
	Flashing Green	System running its power-on-self-test
	On Amber	Indicates system errors
WLAN	On Green	Indicates the 802.11g radio is enabled.
	Flashing Green	Indicates that the access point is transmitting or receiving data through wireless links. Flashing rate is proportional to network activity.
	Off	Indicates the 802.11g radio is disabled.
WAN	On Green	Indicates a valid link on the Ethernet port.
	Flashing Green	Indicates that the access point is transmitting or receiving data through the Ethernet port. Flashing rate is proportional to network activity.
	Off	The Ethernet port has no link or is administratively disabled.
Traffic Rate	On or Flashing Green	Indicates the level of wireless activity ranging from 0% to 100% of bandwidth utilization.

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 or 802.3u 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.

The access point appears as an Ethernet node and performs a bridging function by moving packets from the wired LAN to remote workstations on the wireless infrastructure.

Note: The RJ-45 port also supports Power over Ethernet (PoE) based on the IEEE 802.3af standard. Refer to the description for the "Power Connector" for information on supplying power to the access point's network port from a network device, such as a switch, that provides Power over Ethernet (PoE).

Reset Button

This button is used to reset 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.

The access point may also receive Power over Ethernet (PoE) from a switch or other network device that supplies power over the network cable based on the IEEE 802.3af standard.
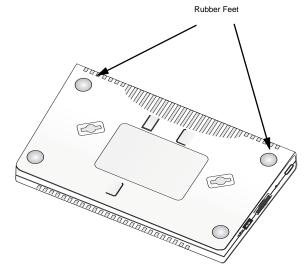
Note that if the access point is connected to a PoE source device and also connected to a local power source through the AC power adapter, PoE will be disabled.
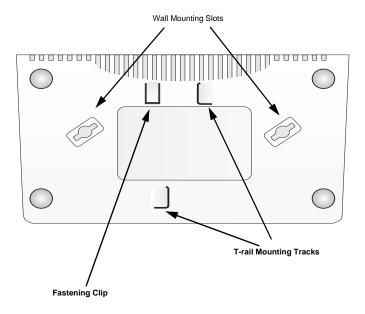
Chapter 2: Hardware Installation

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. Try to place the access point in a position that can best cover its Basic Service Set (refer to "Infrastructure Wireless LAN" on page 3-2). 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).

2. **Mount the Access Point** – The access point can be mounted on any horizontal surface, wall or suspended ceiling.

    Mounting on a horizontal surface – The four attached rubber feet keep the access point from sliding on smooth surfaces.

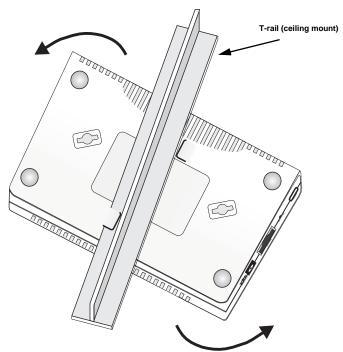Rubber Feet

Bottom of Access Point

Mounting on a wall – The access point should be mounted only to a wall or wood surface that is at least 1/2-inch plywood or its equivalent. Mark the position of the mounting screws on the wall so they line up with the two mounting slots on the bottom of the access point. Set the 5/8-inch number 12 wood screws into the wall, leaving about 3 mm (0.12 in.) clearance from the wall. And then slide the access point down onto the screws.

Wall Mounting Slots

T-rail Mounting Tracks

Fastening Clip

Bottom of Access Point

Mounting on a suspended ceiling – To mount the access point to a suspended ceiling, do the following:

• Choose a location on the ceiling where the access point will be installed on the suspended ceiling T-rail.

• Align the mounting track and fastening clip with the T-rail and slide sideways so that the T-rail engages with the second mounting track. The access point will snap into place.

T-rail (ceiling mount)

3. **Connect the Power Cord** – Connect the power adapter to the access point, and the power cord to an AC power outlet.

Note: If the access point is connected to both a PoE source device and an AC power source, PoE will be disabled.

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

4. **Observe the Self Test** – When you power on the access point, verify that the Power indicator stops flashing and remains on, and that the other indicators start functioning as described under "LED Indicators" on page 1-4. If the Power LED turns on amber, the self test has not completed correctly. Refer to "Troubleshooting" on page A-1.

5. **Connect the Ethernet Cable** – The access point can be wired to a 10/100 Mbps Ethernet through a network device such as a hub or a switch. Connect your network to the RJ-45 port on the back panel with category 3, 4, or 5 UTP Ethernet cable. When the access point and the connected device are powered on, the WAN LED should turn on indicating a valid network connection. If the WAN 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 192.168.1.50, with default user name and password of 'admin'.

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

Chapter 3: Network Configuration

Wireless networks support a stand-alone configuration as well as an integrated configuration with 10/100 Mbps Ethernet LANs. The 2.4 GHz Wireless Access Point also provides repeater and bridging services.

Access points can be deployed to support wireless clients and connect wired LANs in the following configurations:

- Ad hoc for departmental, SOHO or enterprise LANs

- Infrastructure for wireless LANs

- Infrastructure wireless LAN for roaming wireless PCs

- Infrastructure wireless bridge to connect wired LANs

- Infrastructure wireless repeater for extended range

The 802.11b and 802.11g frequency band, which operates at 2.4 GHz, can easily encounter interference from other 2.4 GHz devices, such as other 802.11b or g wireless devices, cordless phones and microwave ovens. If you experience poor wireless LAN performance, try the following measures:

- Limit any possible sources of radio interference within the service area

- Increase the distance between neighboring access points

- Decrease the signal strength of neighboring access points

- Increase the channel separation of neighboring access points (e.g. up to 3 channels of seperation for 802.11b, or up to 5 channels for 802.11g)

Network Topologies

Ad Hoc Wireless LAN (no Access Point)

An ad hoc wireless LAN consists of a group of computers, each equipped with a wireless adapter, connected via radio signals as an independent wireless LAN. Computers in a specific ad hoc wireless LAN must therefore be configured to the same radio channel. An ad hoc wireless LAN can be used for a branch office or SOHO operation.

Ad Hoc Wireless LAN

Notebook with
Wireless USB Adapter

Notebook with
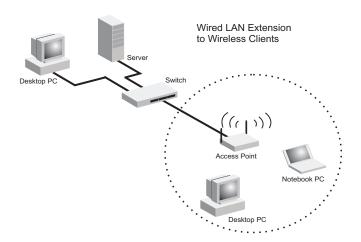Wireless PC Card

PC with Wireless
PCI Adapter

Infrastructure Wireless LAN

The access point also provides access to a wired LAN for wireless workstations. An integrated wired/wireless LAN is called an Infrastructure configuration. A Basic Service Set (BSS) consists of a group of wireless PC users, and an access point that is directly connected to the wired LAN. Each wireless PC in this BSS can talk to any computer in its wireless group via a radio link, or access other computers or network resources in the wired LAN infrastructure via the access point.

The infrastructure configuration not only extends the accessibility of wireless PCs to the wired LAN, but also increases the effective wireless transmission range for wireless PCs by passing their signal through one or more access points.

A wireless infrastructure can be used for access to a central database, or for connection between mobile workers, as shown in the following figure.
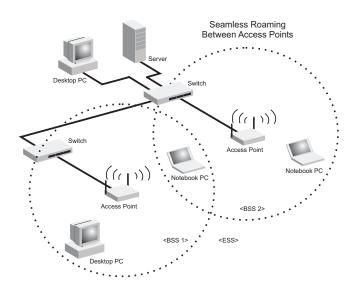
Wired LAN Extension to Wireless Clients

Infrastructure Wireless LAN for Roaming Wireless PCs

The Basic Service Set (BSS) defines the communications domain for each access point and its associated wireless clients. The BSS ID is a 48-bit binary number based on the access point's wireless MAC address, and is set automatically and transparently as clients associate with the access point. The BSS ID is used in frames sent between the access point and its clients to identify traffic in the service area.

The BSS ID is only set by the access point, never by its clients. The clients only need to set the Service Set Identifier (SSID) that identifies the service set provided by one or more access points. The SSID can be manually configured by the clients, can be detected in an access point's beacon, or can be obtained by querying for the identity of the nearest access point. For clients that do not need to roam, set the SSID for the wireless card to that used by the access point to which you want to connect.

A wireless infrastructure can also support roaming for mobile workers. More than one access point can be configured to create an Extended Service Set (ESS). By placing the access points so that a continuous coverage area is created, wireless users within this ESS can roam freely. All wireless network cards and adapters and wireless access points within a specific ESS must be configured with the same SSID.
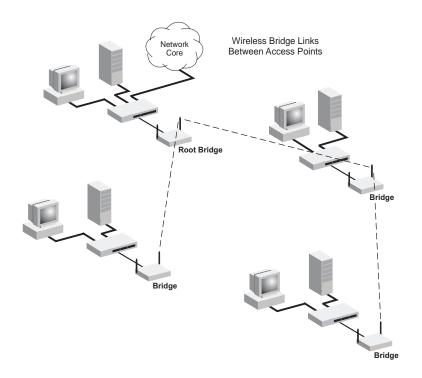
Seamless Roaming
Between Access Points

Infrastructure Wireless Bridge

The IEEE 802.11 standard defines a WIreless Distribution System (WDS) for bridge connections between BSS areas (access points). The access point uses WDS to forward traffic on links between units.

Up to six WDS bridge links can be specified for each unit in the wireless bridge network. One unit only must be configured as the "root bridge" in the wireless network. The root bridge should be the unit connected to the main core of the wired LAN. Other bridges must configure one "parent" link to the root bridge or to a bridge connected to the root bridge. The other five available WDS links can be specified as "child" links to other bridges. This forms a tiered-star topology for the wireless bridge network.

When using WDS on the access point radio, only wireless bridge units can associate to each other. Wireless clients can only associate with the access point when the radio is set to access point or repeater mode.

Infrastructure Wireless Repeater

The access point can also operate in a bridge "repeater" mode to extend the range of links to wireless clients. The access point uses WDS to forward traffic between the repeater bridge and the root bridge. The access point supports up to six WDS repeater links.

In repeater mode, the access point does not support an Ethernet link to a wired LAN. Note that when the access point operates in this mode only half the normal throughput is possible. This is because the access point has to receive and then re-transmit all data on the same channel.

Network
Core

Wireless Repeater Links
Between Access Points

Root Bridge

802.11g Radio
Repeater Link

802.11g Radio
Repeater Link

Repeater

802.11g Radio
AP Link

802.11g Radio
AP Link

Repeater

Appendix A: Troubleshooting

Diagnosing Access Point Indicators

Troubleshooting Chart	
Symptom	Action
Power LED is Off	• AC power adapter may be disconnected. Check connections between the access point, the power adapter, and the wall outlet. • PoE power to the access point may be disabled at the connected switch port. Check the switch configuration to be sure that PoE power is enabled for the switch and specified port. Also check that the switch has not exceeded its power budget and turned off the port power.
Power LED is Amber	• The access point has detected a system error. Reboot the access point to try and clear the condition. • If the condition does not clear, contact your local dealer for assistance.
WAN 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.
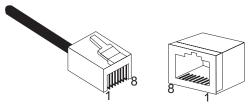
Appendix B: Cables and Pinouts

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-3 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 of the cable.

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+)
4	GND (Positive Vport)	GND (Positive Vport)
5	GND (Positive Vport)	GND (Positive Vport)
6	Receive Data minus (RD-)	Transmit Data minus (TD-)
7	-48V feeding power (Negative- Vport)	-48V feeding power (Negative- Vport)
8	-48V feeding power (Negative- Vport)	-48V feeding power (Negative- Vport)

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

End A

End B

White/Orange Stripe
Orange
White/Green Stripe
Blue
White/Blue Stripe
Green
White/Brown Stripe
Brown

Appendix C: Specifications

General Specifications

Maximum Channels
802.11b/g:
FCC/IC: 1-11
ETSI: 1-13
France: 10-13
MKK: 1-14
Taiwan: 1-11

Maximum Clients
64 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
802.11b:
2.4 ~ 2.4835 GHz (US, Canada, ETSI)
2.4 ~ 2.497 GHz (Japan)
2.400 ~ 2.4835 GHz (Taiwan)

AC Power Adapter
Input: 100-240 AC, 50-60 Hz
Output: 5 VDC, 2A
Maximum Power: 13.2 Watts

Unit Power Supply
DC Input: 5 VDC, 2 A maximum
PoE input: -48 VDC, 0.27 A maximum
Power Consumption: 9.6 W maximum

Physical Size
15.6 x 11.7 x 2.8 cm (6.14 x 4.6 x 1.1 in)

Weight
0.205 kg (0.44 lbs)

LED Indicators
PWR (Power), WAN (Ethernet Link/Activity), WLAN (802.11b/g Wireless Link/
Activity), Traffic Rate (Wireless LAN bandwidth utilization)

Network Management
Web-browser, SNMP

Temperature
Operating: 0 to 55 $^\circ$C (32 to 131 $^\circ$F)

Storage: 0 to 70 $^\circ$C (32 to 158 $^\circ$F)

Humidity
15% to 95% (non-condensing)

Compliances
FCC Part 15B Class B

Radio Signal Certification
FCC Part 15C 15.247, 15.207 (2.4 GHz)

Safety
CSA/C US (CSA60950-1 & UL60950-1)
IEC60950-1 (CB)

Standards
IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX,
IEEE 802.11b, g

Sensitivity

IEEE 802.11g	
Data Rate	Sensitivity (dBm)
6 Mbps	-88
9 Mbps	-87
12 Mbps	-86
17 Mbps	-85
24 Mbps	-81
36 Mbps	-77
48 Mbps	-72
54 Mbps	-70

IEEE 802.11b	
Data Rate	Sensitivity (dBm)
1 Mbps	-93
2 Mbps	-90
5.5 Mbps	-90
11 Mbps	-87

Transmit Power

IEEE 802.11g	Maximum Output Power (GHz - dBm)		
Data Rate	2.412	2.417~2.467	2.472
6 Mbps	20	20	18
9 Mbps	20	20	18
12 Mbps	20	20	18
18 Mbps	20	20	18
24 Mbps	20	20	18
36 Mbps	18	19	17
48 Mbps	17	16	15
54 Mbps	15	14	13

IEEE 802.11b	Maximum Output Power (GHz - dBm)		
Data Rate	2.412	2.417~2.467	2.472
1 Mbps	15	16	15
2 Mbps	15	16	15
5.5 Mbps	15	16	15
11 Mbps	15	16	15

Operating Range

Note: The operating range distances listed in the following tables are for typical environments only. Operating ranges can vary considerably depending on factors such as local interference and barrier composition. It is recommended to do a site survey to determine the maximum ranges for specific access point locations in your environment.

802.11g Wireless Distance Table												
Speed and Distance Ranges												
	54 Mbps	48 Mbps	36 Mbps	24 Mbps	18 Mbps	12 Mbps	11 Mbps	9 Mbps	6 Mbps	5 Mbps	2 Mbps	1 Mbps
LoS[1]	148 m 485 ft	235 m 771 ft	415 m 136 ft	500 m 1640 ft	522 m 1712 ft	570 m 1870 ft	620 m 2034 ft	650 m 2132 ft	680 m 2230 ft	780 m 2558 ft	782 m 2565 ft	790 m 2591 ft
Non-LoS[2]	43 m 141 ft	50 m 164 ft	57 m 187 ft	63 m 207 ft	67 m 220 ft	71 m 233 ft	75 m 246 ft	77 m 253 ft	81 m 266 ft	85 m 279 ft	85 m 279 ft	85 m 279ft

1. A line-of-sight (LoS) environment with no obstructions between the access point and clients.
2. A typical non-LoS environment (office or home) with floor to ceiling obstructions between the access point and clients.

802.11b Wireless Distance Table				
Speed and Distance Ranges				
	11 Mbps	5.5 Mbps	2 Mbps	1 Mbps
LoS[1]	578 m 1896 ft	617 m 2024 ft	694 m 2276 ft	875 m 2870 ft
Non-LoS[2]	70 m 230 ft	75 m 246 ft	85 m 279 ft	85 m 279 ft

1. A line-of-sight (LoS) environment with no obstructions between the access point and clients.
2. A typical non-LoS environment (office or home) with floor to ceiling obstructions between the access point and clients.