

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3X3 Access Point with Internal Antennas

The WAP43DC is a dual band (2.4GHz and 5GHz) 802.11 ac access point, one of a series of high-performance gigabit wireless access points (APs) launched by Amer Networks. Part of the Acuity™ family of Access Points, which includes both internal and external antenna Access Points for 802.11n and 802.11ac. The WAP43DC employs technologies such as 3x3:3 MIMO and OFDM and can provide high data transmission rates. With these 802.11ac Access Points, multimedia environments including HD video conferencing can be implemented.



The WAP43DC can operate as a standalone access point or it can be grouped together with other access points in the Acuity™ family with the use of an Amer Wireless Controller. With the use of an Amer Wireless Controller like the WS6002, features such as wireless network security, radio frequency (RF) control, mobile access, quality of service (QoS) guarantee, can be unified across the entire wireless network with the added benefit of seamless roaming.

The WAP43DC operates in the 2.4 GHz and 5 GHz band and employs technologies such as multiple-input multiple-output (MIMO) and orthogonal frequency division multiplexing (OFDM). It has one Gigabit Ethernet port for data access, one gigabit extended port and one USB 2.0 port for external devices like USB hard Drives or USB printers. Featuring flexible installation, the WAP43DC may be installed on a wall, desk top, or ceiling. Its internal antenna configuration offers a non-intruding look and offers flexibility in wireless deployment. The WAP43DC supports either local power with the use of an external adapter (not included) or power over Ethernet (PoE) with the use of a 802.11af switch, injector or mid-span switch which is not included. The WAP43DC is part of a series of high-rate wireless APs ideal for various application environments such as Educational and Business.

## • Highlights

High-Performance and High-Reliability Wireless Network

- High-speed wireless broadband access

The WAP43DC supports the 802.11 a/b/g/n/ac standard, operates in the 2.4 GHz and 5 GHz band, and provides access bandwidth up to 1.3 Gbps.

- Dual GE ports

Utilizing the Gigabit Ethernet port for uplink access greatly improves performance and facilitates the data transmission rates that can be reached with the IEEE802.11ac standard..

- High-performance RF characteristics

Professional optimized RF module design is employed in the WAP43DC allowing a single antenna port to support 20 dB transmit power at all rate levels, thereby improving wireless coverage in high-rate access scenarios.

- Automatic AP emergency mechanism

In a centralized network architecture where APs are configured in Controller Mode (FIT) and a wireless Controller is deployed, network down time could occur when a wireless controller goes offline.

# WAP43DC

## Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3X3 Access Point with Internal Antennas

The WAP43DC and the other access points that are part of this Acuity™ family support an automatic emergency mechanism. This mechanism allows the APs to intelligently detect if it has communication with the centralized controller. When detecting that the wireless Controller is off-line, the AP quickly switches its operating mode so that it may continue to forward data while enabling new users to access the network. This mechanism attains high availability in the entire wireless network and maintains high uptime for the wireless network.

- Broad operating temperature range

Amer takes into account the many differing environments that wireless Access Points are being utilized in today's applications. With this in mind Amer took care with the hardware design and the component selection process to obtain a broad temperature operation range of  $-10^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$  for the WAP43DC.

- Dual-OS backup mechanism

Amer Acuity™ APs support a dual-OS backup mechanism. When an AP fails to start from the active OS, it can immediately start from a standby OS, thereby improving the long-term running reliability of equipment in an adverse environment.

- Intelligent Control and Automatic Perception

- 802.11ac standard support

The Dual band support of this Access Point not only offers support for standard IEEE-802.11ac devices but it is also downward compatible supporting 802.11 a/b/g/n as well.

- Intelligent RF management

Amer Acuity™ APs may be used with a wireless Controller to perform automatic power and channel adjustment. They employ particular RF detection and management algorithms to attain better RF coverage. When there is excessive signal interference caused by strong external signals, the Access Point may automatically switch to an appropriate operating channel under the control of the Controller to avoid the interference, guaranteeing wireless performance.

The system also supports wireless network

"Blackhole" compensation. When an AP on the network stops operating, the RF management function of the Controller compensates for the resulting blind area by adjusting surrounding Access Points to maintain normal operation.

- Intelligent control for airtime fairness

When legacy 802.11b and 802.11g devices are used on a wireless network or if some devices are an extended distance from the Access Points, the negotiation rates will be low, causing a large number of users to experience a long WLAN access delay, low rates, or poor overall AP performance. The AP performance problem in a low rate access environment cannot be resolved by simply employing rate control and traffic shaping. With Amer Acuity™ APs this problem is addressed with intelligent control for airtime fairness which ensures that a user can always enjoy the same WLAN experience in the same location, no matter what type of device is being used. The intelligent control of devices based on airtime fairness greatly improves the performance of both the client and the entire network. It enables all clients with high data transmission rates to attain strikingly higher performance while low-rate clients are mostly unaffected. The performance will be even higher on an open wireless network. Once high-rate clients finish data transmission, fewer clients will be transmitting data on the wireless network contributing to less contention on the network, thereby greatly improving overall AP performance.

- Intelligent load balancing

With most wireless systems, a wireless client will select an Access Point based on the signal strength of available Access Points. With this type of uncontrolled access a large number of clients could be connected to the same AP simply because the AP provided a stronger signal.



# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3X3 Access Point with Internal Antennas

As more clients are connected to an AP, the bandwidth available to each client will be reduced, thereby greatly affecting user experience.

Amer Acuity™ wireless products support intelligent load balancing based on:

- traffic
- frequency bands
- number of users
- signal strength

- Intelligent identification of Devices

Amer Acuity™ APs when paired with an Amer Acuity™ wireless controller supports adaptive portal authentication pages that are able to intelligently detect the device platform and automatically adjust the page resolutions to provide best results for mobile devices. Device support include Apple iOS, Android and Windows. This active platform identification also can determine the type of device that is connected wither mobile phone, tablet or PC and implement dynamic policy control of devices based on the device type allowing intelligent user control.

- Comprehensive support for IPv4/v6 dual-stack networks

Powered by Amer's cutting-edge IPv6 technology, Amer Acuity™ APs may be deployed on an IPv6 network, with IPv6 tunnels established through auto negotiation between a wireless Controller and an AP. When the wireless Controller and the AP completely operate in IPv6 mode, the wireless Controller can still correctly identify IPv4 devices and process IPv4 packets from wireless clients. Featuring flexible adaptability to IPv4/6, Amer Acuity™ APs cater to complex applications involved in migration from an IPv4 network to an IPv6 network. They not only provide IPv4 service to customers on an IPv6 network, but also enable users on an IPv4 network to log in to the network through the IPv6 protocol.

- Network-wide seamless roaming

Amer wireless Controllers support an advanced wireless cluster technology, which enables multiple Controllers to synchronize online connection information and roaming records of all users to each other in real time. This technology implements not only L2/L3 seamless roaming inside a wireless Controller but also fast roaming across wireless Controllers. As client IP address re-authentication is not required in the roaming process, the real-time service level for roaming is greatly improved.

- Support WDS Mode

WDS mode is supported allowing the AP to create a wireless bridge.

- **Secure and Controllable Wireless Network**
    - User Isolation  
Amer Acuity™ wireless APs support the isolation of wireless users from one another. With the user isolation function enabled, wireless clients cannot directly communicate with each other but can only access an upstream wired network. This provides additional security in a wireless deployment.
    - Wireless intrusion detection and intrusion defense  
Amer wireless APs support wireless intrusion detection and intrusion defense features. This feature allows for the detection of unauthorized wireless devices. Blacklist and white list can also be created improving security management.
    - 32 SSID / BSID  
Each AP supports a maximum of 32 WLANs to implement multilayer multi-service management of wireless users. Each WLAN supports access control and uplink/downlink rate limit based on MAC or IP addresses. These WLANs may be bound to virtual local area networks (VLANs). Different authentication and accounting policies can be implemented on the separate SSID/BSID. 16 SSID/BSID are supported on each band (2.4GHz and 5GHz) creating a maximum of 32 SSID/BSID.
    - Secure user admission  
Amer Acuity™ APs may be used with wireless Controllers to provide multiple secure access, authentication, and accounting mechanisms for various application environments. These mechanisms include:
      - \* 802.1x authentication
      - \* Captive portal authentication, including built-in portal, external portal, and custom portal authentication modes
      - \* Mac address authentication
      - \* LDAP authentication
      - \* WAPI encryption and authentication
      - \* Wired/wireless integrated authentication and accounting
    - Wireless SAVI  
Source address validation (SAVI) technology is implemented on the WAP43DC to deal with spoofed packet attacks.
    - PEAP user authentication  
Protected Extensible Authentication Protocol (PEAP) authentication adds security to the wireless network.

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3X3 Access Point with Internal Antennas

## – Secure Access

An AP is usually deployed in a public area and requires a strict security mechanism to guarantee the legitimacy of access for all devices. The following secure access mechanisms are available to be applied on an Amer Acuity™ AP and an Amer Acuity™ Controller:

- \* AP MAC address authentication
- \* AP password authentication
- \* Bidirectional digital certificate authentication

## – Real-time spectrum protection

Amer Acuity™ APs support a built-in RF collection module that integrates RF monitoring and real-time spectrum protection. By implementing communications and data collection through the respective AP, the RF collection module performs wireless environment quality monitoring, wireless network capability tendency evaluation, and unexpected-interference alarms. It actively detects and identifies RF interference sources (Wi-Fi or non-Wi-Fi) and provides a realtime spectrum analysis diagram. In addition, it can automatically identify interference sources and determine the locations of problematic wireless devices, ensuring that a wireless network attains optimal performance.

All actions, such as configuration, firmware upgrade, and security policy updating, are performed uniformly under the control of the wireless Controller.

## – Controller (Fit) and Standalone (Fat) modes

Amer Acuity™ APs may work in fit or fat mode and can flexibly switch between the modes based to network planning requirements. APs working in fit mode are managed by a wireless Controller in a centralized manner while fat mode is a standalone mode that still offers a robust feature set in the absence of a controller.

## – Automatic AP version upgrade

Amer Acuity™ APs may be automatically associated with a wireless Controller to automatically download the latest software versions for automatic upgrades, reducing administration overheads.

## – Remote probe analysis

Amer Acuity™ APs support a remote probe analysis function, which listens to and captures Wi-Fi packets in the coverage area. Data can be mirrored to a local analysis device in real time to help network administrators perform troubleshooting or for optimization analysis.

## – Energy efficiency mode

The WAP43DC supports U-APSD power saving mode. This provides energy efficiency with the Ethernet and USB ports. The environmental benefits don't stop just with energy savings but the WAP43DC is 80% recyclable achieving real environmental protection.

## Easy-to-Manage Wireless Network

### – Plug-and-play

Amer Acuity™ APs are able to automatically discover Amer Acuity™ wireless Controllers. A wireless network function can be enabled on an AP without performing any configuration on the AP at all. The AP can be seamlessly integrated with existing switches, firewalls, authentication servers, and other network devices without changing existing network architecture.

When used with an Amer Acuity™ wireless Controller, Amer Acuity™ APs support plug-and-play and zero configuration. The wireless Controller undertakes all the management, control, and configuration of the APs. Network administrators do not need to separately manage or maintain a huge number of wireless APs.

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3X3 Access Point with Internal Antennas

## Hardware Specifications

Dimensions (mm):	<ul style="list-style-type: none"> <li>200 x 170 x 40</li> </ul>	Transmit Power:	<ul style="list-style-type: none"> <li>The maximum transmit power output on each antenna port is 20 dBm for all rate levels and modulation modes.</li> </ul>
10/100 /1000 Base-T port:	<ul style="list-style-type: none"> <li>2</li> </ul>	Power adjustment granularity:	<ul style="list-style-type: none"> <li>1 dBm</li> </ul>
Console port (RJ-45):	<ul style="list-style-type: none"> <li>1</li> </ul>	Working/Storage temperature:	<ul style="list-style-type: none"> <li>-0°C to +50°C</li> <li>-40°C to +70°C</li> </ul>
USB 2.0:	<ul style="list-style-type: none"> <li>1</li> </ul>	Working/Storage RH:	<ul style="list-style-type: none"> <li>5% to 95% (non-condensing)</li> </ul>
PoE:	<ul style="list-style-type: none"> <li>802.3af/802.3at</li> </ul>	Protection level:	<ul style="list-style-type: none"> <li>IP31</li> </ul>
Local:	<ul style="list-style-type: none"> <li>External power adapter: 100~240V AC</li> <li>Output: 12 V DC</li> </ul>		
Maximum Power Consumption	<ul style="list-style-type: none"> <li>&lt;13W (no USB)</li> </ul>		
System Memory	<ul style="list-style-type: none"> <li>256MB DDR3</li> <li>32 MB Flash</li> </ul>		
RF port:	<ul style="list-style-type: none"> <li>Built in 2.4 GHz 4 dBi antenna and 5 GHz dBi antenna.</li> </ul>		
Working frequency band:	<ul style="list-style-type: none"> <li>802.11a/n : 5.150 GHz to 5.850 GHz</li> <li>802.11b/g/n : 2.4 GHz to 2.483 GHz</li> <li>802.11ac; 5.150GHz to 5.250GHz</li> <li>5.250GHz to 5.350GHz</li> <li>5.725GHz to 5.850GHz</li> </ul>		
Modulation technology:	<ul style="list-style-type: none"> <li>802.11b,BPSK,QPSK,CCK</li> <li>802.11A/G/N:BPSK,16-QAM,64-QAM</li> <li>802.11AC,BPSK,QPSK,16-QAM,256-QAM</li> </ul>		

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3x3 Access Point with Internal Antennas

## Software Specifications

### Standalone Mode (FAT)

#### WLAN:

- Product positioning: Indoor dual-frequency
- Working frequency band: 2.4 GHz and 5 GHz
- Virtual AP (BSSID): 32
- Number of spatial streams: 2
- Dynamic channel adjustment (DCA): Yes
- Transmit power control (TPC): Yes
- Blind area detection and repair: Yes
- SSID hiding: Yes
- RTS/CTS: Yes
- Hybrid access: Yes
- Restriction on the number of access users: Yes
- Intelligent control of terminals based on airtime fairness: Yes
- High-density application optimization: Yes

#### 11n enhancements:

- 40 MHz bundling: Yes
- 300 Mbps (PHY): Yes
- Frame aggregation (A-MPDU): Yes
- Maximum likelihood demodulation (MLD): Yes
- Transmit beam forming (TxBF): Yes
- Maximum ratio combining (MRC): Yes
- Space-time block coding (STBC): Yes
- Low-density parity-check code (LDPC): Yes

#### Security:

- Encryption: 64/128 WEP, dynamic WEP, TKIP, and CCMP encryption
- 802.11i: Yes
- WAPI: Yes

#### Forwarding:

- IP address setting: Static IP address configuration or dynamic DHCP address allocation
- local forwarding: Yes
- WDS: Yes

#### QoS:

- WMM: Yes
- Priority mapping: Ethernet port 802.1P identification and marking Mapping from wireless priorities to wired priorities

- QoS policy mapping: Mapping of different SSIDs/ VLANs to different QoS policies Mapping of data streams that match with different packet fields to different QoS policies

- Power saving mode: Yes

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3x3 Access Point with Internal Antennas

## Software Specifications

### Management:

- Maintenance mode Both local and remote maintenance
- Statistics Yes
- Switching between fat and fit modes: An AP working in fat mode can switch to fit mode through a local control port or Telnet.
- Remote probe analysis: Yes
- Dual-image (dual-OS) backup mechanism: Yes

### Controller Based (Fit)

#### WLAN

- RF environment scanning Yes
- Link integrity check Yes
- Prohibiting the access of terminals with weak signals Yes
- Forced roaming of terminals with weak signals Yes

#### Security

- MAC address authentication: Yes
- PEAP authentication: Yes
- WIDS/WIPS: Yes
- Real-time spectrum protection: Yes
- Protection against DoS attacks: Anti-DoS for wireless management packets
- Forwarding security: Frame filtering, white list, static blacklist, and dynamic blacklist

- User isolation: AP L2 forwarding suppression
- Isolation between virtual APs (multiple SSIDs): Yes
- Periodic SSID enabling and disabling: Yes
- Access control of free resources: Yes
- Secure admission control of wireless terminals: Secure admission control of wireless terminals based on DCSM
- Wireless SAVI: Yes
- ACL: Access control of various data packets such as MAC, IPv4, and IPv6 packets
- Secure access control of APs: Secure access control of APs, such as MAC authentication, password authentication, or digital certificate authentication between an AP and an AC

#### Forwarding

- IPv6 forwarding Yes
- IPv6 portal Yes
- Multicast IGMP Snooping
- Roaming: Fast roaming across APs
- Fast roaming across ACs: Signal strength, bit error rate, RSSI, S/N, whether neighboring, APs are normally operating,etc.
- AP switching reference: Signal strength, bit error rate, RSSI, S/N, whether neighboring, APs are normally operating, etc.

# WAP43DC

Indoor Wireless Acuity™ 802.11ac Dual Concurrent 3x3 Access Point with Internal Antennas

## Software Specifications

### Qos

- L2-L4 packet filtering and flow classification: Yes, MAC, IPv4, and IPv6 packets
- Load balancing: Load balancing based on the number of users  
Load balancing based on user traffic  
Load balancing based on frequency bands
- Bandwidth limit: Bandwidth limit based on APs  
Bandwidth limit based on SSIDs  
Bandwidth limit based on terminals  
Bandwidth limit based on specific data streams
- Automatic emergency mechanism of APs: Yes
- Intelligent identification of terminals: Yes
- Multicast enhancement: Multicast to unicast

### Management

- Network management: Centralized management through an Access Controller;  
Supports both fit and fat modes
- Log function Local logs, Syslog, and log file export
- Alarm Yes
- Fault detection Yes
- Switching between fat and fit modes: An AP working in fit mode can switch to fat mode through a wireless Access Controller.
- Watchdog Yes

### Warranty and Support:

- Warranty: 3 Years
- Support: Free technical support (phone/email)

### Order Information:

- Product: WAP43DC
- Description: 802.11 abgn indoor wireless AP (2.4 GHz & 5 GHz dual-channel dual frequency, external antenna, 802.3af PoE)  
Plug-In Power Adapter sold separately.  
PoE injector sold separately.

### Related Product Table:

- WAP38DC: Indoor Wireless Acuity™ 802.11n Dual Concurrent Access Point with internal Antennas
- WAP42DC: Indoor Wireless Acuity™ 802.11ac Dual Concurrent 2x2 Access Point with internal Antennas
- WAP33DC: Indoor Wireless Acuity™ 802.11n Dual Concurrent Access Point
- WAP33DO: Outdoor Wireless 802.11n Amer Acuity™ Wireless Access Point with internal Antennas

### Controllers (Fit)

- WS6002: 132 AP Wireless Access Controller
- WS6028: 256 AP Wireless Access Controller
- WS6222: 1024 AP Wireless Access Controller