DATA SHEET

ARUBA 228 ACCESS POINTS

802.11ac for harsh, weather-protected areas

Rugged Aruba 228 wireless APs deliver gigabit Wi-Fi performance to 802.11ac mobile devices in harsh, weather-protected environments such as warehouses, industrial freezers or enclosures in extreme environments such as stadiums.

With a maximum data rate of 1.3 Gbps in the 5-GHz band and 600 Mbps in the 2.4-GHz band, Aruba 228 APs are three-times faster than 802.11n APs and provide performance similar to a wired connection.

The 228 APs include ClientMatch technology, which eliminates sticky clients by continuously gathering session performance metrics from mobile devices. This information is then used to steer each mobile device to the best AP and radio on the WLAN.

Proactive and deterministic, ClientMatch dynamically optimizes Wi-Fi client performance as users roam and RF conditions change. If a mobile device moves out of range of an AP or RF interference impedes performance, ClientMatch automatically steers it to a better AP.

With ClientMatch, 228 APs load web pages faster, deliver video streams with improved quality and support high densities of mobile devices. An 802.11ac network without ClientMatch performs no different than an 802.11n WLAN.

The rugged 228 APs additionally support priority handling and policy enforcement for individual Microsoft Lync media on the same device, including encrypted videoconferencing, voice, chat and desktop sharing.

UNIQUE BENEFITS

- Industrial design for harsh, weather-protected environments
  - Extends temperature range for indoor environments that lack heating and cooling
  - Sealed connector interfaces to lock out dust and moisture
  - Connectorized antenna ports support high gain large public venue antennas
  - Designed for enhanced physical security .
- Delivers 1.9 Gbps aggregate throughput.
  - EtherChannel link aggregation on two Gigabit Ethernet ports provides 1.9 Gbps throughput.

- Supports aggregate data rates up to 1.9 Gbps
  - 802.11ac transmit beam-forming to enhance signal, throughput and multi stream operation
  - Supports 1.3 Gbps rates in the 5 GHz band for 802.11ac clients
  - Supports up to 600 Mbps for TurboQAM-enabled mobile devices operating in the 2.4 GHz band
- Best-in-class RF management
  - Integrated Adaptive Radio Management technology manages the 2.4-GHz and 5-GHz radio bands and ensures that APs stay clear of RF interference.
- Spectrum analysis
  - Capable of part-time or dedicated air monitoring, the spectrum analyzer remotely scans the 2.4-GHz and 5-GHz radio bands to identify sources of RF interference.
- Wireless mesh
  - Wireless mesh connections are convenient where Ethernet drops are not available.
- Security
  - Integrated wireless intrusion protection offers threat protection and mitigation and eliminates the need for separate RF sensors and security appliances.
  - IP reputation and security services identify, classify, and block malicious files, URL and IPs, providing comprehensive protection against advanced online threats.
  - Encrypted IPsec VPN tunnels securely connect remote users to corporate network resources.
  - Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys.
  - SecureJack-capable for secure tunneling of wired Ethernet traffic.
  - For improved network simplicity and security, Dynamic Segmentation enforces real-time device-level access policies on Aruba wired and wireless networks.

CHOOSE YOUR OPERATING MODE

The 228 APs offer a choice of operating modes to meet your unique management and deployment requirements.

- Controller-managed AP or Remote AP (RAP) running ArubaOS. When managed by Aruba Mobility Controllers, 228 APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding.
- Aruba Instant AP running InstantOS. In Aruba Instant mode, a single AP automatically distributes the network configuration to other Instant APs in the WLAN. Simply power-up one Instant AP, configure it over the air, and plug in the other APs – the entire process takes about five minutes.
- Spectrum analysis identifies sources of RF interference
- Air monitor provides wireless intrusion protection
- Hybrid AP serves Wi-Fi clients and provides wireless intrusion protection and spectrum analysis
- Secure enterprise mesh

For large installations across multiple sites, the Aruba Activate service significantly reduces deployment time by automating device provisioning, firmware upgrades, and inventory management. With Aruba Activate, Instant APs are factory-shipped to any site and configure themselves when powered up.

If WLAN and network requirements change, a built-in migration path allows 228 Instant APs to become part of a WLAN that is centrally managed by a Mobility Controller.

AP-228 SPECIFICATIONS

- 2.4-GHz (600 Mbps max) and 5-GHz (1.3 Gbps max) radios, each with 3x3 MIMO and three combined, diplexed external antenna connectors.

WIRELESS RADIO SPECIFICATIONS

- AP type: Indoor, dual radio, 5 GHz 802.11ac and 2.4 GHz 802.11n
  - In addition to 802.11n data rates, the 2.4-GHz radio supports 802.11ac data rates using 256-QAM modulation. This gives TurboQAM-enabled clients a 33% boost above the maximum supported data rate.
- Software-configurable dual radio supports 5 GHz and 2.4 GHz
- 3x3 MIMO with three spatial streams and up to 1.3 Gbps wireless data rate

- Supported frequency bands (country-specific restrictions apply):
  - 2.4000 GHz to 2.4835 GHz
  - 5.150 GHz to 5.250 GHz
  - 5.250 GHz to 5.350 GHz
  - 5.470 GHz to 5.725 GHz
  - 5.725 GHz to 5.850 GHz
- Available channels: Dependent upon configured regulatory domain
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum
- Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum (DSSS)
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)
  - 802.11n/ac: 3x3 MIMO with up to three spatial streams
- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
  - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (aggregate, conducted total) transmit power (limited by local regulatory requirements):
  - 2.4-GHz band: +28 dBm (23 dBm per chain)
  - 5-GHz bands: +28 dBm (23 dBm per chain)
- Advanced cellular coexistence (ACC) feature to effectively deal with interference from cellular systems
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay diversity (CDD) for improved downlink RF performance
- Short guard interval for 20-MHz, 40-MHz and 80-MHz channels
- Space-time block coding (STBC) for increased range and improved reception
- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
- Transmit beam-forming (TxBF) for increased reliability in signal delivery
- Supported data rates (Mbps):
  - 802.11b: 1, 2, 5.5, 11
  - 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
  - 802.11n: 6.5 to 450 (MCS0 to MCS23)
  - 802.11ac: 6.5 to 1,300 (MCS0 to MCS9, NSS = 1 to 3)
- 802.11n high-throughput (HT) support: HT 20/40

- 802.11ac very high throughput (VHT) support: VHT 20/40/80
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU

POWER

- Worst-case power consumption from the AP: 23W
- Power sources sold separately
- Power over Ethernet (PoE+): 802.3at-compliant

ANTENNAS

- Six RP-SMA connectors for external antennas

OTHER INTERFACES

- Two 10/100/1000BASE-T Ethernet network interfaces (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - Load balancing support to achieve platform throughput greater than 1 Gbps
  - PoE-PD: 802.3at PoE+
- Serial console interface (Micro USB)

MOUNTING

- Optional mounting kits:
  - AP-130-MNT or AP-220-MNT-W1 are directly compatible
  - 270 Series outdoor AP mounts (AP-270-MNT-V1, AP-270-MNT-V2, AP-270-MNT-H1, AP-270-MNT-H2) are compatible when the AP-270-MNT-ADP adapter is utilized

MECHANICAL

- Dimensions/weight (unit, excluding mount accessories):
  - 222 mm (L) x 150 mm (W) x 75 mm (H), 8.5" (L) x 6" (W) x 2.5" (H)
  - 1.225 kg/2.700 lbs

ENVIRONMENTAL

- Operating:
  - Temperature: -40° C to +60° C (-40° F to +140° F)
  - Humidity: 5% to 95% non-condensing
  - Storage and transportation:
  - Temperature: -40° C to +70° C (-40° F to +158° F)
  - Operating Altitude: 3,000 m

REGULATORY

- FCC/Industry of Canada
- CE Marked
- RED Directive 2014/53/EU
- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- EN 300 328
- EN 301 489
- EN 301 893
- UL/IEC/EN 60950
- EN 60601-1-1, EN60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

REGULATORY MODEL NUMBERS

- AP-228 and IAP-228: APIN0228

CERTIFICATIONS

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance certified 802.11a/b/g/n/ac

WARRANTY

- Limited lifetime warranty

MINIMUM OPERATING SYSTEM SOFTWARE VERSIONS

- ArubaOS 6.4.3.0
- Aruba Instant 4.2.0

RF PERFORMANCE TABLE

	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
802.11b 2.4 GHz		
1 Mbps	23.0	-95.0
2 Mbps	23.0	-93.0
5.5 Mbps	23.0	-90.0
11 Mbps	23.0	-88.0
802.11g 2.4 GHz and 802.11a 5 GHz		
6 Mbps	23.0	-93.0
54 Mbps	19.0	-75.0
802.11n HT20 2.4 GHz and 5 GHz		
MCS0/8	23.0	-93.0
MCS7/15	18.0	-71.0
802.11n HT40 2.4 GHz and 5 GHz		
MCS0/8	23.0	-90.0
MCS7/15	18.0	-68.0
802.11ac VHT20 5 GHz		
MCS0	23.0	-93.0
MCS9	16.0	-68.0
802.11ac VHT40 5 GHz		
MCS0	23.0	-90.0
MCS9	15.0	-63.0
802.11ac VHT80 5 GHz		
MCS0	23.0	-87.0
MCS9	15.0	-61.0

Maximum capability of the hardware provided. Maximum transmit power is limited by local regulatory settings.

ORDERING INFORMATION

Part Number	Description
AP-228 Access Points	
JW182A	Aruba AP-228 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Connectors Indoor Hardened AP
JW245A	Aruba Instant IAP-228 (RW) 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Inst Indoor Hardened AP
JW244A	Aruba Instant IAP-228 (US) 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Inst Indoor Hardened AP
JW246A	Aruba Instant IAP-228 (JP) 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Inst Indoor Hardened AP
AP-228 Access Points (FIPS/TAA)	
JW183A	Aruba AP-228 FIPS/TAA-compliant 802.11ac Dual 3x3:3 Radio 6xRPSMA Connectors Indoor Hardened AP
JW247A	Aruba Instant IAP-228 (RW) FIPS/TAA 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Indoor Hardened AP
JW248A	Aruba Instant IAP-228 (US) FIPS/TAA 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Indoor Hardened AP
JY762A	Aruba Instant IAP-228 (JP) FIPS/TAA 802.11n/ac Dual 3x3:3 Radio 6xRPSMA Cnctr Indoor Hardened AP
AP-228 Accessories	
JW046A	AP-220-MNT-W1 Flat Surface Wall/Ceiling Black AP Basic Flat Surface Mount Kit
JW056A	AP-270-MNT-ADP AP-228 to AP-270-MNT-XX Outdoor Mount Adapter
JW052A	AP-270-MNT-V1 AP-270 Series Outdoor Pole/Wall Long Mount Kit
JW053A	AP-270-MNT-V2 AP-270 Series Outdoor Pole/Wall Short Mount Kit
JW054A	AP-270-MNT-H1 AP-270 Series Outdoor AP Hanging or Tilt Install Mount Kit
JW055A	AP-270-MNT-H2 AP-270 Series Access Flush Wall or Ceiling Mount
Generic Indoor AP Accessories (see info on Aruba web site for part numbers)	
JW629A	PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector
JW630A	PD-9001GO-DC 30W 802.3at PoE+ 10/100/1000 12-24V DC in Outdoor Surge Prot Midspan Injector
JW700A	PD-9001GO-NA 30W 802.3at PoE+ 10/100/1000 Otdr Surge Prot NA Power Cord Midspan Injector
JW701A	PD-9001GO-INTL 30W 802.3at PoE+ 10/100/1000 Outdoor Surge Prot Intl Power Cord Injector

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