Aruba AP-205H Wireless Access Point

Installation Guide

The Aruba AP-205H access point is a high-performance dual radio wireless and wired access point for hospitality and branch deployments.

This device combines high-performance wireless mobility with Gigabit wired local access to deliver secure network access to dormitories, hotel rooms, classrooms, medical clinics, and multi-tenant environments. MIMO (Multiple-Input, Multiple-Output) technology enables the AP-205H to provide wireless 2.4 GHz 802.11n and 5 GHz 802.11n/ac functionality, while simultaneously supporting existing 802.11a/b/g wireless services.

The AP-205H can be attached to a wall box using the bracket provided, or converted into a desk-mounted remote access point for branch office deployments using the AP-205H-MNTR desk mount kit (sold separately).

The AP-205H access point works in conjunction with an Aruba controller, while the IAP-205H variant uses a built-in virtual controller.

The Aruba AP-205H access point provides the following capabilities:

- Dual wireless transceivers
- 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, spectrum analyzer
- Compatibility with IEEE 802.3af/at PoE
- Central management configuration and upgrades through an Aruba Controller or Aruba Instant virtual controller
- Supports PoE-in to E0 port (only)/PoE-out from E3 port (only)
- Support for selected USB peripherals

NOTE: The Aruba AP-205H requires ArubaOS 6.4.3 or later.

Package Contents

- AP-205H Access Point
- Single Gang Wall-box Mounting Bracket
- 2x #6-32 Machine Screw
- T8H Torx Security Screw
- 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.

Hardware Overview

Figure 1 *Front*
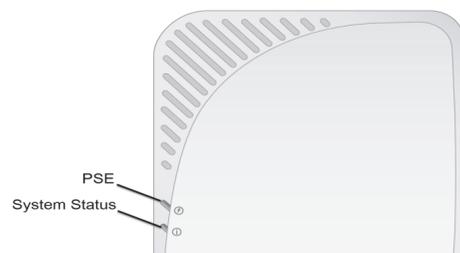
LED

The AP-205H is equipped with two LEDs indicating System Status and PSE.

Table 1

| LED	Color/State	Meaning
System Status ⓘ	Off	AP powered off, or LED switched to 'off mode'
	Amber- Solid	AP ready, restricted mode: • 10/100Mbps uplink negotiated • Either radio in non-HT mode • Virtual AP not enabled
	Amber- Flashing	AP in Air or Spectrum Monitor mode
	Red	Error condition
	Green - Flashing	AP booting, not ready
	Green - Solid	AP ready
PSE ⚡	Off	AP powered off, or PoE capability disabled
	Green - Solid	PoE power enabled
	Red	PoE power sourcing error or overload condition

Console Port

The IAP-205H access point is equipped with a serial console port at the back(Figure 2). The port allows connecting the AP to a serial terminal or a laptop for direct local management. The 4-pin connector with removable dust cover is located on the back of the access point. An optional serial adapter cable (AP-CBL-SER) compatible with the IAP-205H can be purchased separately.

CAUTION: The rear panel of the AP-205H may become hot after extended use.

CAUTION: Le panneau arrière du point d'accès AP-205H peut chauffer après une utilisation prolongée.

Figure 2 *Rear*

Console Port

E0

Pass-Through Port
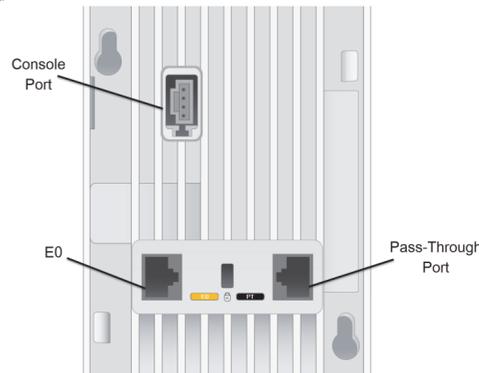
NOTE: Hot-plug operation is not recommended for the console port.

Ethernet Ports

AP-205H access point is equipped with a total of four active Ethernet ports (E0-E3).

The E0, located at the back of the AP (Figure 2) is 10/100/1000 Base-T (RJ-45) auto-sensing, MDI/MDX wired-network uplink connectivity port. It supports IEEE 802.3af/802.3at Power over Ethernet (PoE), accepting 48VDC as a standeard defined Powered Device (PD) from Power Sourcing Equipment (PSE), such as a midspan injector or network infrastructure that supports PoE.

The E1-E3 ports, located at the bottom of the AP (Figure 3), are 10/100/1000 NBase-T (RJ-45) auto-sensing, MDI/MDX wired-network downlink connectivity ports. They are used to provide secure network connectivity to wired devices. Only the E3 port supports PoE-out functionality, supplying a maximum power of 10W when the AP is operating in 802.3at PoE mode.

Additionally, the IAP-205H access point has a Pass-Through (PT) port at the back (Figure 2) and an E0/PT port at the bottom (Figure 3). The E0/PT port acts primarily as a Pass-Through (PT) port. Alternatively, the E0/PT port can serve as an E0 uplink port and accepts 802.3af/802.3at PoE power when the E0 and PT ports at the back of the AP are physically bridged by an Ethernet cable.

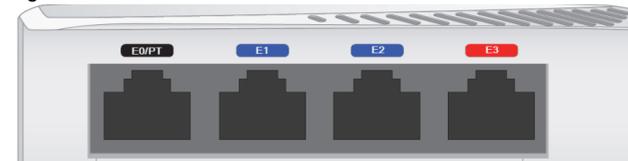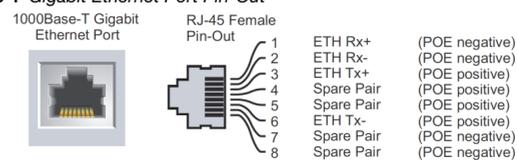AP-CBL-ETH10 sold separately with the AP-205H-MNTR desk mount kit.

Figure 3 *Bottom*

E0/PT E1 E2 E3

Figure 4 *Gigabit Ethernet Port Pin-Out*

1000Base-T Gigabit Ethernet Port

RJ-45 Female Pin-Out

1	ETH Rx+	(POE negative)
2	ETH Rx-	(POE negative)
3	ETH Tx+	(POE positive)
4	Spare Pair	(POE positive)
5	Spare Pair	(POE positive)
6	ETH Tx-	(POE positive)
7	Spare Pair	(POE negative)
8	Spare Pair	(POE negative)

USB Port

The AP-205H access point is equipped with a USB port that is compatible with cellular modems and Bluetooth Low Energy (BLE) dongles. When active, the USB port can supply up to 5W (1A).

NOTE: The USB interface is disabled when the AP-205H is powered from 802.3af PoE.

Push Button

The push button located on the right side of the AP can be used to reset the AP to factory default settings or turn off/on the LED display.

- To reset the AP to factory default settings:
  1. Power off the AP.
  2. Press and hold the push button using a small, narrow object, such as a paperclip.
  3. Power-on the AP without releasing the push button. The system status LED will flash within 5 seconds.
  4. Release the push button.

  The system status 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.

- To turn off/on the system status LED:

  During the normal operation of the AP, press the push button using a small, narrow object, such as a paperclip. The system status LED will be turned off/on immediately.

Power Supply

The AP-205H has a single 48V DC power connector to support powering through an AC-to-DC power adapter. AP-AC-48V36 sold separately.

The AP-205H supports both PoE-in and PoE-out functionality. The PoE-in (PoE-PD) allows the E0 port to draw power from 802.3at (preferred) and 802.3af (optional) sources.

When operating in 802.3at mode, the PoE-out (PoE-PSE) functionality is enabled on port 3, allowing a maximum output of 10W. If a device attempts to exceed the 10W power limit, the E3 port is temporarily disabled. This port automatically reactivates over time.

When operating in 802.3af mode, theAP-205H power to PoE-PSE and USB is disabled.

Table 2 *Maximum Power Outputs*

Power Source	Restrictions	USB	PoE-PSE
DC (AP-AC-48V36)	None	5W	15.4W
802.3at	USB disabled when PoE-PSE is on	5W	10W
802.3af	USB, PoE-PSE disabled	N/A	N/A

NOTE: If both POE and DC power are available, the AP will default to using DC.

Before You Begin

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

Déclaration FCC: l'arrêt incorrect des points d'accès installés aux États-unis qui sont configurés sur des contrôleurs autres que le modèle agréé aux États-unis est considéré comme contrevenant à l'homologation fcc. toute violation délibérée ou intentionnelle de cette condition peut entraîner une injonction d'arrêt immédiat de son utilisation par la fcc et peut déboucher sur la confiscation de l'équipement (47 cfr 1.80).

EU Statement:
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.

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* pour les details des restrictions.

CAUTION

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.*

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

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.

AP Pre-Installation Checklist

Before installing your AP-205H access point, be sure that you have the following:

- Pre-installed wall box
- Cat5E UTP cable with network access installed in the wall box
- One of the following power sources:
  - IEEE 802.3af-compliant Power over Ethernet (PoE) source
  - 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

Summary of the Setup Process

NOTE: It is important that you verify the items listed under AP Pre-Installation Checklist before you attempt to set up and install an AP-205H.

Complete each of tasks below in the order listed to setup your AP-205H access point.

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.

NOTE: Aruba Networks, Inc., in compliance with governmental requirements, has designed the AP-205H access points so that only authorized network administrators can change the settings. For more information about AP configuration, refer to the *ArubaOS Quick Start Guide and ArubaOS User Guide.*

Access points are radio transmission devices and as such are subject to governmental regulation. Network administrators responsible for the configuration and operation of access points must comply with local broadcast regulations. Specifically, access points must use channel assignments appropriate to the location in which the access point will be used.

CAUTION

Les points d'accès sont des périphériques de transmission radio et sont, en tant que tels, soumis aux réglementations nationales. Les administrateurs réseau responsables de la configuration et de l'exploitation des points d'accès doivent se conformer aux règlements locaux de diffusion. De façon plus précise, les points d'accès doivent employer des canaux adaptés à leur emplacement physique

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. In order to successfully setup your network the following conditions must be met:

- When connected to the network, each AP is assigned a valid IP 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

When installing the AP-205H access point must be secured to an Aruba approved wall or to a desk mount kit, which can be purchased separately. This AP should be oriented vertically, with Ethernet ports facing downward to facilitate maximum antenna gain. Use the AP 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 be 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 AP 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 AP between two air conditioning/heating ducts. Make sure that APs 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

Installing the AP

The AP-205H is designed to mount into a variety of electrical gang boxes.

1. Begin by removing the existing data wall plate (if applicable).

Figure 5 *Removing Wall Plate (US Single Gang Outlet Box Shown)*
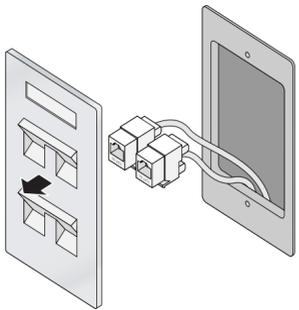
2. Remove any existing RJ45 connectors (typically snap-in) or cut/remove the UTP cable.
3. Use a short Ethernet cable (sold separately) to connect the E0 port to an RJ45 connector or crimp an RJ45 plug (not supplied) on the cable and insert in the E0 port. Do the same for the PT port, if used.
4. Align the mounting holes of the AP-205H mounting bracket with mounting holes in you gang box, as shown in Figure 6 and Figure 7. For worldwide single gang outlet box, the mounting bracket has two sets of mounting holes to meet the individual installation position requirement. See Figure 7 for details.

    The applicable standards for the wall boxes are:
    - IEC 60670-1, GB17466, BS4662 and DIN49073 for Worldwide
    - ANSI/NEMA OS 1 and OS 2 for US

5. Insert the two included machine screws and tighten them to secure the mounting bracket.

Figure 6 *Bracket to Gang Box (US Single Gang Outlet Box Shown)*
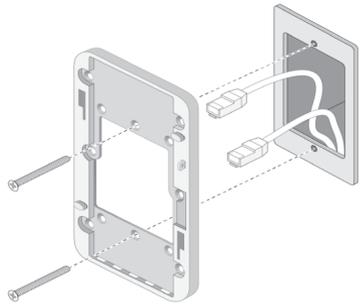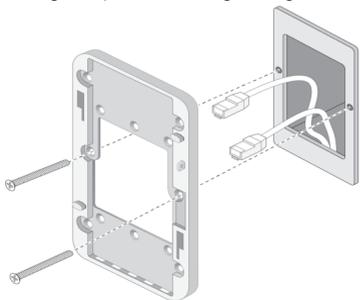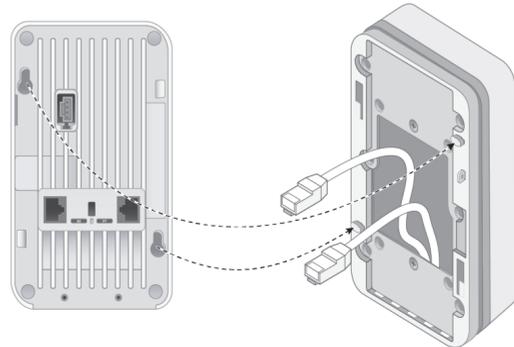

Figure 7 *Bracket to Gang Box (Worldwide Single Gang Outlet Box Shown)*

6. Connect cables to the back of the AP.
7. Align the mounting slots on the back of the AP with the corresponding mounting posts on the wall mount, as shown in Figure 8.
8. Push the AP against the posts and downward until the posts engage the slots at the top of the slots.

Figure 8 *Attaching AP-205H to Bracket*

9. Once the AP is fastened onto the wall mount, insert the T8H Torx Security Screw into the hole located on the upper-right edge of the wall mount and tighten.
10. If not using PoE, connect the AC-DC power adapter (sold separately) to the DC power socket located on the bottom of the AP-205H.

Verifying Post-Installation Connectivity

The integrated LED on the AP can be used to verify that the AP 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 AP-205H

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 ArubaOS CLI. Refer to *ArubaOS User Guide* for details.

Product Specifications

Electrical

- Ethernet:
    - 4x 10/100/1000 Base-T auto-sensing Ethernet RJ-45 interface (E0-E3)
    - 2x passive RJ-45 Pass-Through interface (E0/PT and PT)
    - MDI/MDX
    - IEEE 802.3 (10Base-T), IEEE 802.3u (100Base-T). IEEE 802.3ab (1000Base-T)
    - Power over Ethernet (IEEE 802.3af and 802.3at compliant), 48VDC (nominal) and 56VDC (maximum)/350mA (see Figure 4 for pin configuration)
- Power:
    - 48VDC power interface, supports powering through an AC-to-DC power adapter
    - PoE support on Ethernet ports: 802.3af-compliant PoE sourcing device

> **NOTE:** If a power adapter other than the one provided by Aruba is used in US or Canada, it should be NRTL Listed, with an output rated 48VDC, minimum 0.75A, marked "LPS" and "Class 2", and suitable for plugging into a standard power receptacle in the US and Canada.

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

Environmental

- Operating:
    - Temperature: 0° C to +50° C (+32° F to +122° F)
    - Humidity: 5% to 95% non-condensing
- Storage and transportation:
    - -Temperature: -40° C to +70° C (-40° F to +158°)

For additional specifications on this product, please refer to the data sheet. The data sheet can be found at www.arubanetworks.com.

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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	community.arubanetworks.com
North American Telephone	1-800-943-4526 (Toll Free) 1-408-754-1200
International Telephones	arubanetworks.com/support-services/aruba-support-program/contact-support/
Software Licensing Site	licensing.arubanetworks.com/login.php
Wireless Security Incident Response Team (WSIRT)	arubanetworks.com/support/wsirt.php
Support Email Addresses	
Americas and APAC	support@arubanetworks.com
EMEA	emea.support@arubanetworks.com
Americas and APAC Support Email	support@arubanetworks.com
WSIRT Email Please email details of any security problem found in an Aruba product.	wsirt@arubanetworks.com