The Aruba IAP-228 is a fully temperature hardened, water resistant, indoor rated, dual-radio IEEE 802.11ac wireless access point. This access point uses MIMO (Multiple-in, Multiple-out) technology and other high-throughput mode techniques to deliver high-performance, 802.11ac 2.4 GHz and 5 GHz functionality while simultaneously supporting existing 802.11a/b/g/n wireless services.

**IAP-228 Operations**
- Wireless transceiver
- Wireless access point (IEEE 802.11 a/b/g/n/ac)
- Wireless air monitor (IEEE 802.11 a/b/g/n/ac)
- Protocol-independent networking functionality
- Compatibility with IEEE 802.3at PoE

**Guide Overview**
- “IAP-228 Hardware Overview” on page 3 provides a detailed hardware overview of the IAP-228.
- “Before You Begin” on page 5 provides key questions to ask and items to consider when deploying a wireless network.
- “Installing the AP” on page 7 describes the multi-step process for a successful installation and deployment of the IAP-228.
- “Safety and Regulatory Compliance” on page 12 provides an overview of safety and regulatory compliance information.

**Package Contents**
- IAP-228 Access Point
- Cable Glands x2
- USB Console Cable
- Copper Lug x1
- M4 x 8 Screw x1
- Aruba Instant Quick Start Guide
- Installation Guide (this document)

The weatherproof caps for Ethernet and Console interfaces are connected to the AP, not loose in the package.

Mounting kits for use with the IAP-228 access point are sold separately. Contact your Aruba sales representative for details.
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.
IAP-228 Hardware Overview

External Antenna Connectors

The IAP-228 is designed for use with external antennas and has six RP-SMA connectors for external antennas.

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.

LED

The IAP-228 is equipped with one LED that indicates the system status of the AP.
**USB Console Port**

The USB Micro-B console port allows you to connect the AP to a terminal or a laptop for direct local management. Use the included USB console cable to connect the AP. You can download the necessary driver for USB-UART adapter from support.arubanetworks.com under the **Tools & Resources** tab.

Use the following setting to access the terminal:

<table>
<thead>
<tr>
<th><strong>Baud Rate</strong></th>
<th><strong>Data Bits</strong></th>
<th><strong>Parity</strong></th>
<th><strong>Stop Bits</strong></th>
<th><strong>Flow Control</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>9600</td>
<td>8</td>
<td>None</td>
<td>1</td>
<td>None</td>
</tr>
</tbody>
</table>

**Ethernet Ports**

IAP-228 is equipped with two 10/100/1000Base-T (RJ-45) Gigabit Ethernet ports (WAN and LAN port) for wired network connectivity. The WAN port supports 802.3at Power over Ethernet (PoE), accepting 48 VDC (nominal) as a standard defined Powered Device (PD) from a Power Sourcing Equipment (PSE) such as a PoE midspan injector.

These ports have RJ-45 female connectors with the pin-outs shown in Figure 3.
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 system LED will flash within 5 seconds.
4. Release the reset button.

The system 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.

Grounding Point
Always remember to protect the AP by installing grounding lines. The ground connection must be complete before connecting power to the AP enclosure.

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).
Identifying Specific Installation Locations

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 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 AP 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

CAUTION: This device must be professionally installed and serviced by a trained Aruba Certified Mobility Professional (ACMP) or similar Aruba-certified technician. 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 complete list of approved channels in your country, refer to the Aruba Domain Regulatory Table at arubanetworks.com.

NOTE: Aruba Networks, Inc. in compliance with governmental requirements, has designed the IAP-228 such that only authorized network administrators can change configuration settings. For more information about AP configuration, refer to the Aruba Instant Quick Start Guide and Aruba Instant User Guide.

CAUTION: 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.
Installing the AP

Using the AP-220-MNT-W1 Mount Kit
The IAP-228 access point can be installed on a wall by using AP-220-MNT-W1 mount kit.

The IAP-228 access point does not ship with any mount kit. The AP-220-MNT-W1 mount kit is available as accessories and must be ordered separately.

For details on AP-220-MNT-W1, please refer to the AP-220-MNT-W1 Installation Guide.

1. Begin by attaching the wall mount adapter to the wall.
   a. Install any necessary wall anchors. Wall anchors are not included in this kit.
   b. Align the screw holes in the mounting bracket with the previously installed anchors or demarcated screw points.
   c. Insert the screws to secure the mounting bracket. Screws are not included in this kit.
2. Attach necessary cables and/or antennas to the AP.
3. Attach the AP to the secured mounting adapter as shown in Figure 7.
   a. Align the AP with a mounting adapter, placing the AP so that its mounting tabs are at an angle of approximately 30 degrees to the adapter.
4. Pushing toward the wall, rotate the AP clockwise until it clicks into place (see Figure 7).
Grounding the AP

The grounding must be completed before powering up the AP. The grounding wire should be #8 AWG.

1. Peel the cover of one end of the grounding wire and place the bare grounding wire into the included copper lug, and press firmly with the crimping pliers.
2. Fasten the copper lug to the grounding hole on the AP with the included M4 x8 screw.

Connecting the Ethernet Cable

To connect the Ethernet cable to the AP, perform the following steps using the cable glands that ships with your AP.

Failure to use the included Ethernet cable glands can lead to connectivity and POE issues.
The cable is not included and must be purchased separately. Purchase a suitable UV-resistant, outdoor rated, CAT 5E or better RJ45 cable for use with the AP.

**Figure 9 Installing a Cable Gland**

1. Slide the sealing nut over the cable (without the RJ45 connector attached to the end).
2. Slide the clamping ring over the cable.
3. Using a crimping tool, attach the shielded RJ45 connector to the end of the cable.
4. Remove the weatherproof cap on the Ethernet port.
5. Insert the RJ45 connector to the Ethernet port.
6. Screw the clamping ring onto the Ethernet port.
7. Screw the sealing nut onto the clamping ring.

The seals inside the clamping ring by factory default is applicable for cables with 5-8.5 mm diameter. In the cable gland kit, another seals is provided for use with the cables with 7-10 mm diameter.

**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 and Table 2). Refer to the *Aruba Instant Quick Start Guide* for further details on verifying post-installation network connectivity.
Product Specifications

Mechanical:
- Device Dimensions (HxWxD): 8.7 inches x 5.9 inches x 2.6 inches (221mm x 150mm x 66mm)

Electrical
- Ethernet
  - 2 x 10/100/1000Base-T auto-sensing Ethernet RJ-45 Interfaces
  - MDI/MDX
  - Power over Ethernet (IEEE 802.3at compliant), 48VDC(nominal) /0.6A
- Power
  - POE support on WAN port: 802.3at-compliant POE sourcing devices

Environmental
- Operating
  - Temperature: -40°C to 60°C (-40°F to 140°F)
  - Humidity: 5% to 95% non-condensing
- Storage
  - Temperature: -40°C to 70°C (-40°F to 158°F)

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

Aruba Networks provides a multi-language document that contains country-specific restrictions and additional safety and regulatory information for all Aruba access points. This document can be viewed or downloaded from the following location: www.arubanetworks.com/safety_addendum

Regulatory Model Name
The regulatory model name of IAP-228 is APIN0228.

FCC
This device is electronically labeled. To view the FCC ID:
1. Log into the controller WebUI

Aruba access points must be installed by a professional installer. The professional installer is responsible for ensuring that grounding is available and it meets applicable local and national electrical codes.

FCC Class B Part 15
This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

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.

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. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instructions, may cause interference harmful to radio communications.

If this equipment does cause interference, 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 to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

**EU Regulatory Conformance**


**Proper Disposal of Aruba Equipment**

For the most current information about Global Environmental Compliance and Aruba products, see our website at www.arubanetworks.com.

**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 2002/95/EC on Waste of Electrical and Electronic Equipment (WEEE).

**European Union RoHS**

Aruba products also 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). Products and packaging will be marked with the “RoHS” label shown at the left indicating conformance to this Directive.

**China RoHS**

Aruba products also comply with China environmental declaration requirements and are labeled with the “EFUP 10” label shown at the left.
### Canadian Statement

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation 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 of the device.
### Contacting Support

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Main Site</td>
<td>arubanetworks.com</td>
</tr>
<tr>
<td>Support Site</td>
<td>support.arubanetworks.com</td>
</tr>
<tr>
<td>Airheads Social Forums and Knowledge Base</td>
<td>community.arubanetworks.com</td>
</tr>
</tbody>
</table>
| North American Telephone       | 1-800-943-4526 (Toll Free)  
                              | 1-408-754-1200             |
| International Telephones       | arubanetworks.com/support-services/contact-support/ |
| Software Licensing Site        | hpe.com/networking/support |
| End-of-life Information        | arubanetworks.com/support-services/end-of-life |
| Security Incident Response Team (SIRT) | Site: arubanetworks.com/support-service/security-bulletins/  
                              | Email: sirt@arubanetworks.com |

### Open Source Code

This product includes code licensed under the GNU General Public License, the GNU Lesser General Public License, and/or certain other open source licenses. A complete machine-readable copy of the source code corresponding to such code is available upon request. This offer is valid to anyone in receipt of this information and shall expire three years following the date of the final distribution of this product version by Hewlett Packard Enterprise Company. To obtain such source code, send a check or money order in the amount of US $10.00 to:

Hewlett Packard Enterprise Company  
Attn: General Counsel  
3000 Hanover Street  
Palo Alto, CA 94304  
USA

### Warranty

This hardware product is protected by an Aruba warranty. For details, see Aruba Networks standard warranty terms and conditions.