

AP-103 Wireless Access Point

Installation Guide

The Aruba AP-103 wireless access point supports the IEEE 802.11n standard for high-performance WLAN. This access point uses MIMO (Multiple-in, Multiple-out) technology and other high-throughput mode techniques to deliver high-performance, 802.11n 2.4 GHz or 5 GHz functionality while simultaneously supporting existing 802.11a/b/g wireless services. The AP-103 access point works only in conjunction with an Aruba Controller.

The Aruba AP-103 access point provides the following capabilities:

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



The AP-103 requires ArubaOS 6.4.1.0 or later.

Package Contents

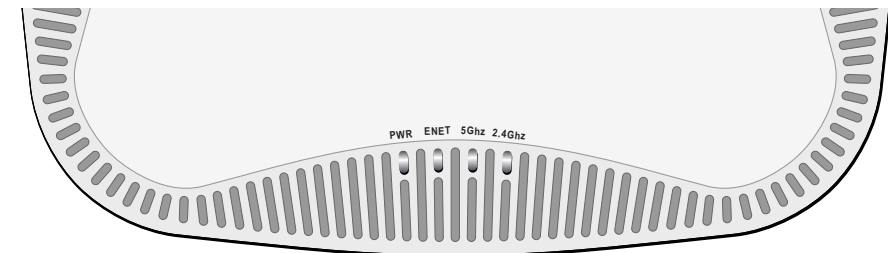
- AP-103 access point
- 9/16" and 15/16" Ceiling Rail Adapters
- Installation guide (this document)



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.

AP-103 Hardware Overview

Figure 1 AP-103 LEDs



LEDs

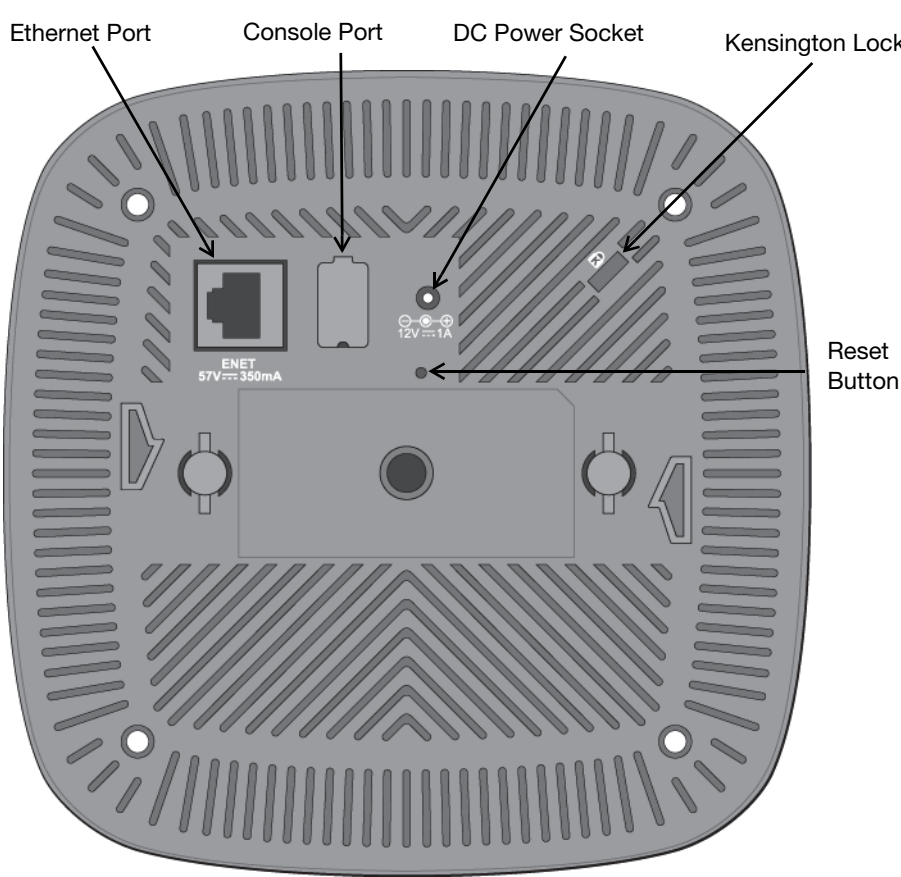
The AP-103 is equipped with four LEDs that indicate the status of the various components of the AP.

- PWR: Indicates whether or not the AP-103 is powered-on
- ENET: Indicates the status of the AP-103' 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-103 LED Meanings

LED	Color/State	Meaning
PWR	Off	No power to AP, or initial power-up
	Red	Error condition
	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-103 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 a 4-pin connector covered by a dust cover.

Ethernet Port

AP-103 is equipped with one 10/100/1000Base-T (RJ-45) auto-sensing, MDI/MDX wired-network connectivity port. This port supports IEEE 802.3af 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 port is on the back of the AP. The port has RJ-45 female connectors with the pin-outs shown in Figure 3.

Figure 3 Gigabit Ethernet Port Pin-Out

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

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-103.

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



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).

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.



Low Power FunkLAN Produkt, das im 2.4 GHz und im 5 GHz Band arbeitet. Weitere Informationen bezüglich 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 dettagliate 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.

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

AP Pre-Installation Checklist

Before installing your AP, ensure that you have the following:

- CAT5e or better UTP cable of required length
- One of the following power sources:
 - 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

Summary of the Setup Process

Successful setup of an AP-103 consists of 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.



Aruba Networks, Inc., in compliance with governmental requirements, has designed the AP-103 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.

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 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

You can mount the AP-103 access point on a wall or on the ceiling. Use the AP placement map generated by Aruba's Airwave VisualRF 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 VisualRF 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

Installing the AP



Service to all Aruba Networks products should be performed by trained service personnel only.

Using the Ceiling Rail Adapter

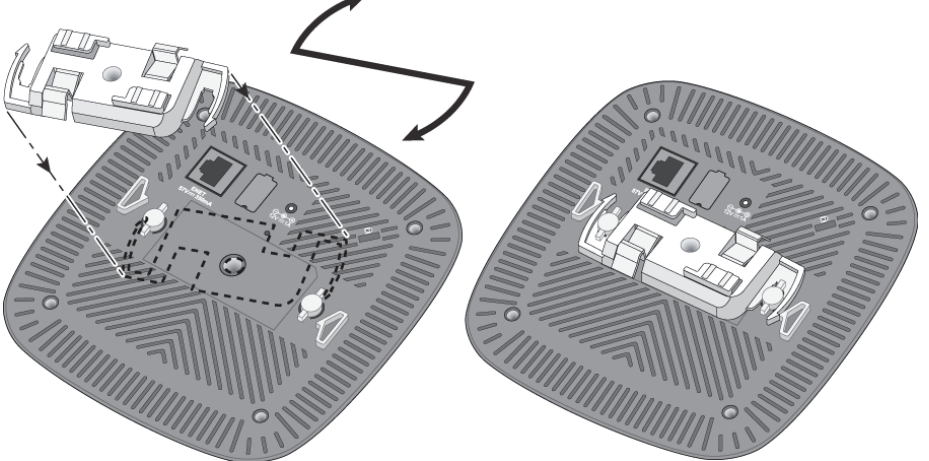
The AP-103 ships with two ceiling rail adapters for 9/16" and 15/16" ceiling rails. Additional wall mount adapters and ceiling rail adapters for other rail styles are available as accessory kits.



Make sure the AP fits securely on the ceiling tile rail when hanging the device from the ceiling, because poor installation could cause it to fall onto people or equipment.

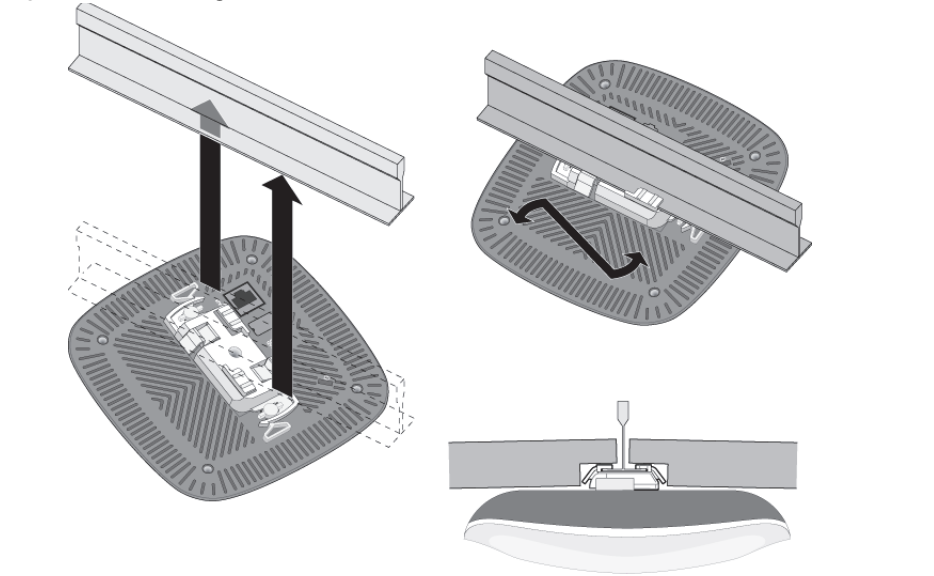
1. Pull the necessary cables through a prepared hole in the ceiling tile near where the AP will be placed.
2. Place the adapter against the back of the AP with the adapter at an angle of approximately 30 degrees to the tabs (see Figure 4).
3. Twist the adapter clockwise until it snaps into place in the tabs (see Figure 4).

Figure 4 Attaching the Ceiling Rail Adapter



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 5). Make sure that any cable slack is above the ceiling tile.
6. Pushing toward the ceiling tile, rotate the AP clockwise until the device clicks into place on the ceiling tile rail.

Figure 5 Mounting the AP



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 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-103

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 their respective guides for further details: the *ArubaOS User Guide*.

Product Specifications

Electrical

- Ethernet:
 - 1x 10/100/1000Base-T 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 (802.3af compliant), 48V DC (nominal) and 56V DC (maximum)/350mA (see Figure 3 for pin configuration)
- Power:
 - 12 VDC power interface, supports powering through an AC-to-DC power adapter
 - POE support on Ethernet ports: 802.3af-compliant POE sourcing devices



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 1.25A, marked “LPS” or “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 data sheet. The data sheet can be found at www.arubanetworks.com.

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 wheeled 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 2002/96/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 25” label shown at the left.

有毒有害物質聲明 Hazardous Materials Declaration						
部件名稱 (Part)	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr ⁶⁺)	多環聯苯 (PBB)	多環二聯苯 (PBDE)
印刷板 (Mechanical Sub. Assembly)	X	○	○	○	○	○
○: 表示該含有害物質在該部件所有底層材料中的含量均在 SJ/T11363-2006 和所規定附屬要求以下。 Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.						
X: 表示該含有害物質在該部件的某一均質材料中的含量超過 SJ/T11363-2006 和所規定附屬要求。 Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard.						
附屬資訊 The following information is provided for the products of this company: This table shows where these substances may be found in the supply chain of electronic information products, as of the date of sale of the enclosed product.						
此標誌為針對所詳列產品的環保使用期標誌。某些零件會有一個不同的環保使用期。 (例如：電池單元及類似) 均在其產品上。 此環保使用期只適用於產品及產品子單元中所規定的條件下工作。 The Environment-Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here. The Environment-Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.						

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 Names

The following regulatory model names apply to the AP-103:

- AP-103: APIN0103

FCC

This device is electronically labeled. To view the FCC ID:

- Log into the controller Web UI.
- Navigate to **Maintenance > Controller > About**.

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 7.9 inches (20 cm) 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. When operated in the 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.

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.

Complies with the Class B limits for radio noise emissions as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of Industry Canada.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Users are advised that high power Radars are allocated as primary users of the bands 5250-5350 MHz and 5650-5850 MHz and these Radars could cause interference and/or damage to Licensed Exempt WLAN devices.

EU Regulatory Conformance

This product is CE marked according to the provisions of the R & TTE Directive (1999/5/EC) - CE(!). Aruba Networks Inc., hereby declares that the APIN0103 device model is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC -CE(!)

The Declaration of Conformity made under Directive 1999/5/EC is available for viewing at the following location: <http://support.arubanetworks.com>

Users are advised that high power Radars are allocated as primary users of the bands 5250-5350 MHz and 5650-5850 MHz and these Radars could cause interference and/or damage to Licensed Exempt WLAN devices.

Taiwan Class A Statement

警告使用者
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

Korean Class A Statement

이 기기는 업무용 (A 급) 전자파 적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다 .

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.

AP-103 Wireless Access Point Installation Guide



Contacting Aruba Networks

Table 1

Web Site Support	
Main Site	http://www.arubanetworks.com
Support Site	https://support.arubanetworks.com
Software Licensing Site	https://licensing.arubanetworks.com/login.php
Wireless Security Incident Response Team (WSIRT)	http://www.arubanetworks.com/support/wsirt.php
Americas and APAC Support Email	support@arubanetworks.com
EMEA Support Email	emea.support@arubanetworks.com
WSIRT Email Please email details of any security problem found in an Aruba product.	wsirt@arubanetworks.com

Table 2

Telephone Support	
Aruba Corporate	+1 (408) 227-4500
FAX	+1 (408) 227-4550

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Open Source Code

Certain Aruba products include Open Source software code developed by third parties, including software code subject to the GNU General Public License (“GPL”), GNU Lesser General Public License (“LGPL”), or other Open Source Licenses. The Open Source code used can be found at this site: http://www.arubanetworks.com/open_source

Legal Notice

The use of Aruba Networks, Inc. switching platforms and software, by all individuals or corporations, to terminate other vendors’ VPN client devices constitutes complete acceptance of liability by that individual or corporation for this action and indemnifies, in full, Aruba Networks, Inc. from any and all legal actions that might be taken against it with respect to infringement of copyright on behalf of those vendors.

Warranty

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



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