aruba 210 Series Wireless Access Points Installation Guide

aruba 210 Series Wireless Access Points

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introduction

The Aruba AP-214 and AP-215 wireless access points support the IEEE 802.11n standard for high-performance WLAN. These access points use MIMO (Multiple-in, Multiple-out) technology and other high-throughput mode techniques to deliver high-performance, 802.11n 2.4 GHz and 802.11ac 5 GHz functionality while simultaneously supporting existing 802.11a/b/g wireless services. The AP-210 Series access points work only in conjunction with an Aruba Controller

The Aruba AP-210 Series access point provides the following capabilities:

- Wireless transceiver
- Protocol-independent networking functionality
- IEEE 802.11a/b/g/n/ac operation as a wireless access point
- IEEE 802.11a/b/g/n/ac operation as a wireless air monitor
- Compatibility with IEEE 802.3at PoE+ and 802.3af PoE
- Central management configuration and upgrades through a controller

Package Contents

The following materials are included with this product:

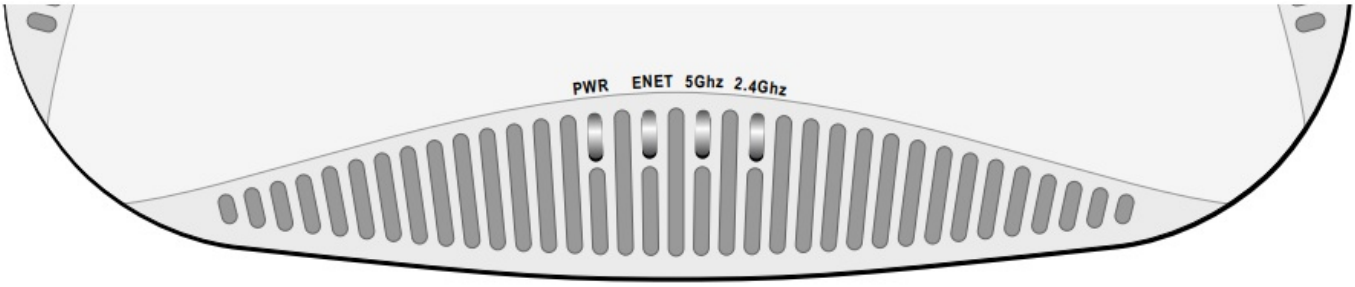
- AP-214 or AP-215 Access Point
- 9/16″ and 15/16” Ceiling Rail Adapters


NOTE Inform your supplier if there are any incorrect, missing, or damaged parts. If possible, retain the carton, including the original packing materials. Use these materials to repack and return the unit to the supplier if needed.

Hardware Overview

The following sections outline the hardware components of the 210 Series access point

Figure 1 Aruba AP-214 (front view)



LED

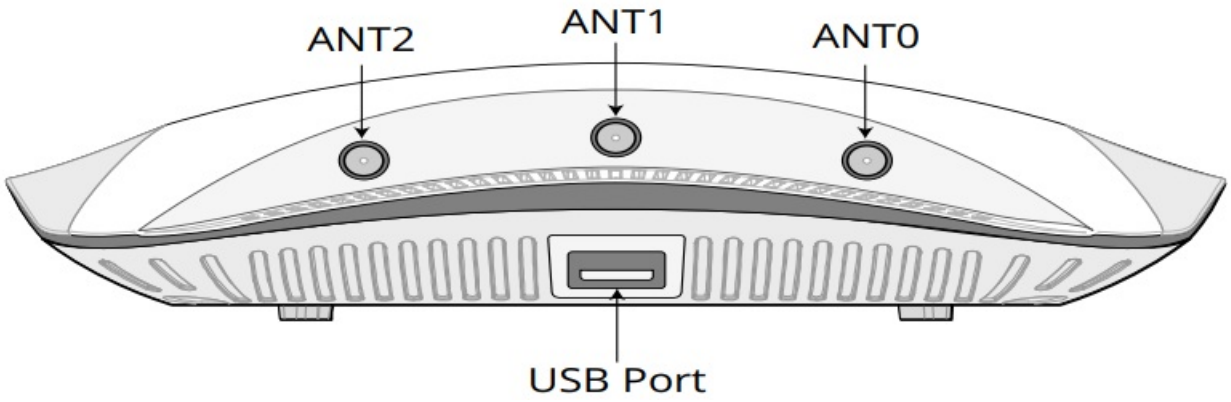
The AP-210 Series is equipped with four LEDs that indicate the status of the various components of the AP.

- PWR: Indicates whether or not the AP-210 Series is powered-on
- ENET: Indicates the status of the AP-210 Series' Ethernet port
- 5 GHz: Indicates the status of the 802.11a/n radio
- 2.4 GHz: Indicates the status of the 802.11b/g/n radio

Table 1 AP-210 Series Series LED Meanings

LED	Color/State	Meaning
PWR	Off	No power to AP
	Green – Flashing	AP booting
	Green – Steady	AP ready
ENET	Off	Ethernet link unavailable
	Yellow – Steady	10/100Mbps Ethernet link established
	Green – Steady	1000Mbps Ethernet link established
	Flashing	Ethernet link activity
5 GHz	Off	5 GHz radio disabled
	Yellow – Steady	5 GHz radio enabled in non-HT WLAN mode
	Green – Steady	5 GHz radio enabled in HT WLAN mode
	Flashing – Green	5 GHz Air or Spectrum Monitor
2.4 GHz	Off	2.4 GHz radio disabled
	Yellow – Steady	2.4 GHz radio enabled in non-HT WLAN mode
	Green – Steady	2.4 GHz radio enabled in HT WLAN mode
	Flashing – Green	2.4 GHz Air or Spectrum Monitor

Figure 2 AP-210 Series Side View (AP-214 shown)

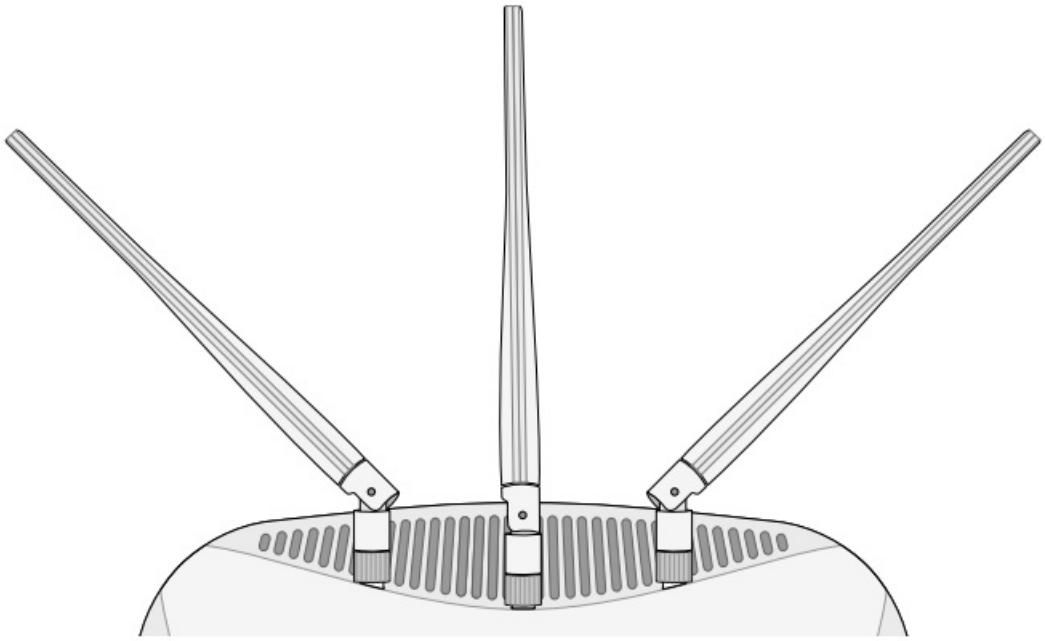


External Antenna Connectors

The AP-214 is equipped with three external antenna connectors. The connectors are labeled ANT0, ANT1, and ANT2, and correspond to radio chains 0, 1, and 2.
For optimal performance when using articulating direct-mount antennas, professional installers must orient the

antennas with ANT0 and ANT2 at 45 degree angles and ANT1 oriented straight out (see Figure 3).

Figure 3 External Antenna Connectors



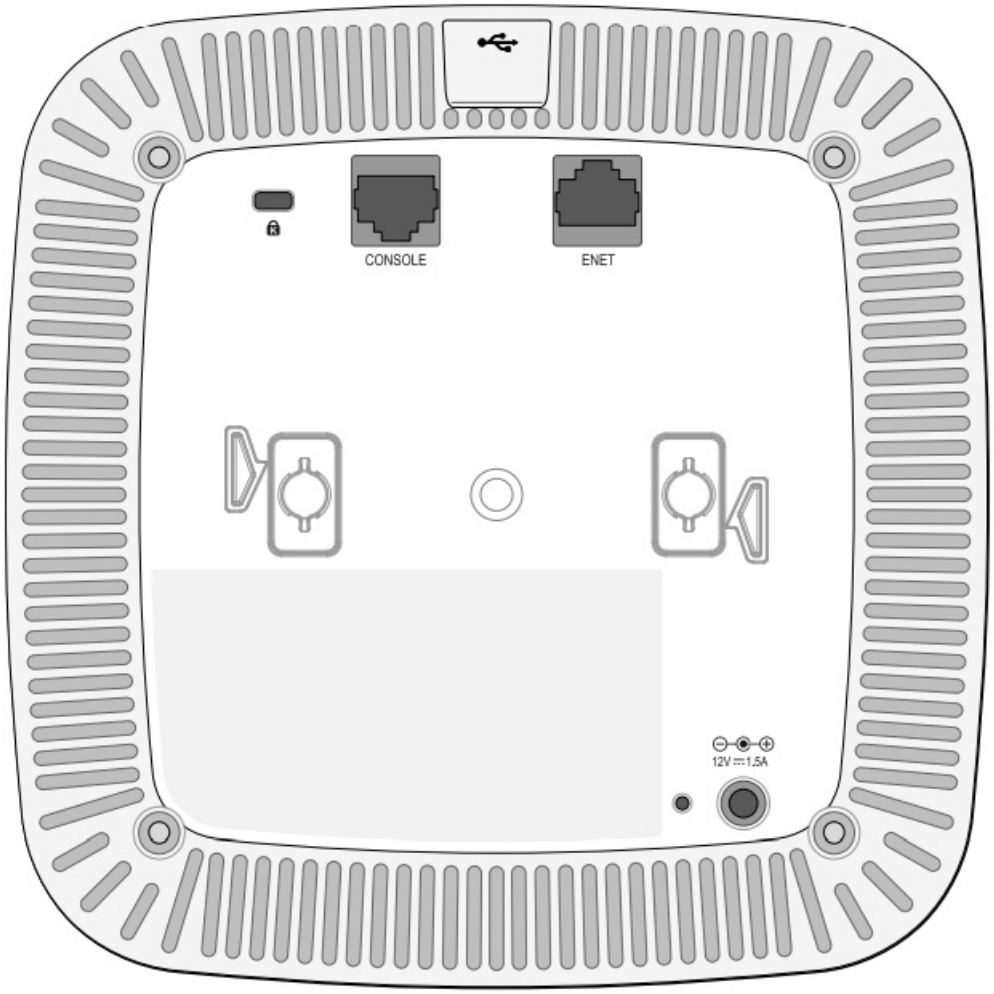
CAUTION External antennas for this device must be installed by an Aruba Certified Mobility Professional (ACMP) or other Aruba-certified technician, using manufacturer-approved antennas only.
The Equivalent Isotropically Radiated Power (EIRP) levels for all external antenna devices must not exceed the regulatory limit set by the host country/domain.
Installers are required to record the antenna gain for this device in the system management software.

USB Interface

The AP-210 Series is equipped with a USB interface for connectivity with cellular modems.

NOTE The USB interface is disabled when the AP-210 Series is powered from 802.3af PoE.

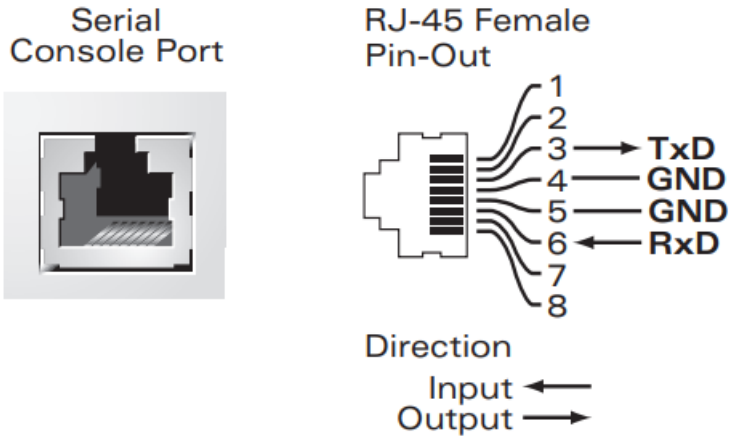
Figure 4 AP-210 Series Rear



Console Port

The serial console port allows you to connect the AP to a serial terminal or a laptop for direct local management. This port is an RJ-45 female connector with the pinouts described in . Connect it directly to a terminal or terminal server using an Ethernet cable.

Figure 5 Serial Port

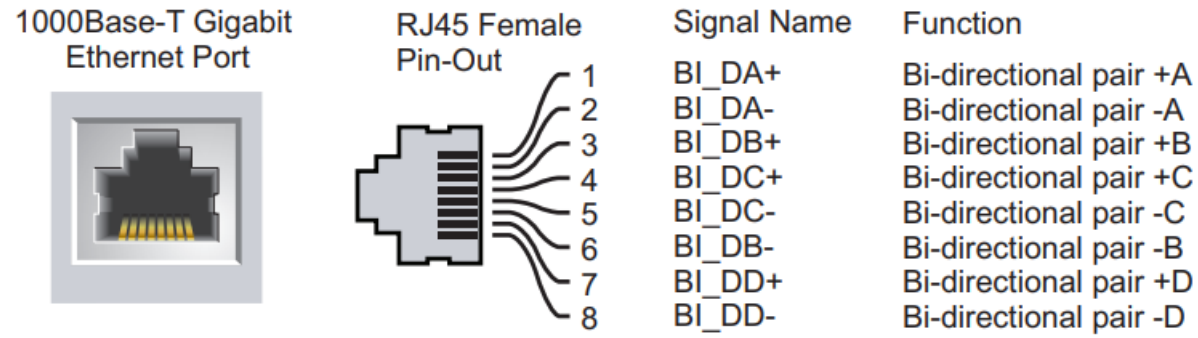


Ethernet Ports

AP-210 Series is equipped with one 10/100/1000Base-T (RJ-45) auto-sensing, MDI/MDX wired-network connectivity port. This port supports IEEE 802.3af and 802.3at Power over Ethernet (PoE) compliance, accepting 48 VDC (nominal) as a standard defined Powered Device (PD) from a Power Sourcing Equipment (PSE) such as a PoE midspan injector, or network infrastructure that supports PoE.

The 10/100/1000 Mbps Ethernet ports are on the bottom of the AP. These ports have RJ-45 female connectors with the pin-outs shown in Figure 6.

Figure 6 Gigabit Ethernet Port Pin-Out



Signal Name	Function
BI_DA+	Bi-directional pair +A
BI_DA-	Bi-directional pair -A
BI_DB+	Bi-directional pair +B
BI_DC+	Bi-directional pair +C
BI_DC-	Bi-directional pair -C
BI_DB-	Bi-directional pair -B
BI_DD+	Bi-directional pair +D
BI_DD-	Bi-directional pair -D

DC Power Socket

If PoE is not available, an optional Aruba AP AC-DC adapter kit (sold separately) can be used to power the AP-210 Series.

Additionally, a locally-sourced AC-to-DC adapter (or any DC source) can be used to power this device, as long as it complies with all applicable local regulatory requirements and the DC interface meets the following specifications:

- 12 VDC (+/- 5%)/18W
- Center-positive 1.7/4.0 mm circular plug, 9.5 mm length

Reset Button

The reset button can be used to return the AP to factory default settings. To reset the AP:

1. Power off the AP.
2. Press and hold the reset button using a small, narrow object, such as a paperclip.
3. Power-on the AP without releasing the reset button. The power LED will flash within 5 seconds.
4. Release the reset button.

The power LED will flash again within 15 seconds indicating that the reset is completed. The AP will now continue to boot with the factory default settings.

Before You Begin

Refer to the sections below before beginning the installation process.

FCC Statement: Improper termination of access points installed in the United States configured to non-US model controllers will be in violation of the FCC grant of equipment authorization. Any such willful or intentional violation may result in a requirement by the FCC for immediate termination of operation and may be subject to forfeiture (47 CFR 1.80).

CAUTION **EU Statement:** Low power radio LAN product operating in 2.4GHz and 5 GHz bands. Refer to the Aruba OS User Guide for details on restrictions.

Pre-Installation Network Requirements

After WLAN planning is complete and the appropriate products and their placement have been determined, the Aruba controller(s) must be installed and initial setup performed before the Aruba APs are deployed.
For initial setup of the controller, refer to the ArubaOS Quick Start Guide for the software version installed on your controller.

Pre-Installation Checklist

Before installing your Aruba 210 Series access point, be sure that you have one of the following:

- CAT5e or better UTP cable of required length
- One of the following power sources:
- IEEE 802.3at or 802.3af-compliant Power over Ethernet (PoE) source. The POE source can be any power source equipment (PSE) controller or midspan PSE device
- Aruba AP AC-DC adapter kit (sold separately)
- Aruba Controller provisioned on the network:
- Layer 2/3 network connectivity to your access point
- One of the following network services:
- Aruba Discovery Protocol (ADP)
- DNS server with an “A” record
- DHCP Server with vendor-specific options


NOTE Aruba Networks, Inc., in compliance with governmental requirements, has designed the 210 Series access points so that only authorized network administrators can change the settings. For more information about access point configuration, refer to the ArubaOS Quick Start Guide and ArubaOS User Guide.

Summary of the Setup Process

Summary setup of the AP-210 Series access point consists of the five tasks, which must be performed in this order:

1. Verify pre-installation connectivity
2. Identify the specific installation location for each AP
3. Install each AP
4. Verify post-installation connectivity
5. Configure each AP

Verifying Pre-Installation Connectivity

Before you install APs in a network environment, make sure that the APs are able to locate and connect to the controller after power on.
Specifically, you must verify the following conditions:
When connected to the network, each AP is assigned a valid AP address
APs are able to locate the controller
Refer to the ArubaOS Quick Start Guide for instructions on locating and connecting to the controller.

Identifying Specific Installation Locations

This access point should be oriented vertically, with rubber pads facing downward to facilitate maximum antenna gain. Use the access point placement map generated by Aruba RF Plan software application to determine the proper installation location(s). Each location should be as close as possible to the center of the intended coverage area and should be free from obstructions or obvious sources of interference. These RF absorbers/reflectors/interference sources will impact RF propagation and should be accounted for during the planning phase and adjusted for in RF plan.

Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.

Identifying Known RF Absorbers/Reflectors/Interference Sources

Identifying known RF absorbers, reflectors, and interference sources while in the field during the installation phase is critical. Make sure that these sources are taken into consideration when you attach an access point to its fixed location.
RF absorbers include:

- Cement/concrete—Old concrete has high levels of water dissipation, which dries out the concrete, allowing for potential RF propagation. New concrete has high levels of water concentration in the concrete, blocking RF signals.
- Natural Items—Fish tanks, water fountains, ponds, and trees
- Brick

  RF reflectors include:
- Metal Objects—Metal pans between floors, rebar, fire doors, air conditioning/heating ducts, mesh windows, blinds, chain link fences (depending on aperture size), refrigerators, racks, shelves, and filing cabinets.
- Do not place an access point between two air conditioning/heating ducts. Make sure that access points are placed below ducts to avoid RF disturbances.

  RF interference sources include:
- Microwave ovens and other 2.4 or 5 GHz objects (such as cordless phones)
- Cordless headset such as those used in call centers or lunch rooms.

Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the access point. Otherwise, degradation of the performance of this equipment could result.

RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits. This equipment should be installed and operated with a minimum distance of 13.78 inches (35cm) between the radiator and your body for 2.4 GHz and 5 GHz operations. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Access Point Installation

The Aruba 210 Series access points are designed for deployments and include <mount(s) provided in package contents>.

CAUTION All Aruba access points should be professionally installed by an Aruba-Certified Mobility Professional (ACMP). The installer is responsible for ensuring that grounding is available and meets applicable national and electrical codes. Failure to properly install this product may result in physical injury and/or damage to property.

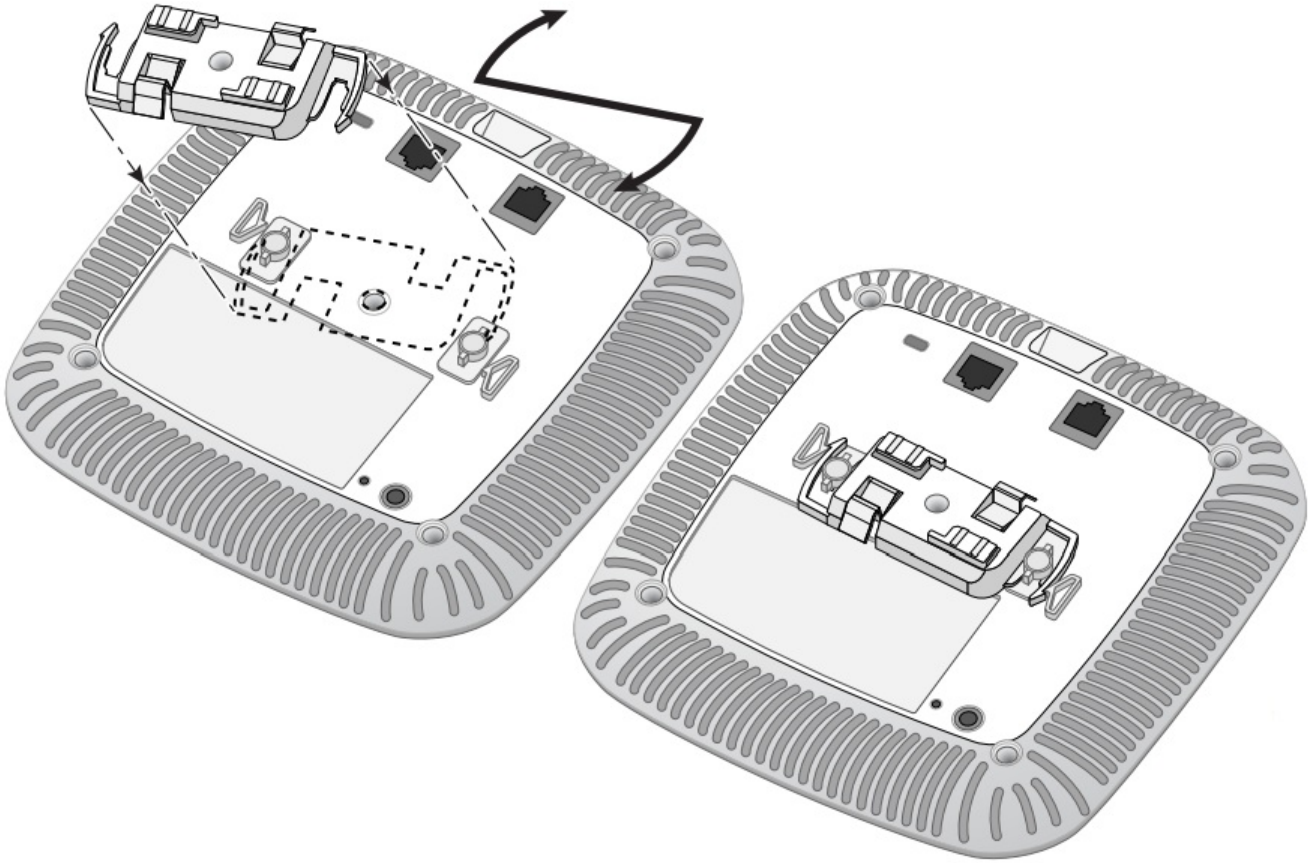
CAUTION The installer is responsible for securing the access point onto the ceiling tile rail in accordance with the steps below. Failure to properly install this product may result in physical injury and/or damage to property.

CAUTION Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.

CAUTION Failure to properly install this equipment can result in bodily injury and/or damage to the equipment. Before installing this device, check that the ceiling rail can support the weight without excessive bending, cracking, or snapping.

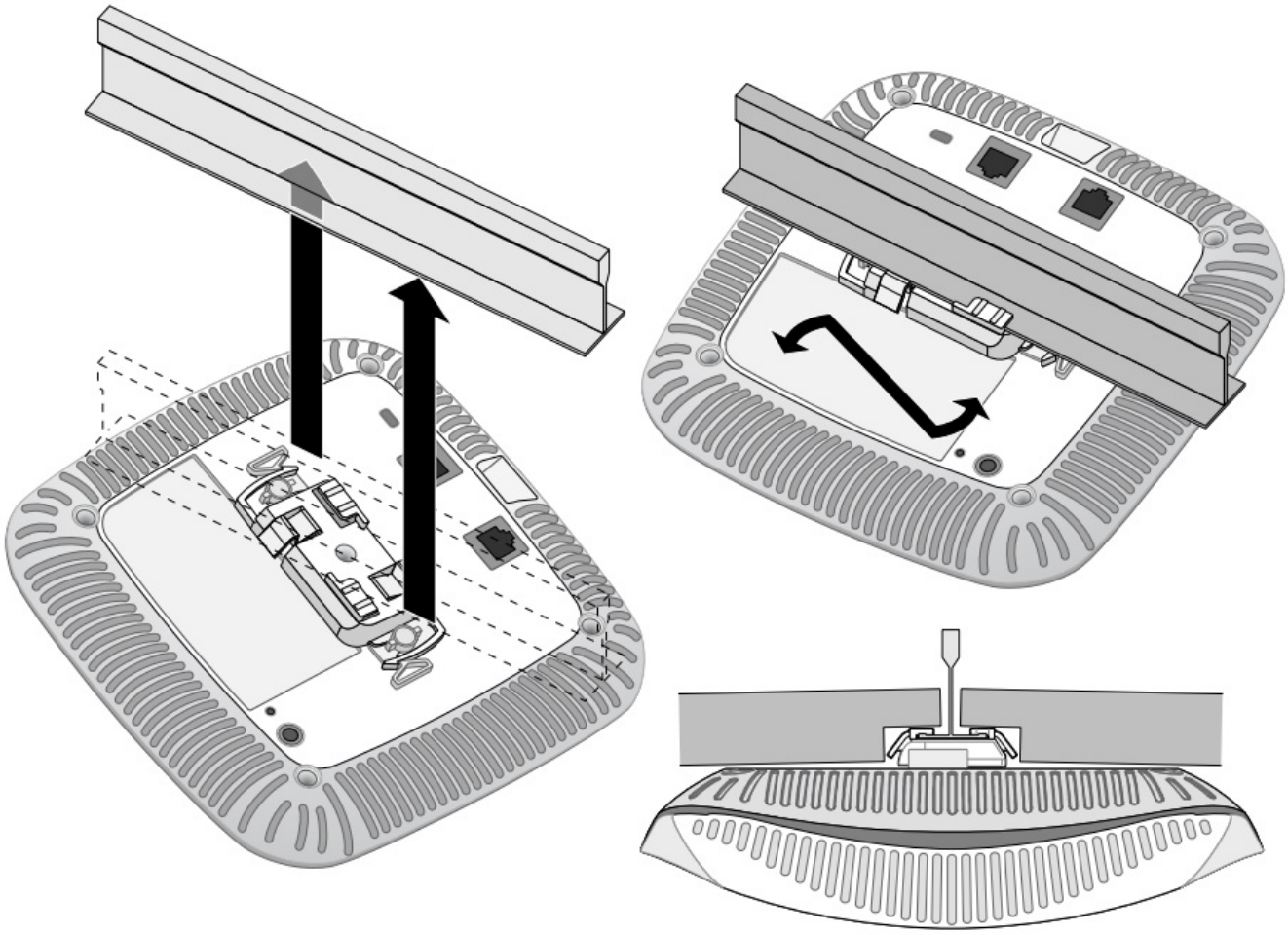
1. Pull the necessary cables through a prepared hole in the ceiling tile near where the AP will be placed.
2. Place the adapter against the back of the AP with the adapter at an angle of approximately 30 degrees to the tabs (see Figure 7).

Figure 7 Attaching the Ceiling Rail Adapter



3. Twist the adapter clockwise until it snaps into place in the tabs (see Figure 7)
4. If necessary, connect the console cable to the console port on the back of the AP.
5. Hold the AP next to the ceiling tile rail with the ceiling tile rail mounting slots at approximately a 30-degree angle to the ceiling tile rail (see Figure 8). Make sure that any cable slack is above the ceiling tile.

Figure 8 Mounting the AP



6. Pushing toward the ceiling tile, rotate the AP clockwise until the device clicks into place on the ceiling tile rail.
7. On the AP-214, install the external antennas according to the manufacturer's instructions, and connect the antennas to the antenna interfaces on the AP.

Connecting Required Cables

Install cables in accordance with all applicable local and national regulations and practices.

Software

Aruba 210 Series requires ArubaOS 6.4.2.0 or later.
For instructions on choosing operating modes and initial software configuration, refer to the AurbaOS User Guide.

CAUTION Aruba access points are classified as radio transmission devices, and are subject to government regulations of the host country. The network administrator(s) is/are responsible for ensuring that configuration and operation of this equipment is in compliance with their country's regulations. For a complete list of approved channels in your country, refer to the Aruba Downloadable Regulatory Table at **support.arubanetworks.com**.

Verifying Post-Installation Connectivity

The integrated LEDs on the AP can be used to verify that the AP is receiving power and initializing successfully (see Table 1). Refer to the ArubaOS User Guide for further details on verifying post-installation network connectivity.

Configuring the AP-210 Series

AP Provisioning/Reprovisioning

Provisioning parameters are unique to each AP. These local AP parameters are initially configured on the controller which are then pushed out to the AP and stored on the AP itself. Aruba recommends that provisioning settings be configured via the ArubaOS Web UI only. Refer to the ArubaOS User Guide for complete details.

AP Configuration

Configuration parameters are network or controller specific and are configured and stored on the controller. Network configuration settings are pushed out to the AP(s) but remain stored on the controller.
Configuration settings can be configured via the ArubaOS Web UI or the ArubaOS CLI. Refer to their respective guides for further details in the ArubaOS User Guide.

Environmental and Electrical Specifications

For additional specifications on this product, please refer to the product data sheet at **support.arubanetworks.com**.

Environmental

- Operating:
- Temperature: 0°C to +40°C (+32°F to +104°F)
- Humidity: 5% to 93% non-condensing
- Storage and transport:
- Temperature: -40°C to +70°C (-40°F to +158°F)
- Humidity: 5% to 93% non-condensing

Electrical

- Ethernet:
- 1x 10/100/1000 auto-sensing Ethernet RJ-45 Interface
- MDI/MDX
- IEEE 802.3 (10Base-T), IEEE 802.3u (100Base-T). IEEE 802.3ab (1000Base-T)
- Power over Ethernet (IEEE 802.3at and 802.3af compliant), 48V DC (nominal) and 56V DC (maximum)/ 350mA (see Figure 6 for pin configuration)
- Power:
- 12 VDC power interface, supports powering through an AC-to-DC power adapter.
- POE support on Ethernet ports: 802.3at-compliant and 802.3af-compliant POE sourcing devices
- Connect Only to IEC 60950-1 or IEC 60601-1 3rd edition products and power sources

NOTE If a power adapter other than the one provided by Aruba Networks is used in the US or Canada, it should be cULus (NRTL) Listed, with an output rated 12 VDC, minimum 1.5A, marked “LPS” or “Class 2,” and suitable for plugging into a standard power receptacle in the US and Canada.

Proper Disposal of Aruba Equipment

Dispose of Aruba products per local regulation. For the most current information about Global Environmental Compliance and Aruba products, see our website at **www.arubanetworks.com**.

The expected service life for this device is 10 years.

Waste of Electrical and Electronic Equipment


Aruba products at end of life are subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore are marked with the symbol shown at the left (crossed-out wheelie bin). The treatment applied at end of life of these products in these countries shall comply with the applicable national laws of countries implementing Directive 2002/96EC on Waste of Electrical and Electronic Equipment (WEEE).

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

China RoHS

Aruba products also comply with China environmental declaration requirements and are packaged with the "EFUP10" label shown below.

Hazardous Materials Declaration

(Parts)	**(Hazardous Substance)**					
	(Pb)	(Hg)	(Cd)	(Cr)	(PBB)	(PBDE)
(PCA Board)	x	○	○	○	○	○
(Mechanical Sub Assemblies)	x	○	○	○	○	○
○ : Indicates That the concentration of the hazardous substance in all homogeneous materials in the parts is below the revelent threshold of the SJ/T11363-2006 standard. x : Indicates that the concentration of the hazardous substance of at least one of all homogenous materials in the parts is above the revelent threshold of the SJ/T11363-2006. **This Table show where these substance may be found in the supply chain of electronic information products, as of the date of sale of the enclosed products.**						

The Environment- Friendly use Periods (EFUP) for all enclosed products and their parts are per the symbol shown here. The Environment- friendly use periods is valid only when the product is operated under the condition defined in the product manual.

Taiwan RoHS

Table-APIN0214/APIN0215-20180220
802.11a/b/g/n/ac Wireless Access Point
Type Designation: APIN0214_APIN0215

European Union RoHS

Aruba products comply with the EU Restriction of Hazardous Substances Directive 2011/65/EC (RoHS). EU RoHS restricts the use of specific hazardous materials in the manufacture of electrical and electronic equipment. Specifically, restricted materials under the RoHS Directive are Lead (including Solder used in printed circuit assemblies), Cadmium, Mercury, Hexavalent Chromium, and Bromine. Some Aruba products are subject to the exemptions listed in RoHS Directive Annex 7 (Lead in solder used in printed circuit assemblies).

India RoHS

This product complies with RoHS requirements as prescribed by E-Waste (Management & Handling) Rules, governed by the Ministry of Environment & Forests, Government of India.

Regulatory Information

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

- AP-214: APIN0214
- AP-215: APIN0215

The equipment name for the 210 Series access points is 802.11a/b/g/n/ac Wireless Access Point.

Changes or modifications to this unit not expressly approved by the party responsible for regulatory compliance could void the user's authority to operate this equipment.

Federal Communication Commission

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.

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 or more 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 that is different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help

European Union

The Declaration of Conformity made under RED Directive 2014/53/EU is available for viewing at: support.arubanetworks.com, then navigate to the Declarations of Conformity > Access Point folder, select the document that corresponds to your device's model number as it is indicated on the product label.

Wireless Channel Restrictions
5150-5350MHz band is limited to indoor only in the following countries; Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR),
Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (GR), Hungary (HU), Iceland (IS), Ireland (IE), Italy (IT), Latvia (LV), Liechtenstein (LI), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Norway (NO), Poland (PL), Port gal (PT), Romania (RO), Slovakia (SK), Slovenia (SL), Spain (ES), Sweden (SE), Switzerland (CH), Turkey (TR), United Kingdom (UK).

Frequency Range MHz	Max EIRP
2412-2472	20 dbm
5150-5250	23 dbm
5250-5350	23 dbm
5470-5725	30 dbm
5725-5850	N/A for EU

Lower power radio LAN product operating in 2.4 GHz and 5 GHz bands. Please refer to the ArubaOS User Guide for details on restrictions.

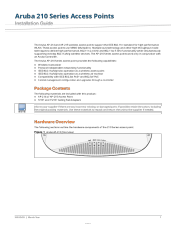
Industry Canada

This Class B digital apparatus meets all of the requirements of the Canadian Interference-Causing Equipment Regulations.
In accordance with Industry Canada regulations, this radio transmitter and receiver may only be used with an antenna, the maximum type and gain of which must be approved by Industry Canada. To reduce potential radio interference, the type of antenna and its gain shall be chosen so that the equivalent isotropic radiated power (EIRP) does not exceed the values necessary for effective communication.
This device complies with Industry Canada's license-exempt RSS regulations. Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation.
When operated in 5.15 to 5.25 GHz frequency range, this device is restricted to indoor use to reduce the potential for harmful interference with co-channel Mobile Satellite Systems.

Medical

1. Equipment not suitable for use in the presence of flammable mixtures.
2. Connect to only IEC 60950-1 or IEC 60601-1 3rd edition certified products and power sources. The end user is responsible for the resulting medical system complies with the requirements of IEC 60601-1 3rd edition.
3. Wipe with a dry cloth, no additional maintenance required.
4. No serviceable parts, the unit must be sent back to the manufacturer for repair.
5. No modifications are allowed without Aruba approval.

Documents / Resources

	aruba 210 Series Wireless Access Points [pdf] Installation Guide AP-214, AP-215, 210 Series Wireless Access Points, Wireless Access Points, Access Points

References

- Home
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- Search - Manual-Hub.com