Aruba 310 Series Wireless Access Point

Installation Guide

The Aruba 310 Series Wireless Access Points support IEEE 802.11ac standards for a high-performance WLAN. This device is equipped with two single-band radios, which provide network access and monitor the network simultaneously. This access point to deliver high-performance 802.11n 2.4GHz and 802.11ac 5GHz functionality, while also supporting 802.11a/b/g wireless services. Multi-user Multiple-in, Multiple-output (MU-MIMO) is enabled when operating in 5GHz mode for optimal performance.

The AP-314 and AP-315 access points work in conjunction with an Aruba controller, while IAP-314 and IAP-315 access points can be configured via built-in virtual controller.

310 Series wireless access points provides the following capabilities:

- IEEE 802.11a/b/g/n/ac wireless access point
- IEEE 802.11a/b/g/n/ac wireless air monitor
- IEEE 802.11a/b/g/n/ac spectrum monitor
- Compatible with IEEE 802.3at and 802.3af PoE
- Support for MCS8 and MCS9
- Centralized management, configuration and upgrades
- Integrated Bluetooth Low Energy (BLE) radio

Package Contents

- (I)AP-314 or (I)AP-315 access point
- 9/16" and 15/16" Ceiling Rail Adapters
- *Safety, Compliance, and Warranty Information* guide
- *Aruba Instant Quick Start Guide* (IAP-314 and IAP-315 only)
- *Aruba Professional Installation Guide* (IAP-314 only)
- *Aruba 310 Series Wireless Access Point Installation Guide* (this document)

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.

Software

AP-314 and AP-315 access points require ArubaOS 6.5.0 or higher. For additional information, refer to the *ArubaOS User Guide* and *ArubaOS Quick Start 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 meet all regulatory standards of their country/domain.
For complete list of country-approved channels and devices, refer to the *Aruba Downloadable Regulatory Table* at www.arubanetworks.com.

310 Series Hardware Overview

Figure 1 *LED Status Indicators*

LEDs

The 310 Series has two LEDs that indicate the system and radio status.

The LEDs have three operating modes that can be selected in the system management software:

- Default mode: see Table 1
- Off mode: LEDs are off
- Blink mode: LEDs blink green

Table 1: 310 Series LED Status Indicators

LED	Color/State	Meaning
System Status (Left)	Off	Device powered off
	Green- blinking	Device booting, not ready for use
	Green- solid	Device ready for use
	Amber- solid	Device ready; Power Save mode (802.3af PoE)
	Amber- blinking	Device operating in restricted mode. Meets one of the following conditions: • Uplink negotiated in sub-optimal speed (<1Gbps), or • Ethernet radio is in non High-Throughput (HT) mode
	Green/Amber- solid	No software setting/network restrictions
	Red	System error condition
Radio Status (Right)	Off	Device powered off; or both radios disabled
	Green- solid	Both radios enabled in access mode
	Green- blinking	One radio enabled in access mode; other disabled
	Amber- solid	Both radios enabled in monitor mode
	Amber- blinking	One radio enabled in monitor mode; one radio disabled
	Alternating	• Green: one radio in access mode • Amber: one radio in monitor mode

External Antenna Connectors

The (I)AP-314 access points are equipped with four external antenna connectors located on the front corners of the access point (see Figure 2).

Figure 2 *External Antenna Connectors*

ANT1   ANT0

ANT2   ANT3

Antennas ports ANT0 and ANT1 have dual band functionality and support both 2.4GHz and 5GHz, while ANT2 and ANT3 are single-band and support 5GHz only.

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 310 Series is equipped with a USB port for connectivity with cellular modems and other USB client devices.
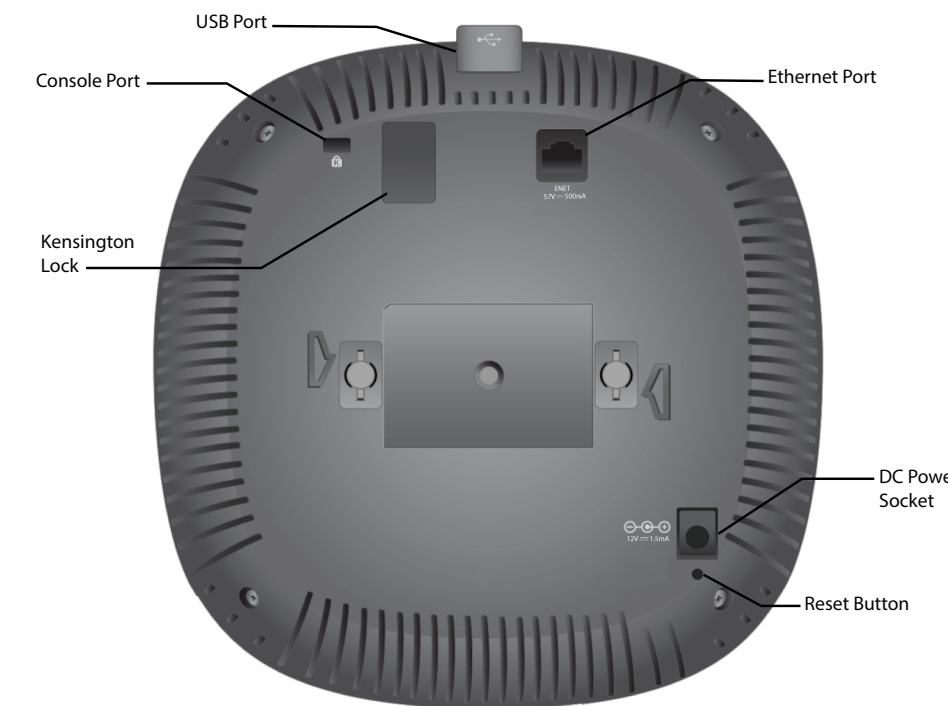
Figure 3 *USB Port*

When powered by an 802.3at or DC source, the USB port can supply power up to 5W.

The USB interface is disabled when the access point is powered by an 802.3af PoE source.

Figure 4 *Back Panel*

USB Port
Console Port
Ethernet Port
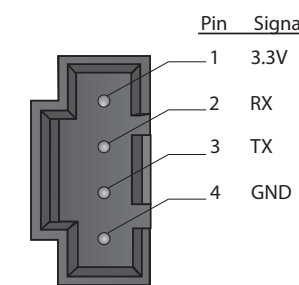Kensington Lock
DC Power Socket
Reset Button

Console Port

The console port allows the user to connect the access point directly to a serial terminal or laptop for local management. Connect the device to a terminal or terminal server using an Ethernet cable.

The port is a 4-pin HDR connector with pin-out details in Figure 5.

Figure 5 *Serial Port Pin-Out*

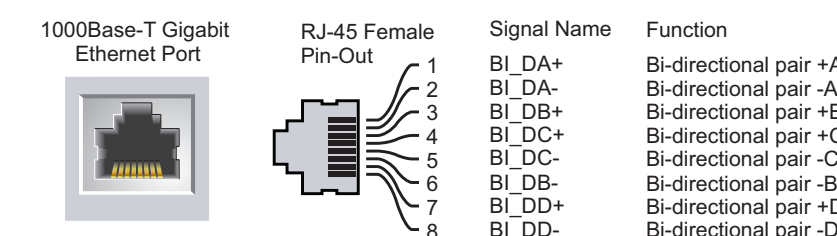| Pin	Signal
1	3.3V
2	RX
3	TX
4	GND

Ethernet Ports

The 310 Series is equipped with a 100/1000Base-T auto-sensing MDI/MDX Ethernet port. This port supports wired-network connectivity, in addition to Power over Ethernet (PoE) from IEEE 802.3af and 802.3at compliant power sources.

This device accepts 56V DC (802.3at), or 48V DC (802.3af) nominal as a standard powered device (PD) from power sourcing equipment, including PoE midspan injector or a PoE-sourcing network infrastructure.

The port is an RJ45 connector, marked on the enclosure with "57V ⎓ 600mA."

Figure 6 *RJ45 Gigabit Port Pin-Out*

1000Base-T Gigabit Ethernet Port   RJ-45 Female Pin-Out

Pin	Signal Name	Function
1	BI_DA+	Bi-directional pair +A
2	BI_DA-	Bi-directional pair -A
3	BI_DB+	Bi-directional pair +B
4	BI_DC+	Bi-directional pair +C
5	BI_DC-	Bi-directional pair -C
6	BI_DB-	Bi-directional pair -B
7	BI_DD+	Bi-directional pair +D
8	BI_DD-	Bi-directional pair -D

Kensington Lock Slot

The 310 Series is equipped with a Kensington lock slot for additional security, shown in Figure 4.

Reset Button

The reset button can be used to return the access point to factory default settings. To reset the access point, refer to the steps below:

1. Power off the access point.
2. Press and hold the reset button using a small, narrow object, such as a paperclip.
3. Power-on the access point 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 access point will now continue to boot with the factory default settings.

Power

The Ethernet port supports PoE-in and may draw power from an 802.3at (recommended) or an 802.3af source.

If PoE is unavailable, the 310 Series access points have a single 12V/36W DC power input to support the AP-AC-V30B AC-to-DC power adapter kit (sold separately).

When both 802.3at and DC power sources are available, the DC power source will take precedence. The Access point will simultaneously draw a minimal current from the PoE source. In the event that the DC source fails, the access point will switch to the 802.3at source.

The 310 Series operates without restriction when powered by 802.3at compliant and DC power sources. In this mode the USB interface is enabled and supports up to 1A/5W to a powered device (PD).

When powered by an 802.3af PoE source, the access point operates in power-saving mode. In this mode the USB interface is disabled.

Table 2: Power Modes

Power Source	Limitations	USB Output
DC (AP-AC-12V30B)	No restrictions	1A/5W
PoE 802.3at	No restrictions	1A/5W
PoE 802.3af	USB disabled	Disabled

Before You Begin

CAUTION FCC Statement: Improper termination of access points installed in the United States configured to non-US model controllers is a 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:
Lower power radio LAN product operating in 2.4 GHz and 5 GHz bands. Please refer to the *ArubaOS User Guide/Aruba Instant User Guide* for details on restrictions.

Produit réseau local radio basse puissance operant dans la bande fréquence 2.4 GHz et 5 GHz. Merci de vous referrer au *ArubaOS User Guide/Aruba Instant User Guide* pour les details des restrictions.

Low Power FunkLAN Produkt, das im 2.4 GHz und im 5 GHz Band arbeitet. Weitere Informationen bezlüglich Einschränkungen finden Sie im *ArubaOS User Guide/Aruba Instant User Guide*.

Apparati Radio LAN a bassa Potenza, operanti a 2.4 GHz e 5 GHz. Fare riferimento alla *ArubaOS User Guide/Aruba Instant User Guide* per avere informazioni detagliate sulle restrizioni.

Access Point Pre-Installation Checklist

Before installing your 310 Series access point, ensure that you have the following:

- CAT5E UTP cable or better
- 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-12V30UN adapter kit (sold separately)

For AP-314 and AP-315 access points only:

- 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 310 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/ Aruba Instant Quick Start Guide* and *ArubaOS User Guide/Aruba Instant User Guide*.

Verifying Pre-Installation Connectivity

> **NOTE:** The instructions for this section are applicable to the AP-314 and AP-315 only.

Before installing access points in a network environment, make sure that they 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 access point is assigned a valid IP address
- Access points are able to locate the controller

Refer to the *ArubaOS Quick Start* Guide for instructions on locating and connecting to the controller.

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 access points are deployed.

For initial setup of the controller, refer to the *ArubaOS Quick Start Guide* for the software version installed on your controller.

Identifying Specific Installation Locations

You can mount the 310 Series access point to a wall or on the ceiling. Use the access point placement map generated by Aruba's 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 have been accounted for during the planning phase and adjusted for in RF plan.

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. Examples of sources that degrade RF performance include:

- Cement and brick
- Objects that contain water
- Metal
- Microwave ovens
- Wireless phones and headsets

Installing the Access Point

Refer to the following steps to install your Aruba 310 Series access point using the AP Ceiling Rail Mount Kit (AP-220-MNT-C1).
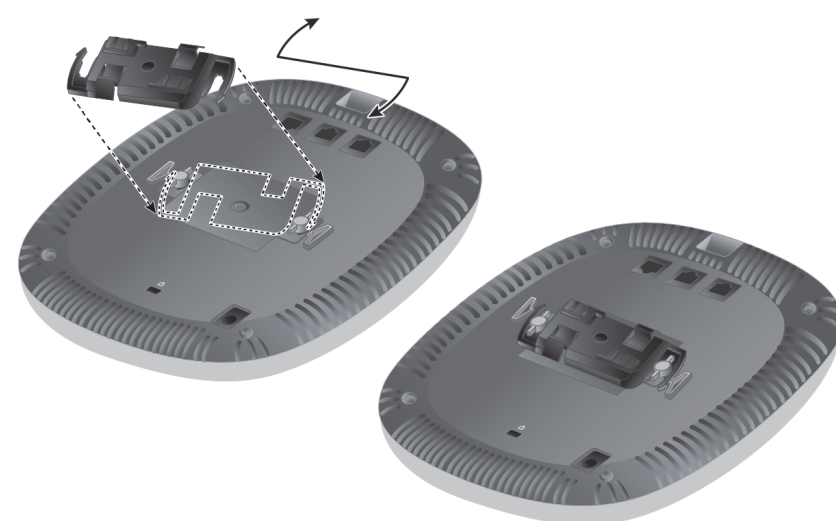
Using the Ceiling Rail Adapter

The 310 Series access point ships with two ceiling rail adapters for 9/16" and 15/16" ceiling rails. Additional wall mount adapters and ceiling rail adapters for other rail styles are available as accessory kits.

> **CAUTION:** This device must be professionally installed and serviced by an ACMP or other Aruba-certified technician. 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.
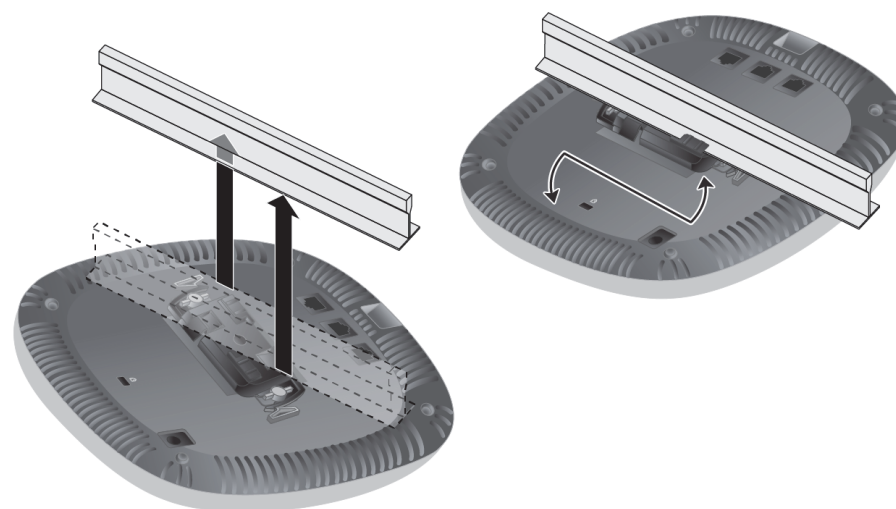
1. Pull the necessary cables through a prepared hole in the ceiling tile near where the access point will be placed.
2. Place the adapter against the back of the access point with the adapter at an angle of approximately 30 degrees to the tabs (see Figure 7).
3. Twist the adapter clockwise until it snaps into place in the tabs (see Figure 7).

Figure 7 *Attaching the Ceiling Rail Adapter*

4. If necessary, connect the console cable to the console port on the back of the access point.
5. Hold the access point 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.
6. Pushing toward the ceiling tile, rotate the access point clockwise until the device clicks into place on the ceiling tile rail.

Figure 8 *Mounting the Access Point*

7. On the (I)AP-314, install the external antennas according to the manufacturer's instructions, and connect the antennas to the antenna interfaces on the access point.

Connecting Required Cables

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

Verifying Post-Installation Connectivity

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

Configuring the 310 Series

The instructions for the following section are applicable to AP-314 and AP-315 model access points only.

Access Point Provisioning/Reprovisioning

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

Access Point Configuration

Configuration parameters are network or controller specific and are configured and stored on the controller. Network configuration settings are pushed out to the access points, but remain stored on the controller.

Configuration settings can be configured via the ArubaOS Web UI or ArubaOS CLI. Refer to their respective guides for further details: the *ArubaOS User Guide*.

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Installation Guide

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Contacting Aruba Networks

Web Support	
Main Site	http://www.arubanetworks.com
Support Site	https://support.arubanetworks.com
Airheads Social Forums and Knowledge Base	http://www.community.arubanetworks.com
North American Telephone	1-800-943-4526 (Toll Free) 1-408-754-1200
International Telephones	http://www.arubanetworks.com/support-services/ aruba-support-program/contact-support/
Software Licensing Site	http://licensing.arubanetworks.com
End-of-life Information	http://www.arubanetworks.com/support-services/end-of-life/
Security Incident Response Team (SIRT)	http://www.arubanetworks.com/support-services/ security-bulletins/
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