DATASHEET

UniFi® HD IN-WALL

In-Wall 802.11ac Wave 2 Wi-Fi Access Point

Model: UAP-IW-HD

Simultaneous Dual-Band 4x4 Multi-User MIMO

Four-Stream 802.11ac Wave 2 Technology

802.3af/802.3at PoE Compatibility

UBIQUITI® NETWORKS

Scalable Enterprise Wi-Fi Management

UniFi® is the revolutionary Wi-Fi system that combines enterprise performance, unlimited scalability, and a central management controller. The UniFi IW HD AP has a refined industrial design and can be easily installed using the included mounting hardware.

Easily accessible through any standard web browser and the UniFi app (iOS or Android™), the UniFi Controller software is a powerful software engine ideal for high-density client deployments requiring low latency and high uptime performance.

Use the UniFi Controller software to quickly configure and administer an enterprise Wi-Fi network – no special training required. RF map and performance features, real-time status, automatic UAP device detection, and advanced security options are all seamlessly integrated.

Features

Save Money and Save Time UniFi comes bundled with a non-dedicated software controller that can be deployed on an on-site PC, Mac, or Linux machine; in a private cloud; or using a public cloud service. You also have the option of deploying the compact UniFi Cloud Key with built-in software.

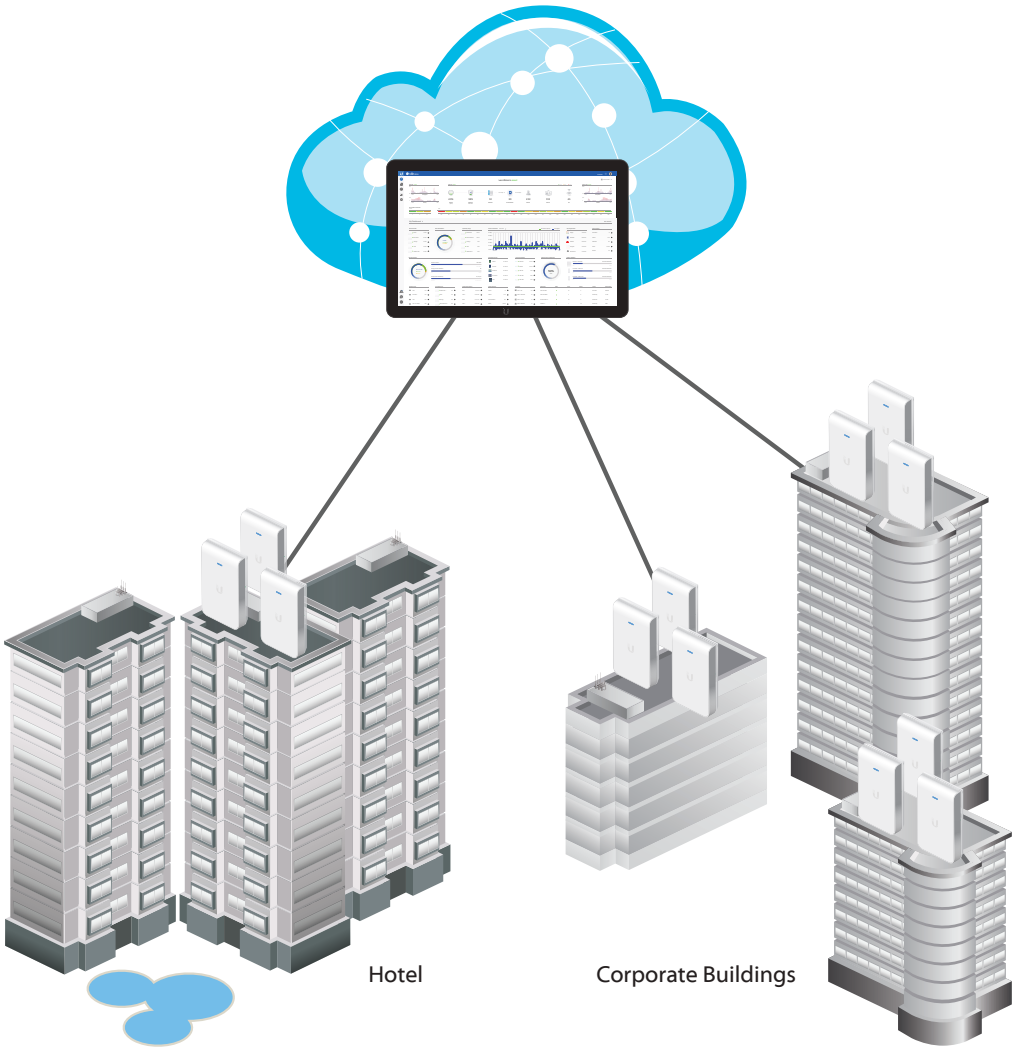
Powerful Hardware The UniFi IW HD AP features the latest in Wi-Fi 802.11ac Wave 2 MU-MIMO technology.

Intuitive UniFi Controller Software Configure and manage your APs with the easy-to-learn user interface.

Expandable Unlimited scalability: build wireless networks as big or small as needed. Start with one (or upgrade to a multi-pack) and expand to thousands while maintaining a single unified management system.

Extend Your Coverage

With the UniFi Controller software running in a NOC or in the cloud, administrators can manage multiple sites: multiple, distributed deployments and multi-tenancy for managed service providers. Below are some deployment examples.



UniFi Controller

Packed with Features

Use the UniFi Controller to provision thousands of UniFi APs, map out networks, quickly manage system traffic, and provision additional UniFi APs.

View Your RF Environment

Use the RF environment functionality of the UniFi IW HD AP to detect and troubleshoot nearby interference, analyze radio frequencies, choose optimal AP placement, and configure settings.

Powerful RF Performance Features

Advanced RF performance and configuration features include spectral analysis, airtime fairness, and band steering.

Detailed Analytics

Use the configurable reporting and analytics to manage large user populations and expedite troubleshooting.

Wireless Uplink

Wireless Uplink functionality enables wireless connectivity between APs for extended range. One wired UniFi AP uplink supports up to four wireless downlinks on a single operating band, allowing wireless adoption of devices in their default state and real-time changes to network topology.

Guest Portal/Hotspot Support

Easy customization and options for Guest Portals include authentication, Hotspot setup, and the ability to use your own external portal server. Use UniFi's rate limiting for your Guest Portal/Hotspot package offerings. Apply different bandwidth rates (download/upload), limit total data usage, and limit duration of use.

All UniFi APs include Hotspot functionality:

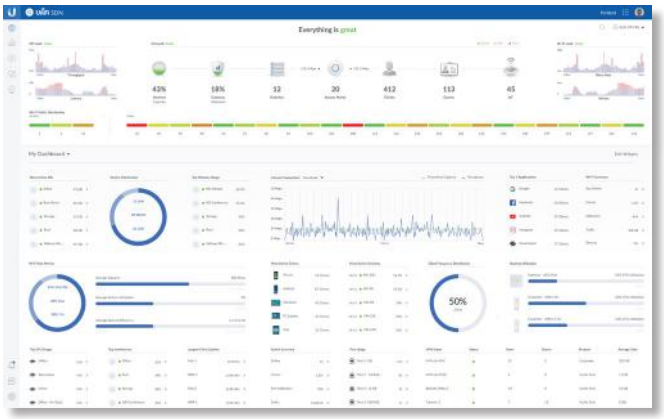
- Built-in support for billing integration using major credit cards.
- Built-in support for voucher-based authentication.
- Built-in Hotspot Manager for voucher creation, guest management, and payment refunds.
- Full customization and branding of Hotspot portal pages.

Multi-Site Management

A single UniFi Controller running in the cloud can manage multiple sites: multiple, distributed deployments and multi-tenancy for managed service providers. Each site is logically separated and has its own configuration, maps, statistics, guest portal, and administrator read/write and read-only accounts.

WLAN Groups

The UniFi Controller can manage flexible configurations of large deployments. Create multiple WLAN groups and assign them to an AP's radio. Each WLAN can be VLAN tagged. Dynamic VLAN tagging per Wi-Fi station (or RADIUS VLAN) is also supported.

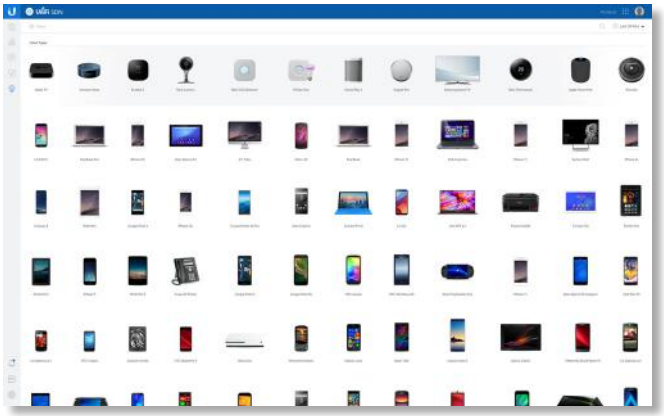


Dashboard

UniFi provides visual representation and status information about different aspects of your network.

RF Map

Monitor UniFi APs and analyze the surrounding RF environment.



Insights

UniFi displays the client types for a specific time period.

UniFi App

Manage your UniFi devices from your smartphone or tablet.

802.11ac Technology

Initial 802.11ac Wave 1 SU-MIMO (Single-User, Multiple Input, Multiple Output) technology allows an earlier-generation AP, such as the UniFi AC Pro AP, to communicate with only one client at a time.

802.11ac Wave 2 MU-MIMO (Multi-User, Multiple Input, Multiple Output) technology allows a Wave 2 AP, such as the UniFi IW HD AP, to communicate with multiple clients at the same time – significantly increasing multi-user throughput and overall user experience.

The following describes a 5-client scenario:

MU-MIMO Assuming the same conditions, a Wave 2 AP provides up to 75% improvement[1] overall over a Wave 1 AP. This improvement increases wireless performance and/or serves more clients at the same performance level.

4x4 Spatial Streams At any single time, a Wave 2 AP can communicate with the following MU-MIMO clients:

- four 1x1 clients
- two 2x2 clients
- one 2x2 client and two 1x1 clients
- one 3x3 client and one 1x1 client

A 4x4 Wave 2 AP delivers up to 33% greater performance[1] than a Wave 1 AP that is 3x3 in both radio bands.

Real-World Performance The UniFi IW HD AP is the first UniFi 802.11ac Wave 2 AP using the in-wall design. Combining the performance increases from MU-MIMO technology and the use of 4x4 spatial streams, the UniFi IW HD AP delivers up to 125% greater performance[1] than a typical Wave 1 AP.

Client Compatibility For optimal performance, use MU-MIMO clients. SU-MIMO clients will also benefit and gain up to 10-20% greater performance when used with the UniFi IW HD AP.

[1] *Actual performance values may vary depending on environmental and installation conditions.*

High-Density Scenarios

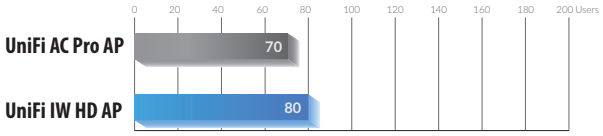
For high-density environments, such as hotel suites and meeting rooms where there are numerous clients in a relatively small space, we recommend the UniFi IW HD AP.

Both Wave 1 and Wave 2 APs offer 28 independent (non-overlapping) channels: three for the 2.4 GHz band and twenty-five for the 5 GHz band, including DFS channels.

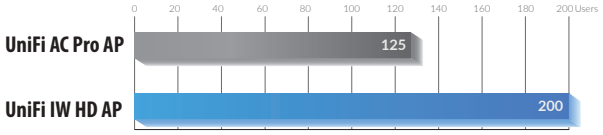
When you use the 2.4 GHz band in a high-density location, you encounter self-interference and channel saturation. When you use the 5 GHz band, you can deploy smaller cells (coverage areas), so you can support more clients in any cell that deploys more than one AP.

With the advantages of MU-MIMO technology and 4x4 spatial streams, the UniFi IW HD AP can support more than triple the number of users[2] than a typical Wave 1 AP.

Recommended Maximum Number of Users



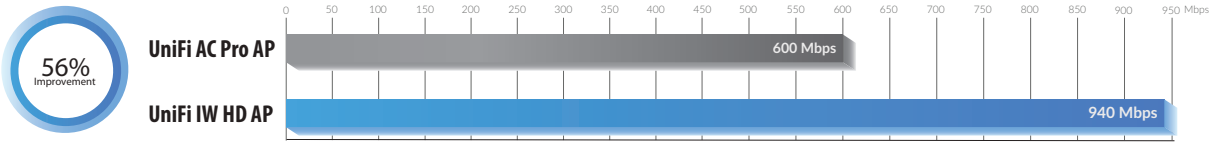
Theoretical Maximum Number of Users



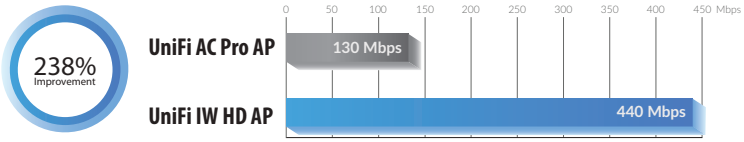
For more information, go to:
ubnt.link/UniFi-UAPs-High-Density

[2] *Actual numbers may vary depending on environmental and installation conditions.*

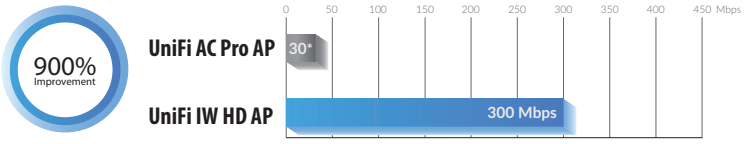
Single-Client Aggregate Throughput



10-Client Aggregate Throughput



100-Client Aggregate Throughput



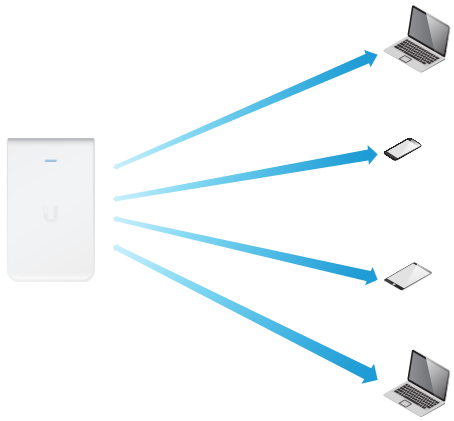
* *Mbps*

Model Summary

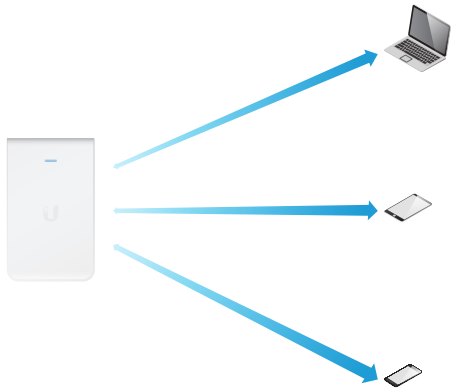
802.11ac Wave 1 SU-MIMO

SU-MIMO: A Wave 1 AP communicates with one client at a time.

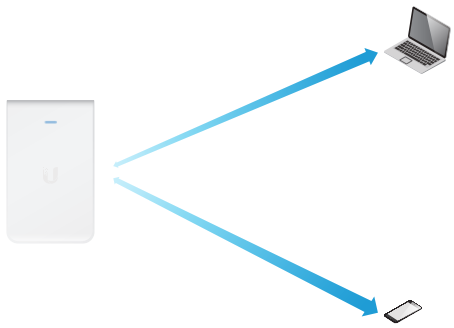
802.11ac Wave 2 MU-MIMO



MU-MIMO with 1x1 clients: The UniFi IW HD AP communicates with four 1x1 clients at a time.



MU-MIMO with 2x2 and 1x1 clients: The UniFi IW HD AP communicates with one 2x2 client and two 1x1 clients at a time.



MU-MIMO with 3x3 and 1x1 clients: The UniFi IW HD AP communicates with one 3x3 client and one 1x1 client at a time.

	UAP-IW-HD
Environment	Indoor
Simultaneous Dual-Band	✓
2.4 GHz Radio Rate	300 Mbps
2.4 GHz MIMO	2x2
5 GHz Radio Rate	1733 Mbps
5 GHz MIMO	4x4
Secondary Ethernet Port	✓ (4 Additional Ports)
PoE Mode	802.3af PoE 802.3at PoE+
PoE Passthrough	✓*
Wall Mount	✓
Wireless Uplink	✓
DFS Certification	✓

* *Requires PoE 802.3at PoE+ switch.*

Hardware Overview

The sleek and elegant UniFi In-Wall HD AP transforms an Ethernet wall connection into a simultaneous, dual-band 802.11ac Wi-Fi Access Point with 4x4 MIMO technology. Available in single- and 25-packs.

Easy Mounting The back plate offers multiple mounting holes for use with a variety of 1-gang electrical wall boxes.

LED The unique provisioning LED provides administrator location tracking and alerts for each device.

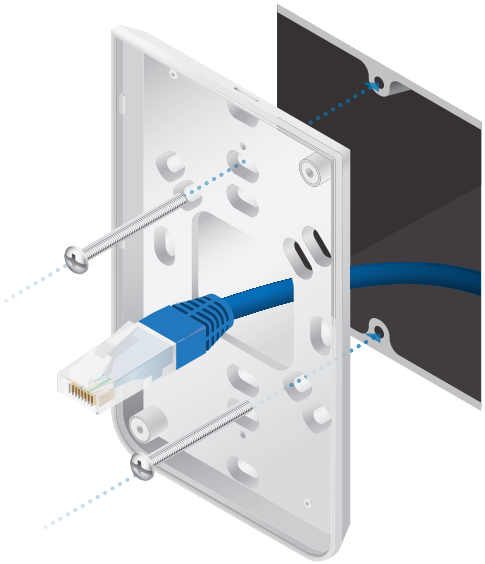
Secondary Gigabit Ethernet Four ports are available for bridging – one of which offers PoE passthrough when the AP is powered by an 802.3at PoE+ switch.

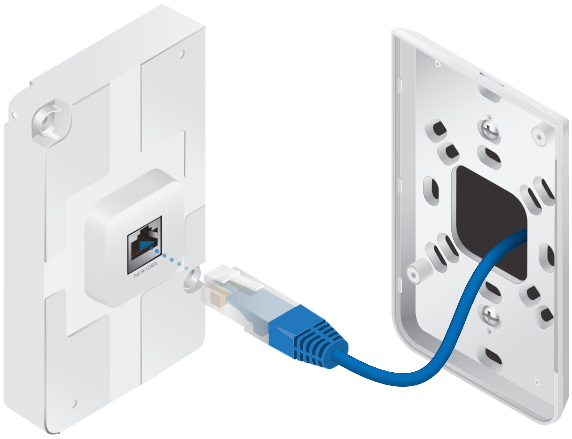
Superior Processing Power The UniFi IW HD AP is capable of complex operations (guest control, filtering, and other resource-intensive tasks) that may slow down a lesser-equipped AP.

Power over Ethernet (PoE) Standard The UniFi IW HD AP can be conveniently powered by an 802.3af or 802.at compliant switch. We recommend powering your UniFi devices with a UniFi PoE Switch (sold separately).

UniFi PoE Switch Available in 8*, 16, 24, and 48-port versions with multiple power output options, the UniFi PoE Switch conveniently offers auto-sensing IEEE 802.3af PoE/802.3at PoE+.

* *The US-8 and US-8-60W do not support 802.3at PoE+.*





Connecting the Ethernet Cable to the UniFi In-Wall HD AP

UAP-IW-HD Specifications

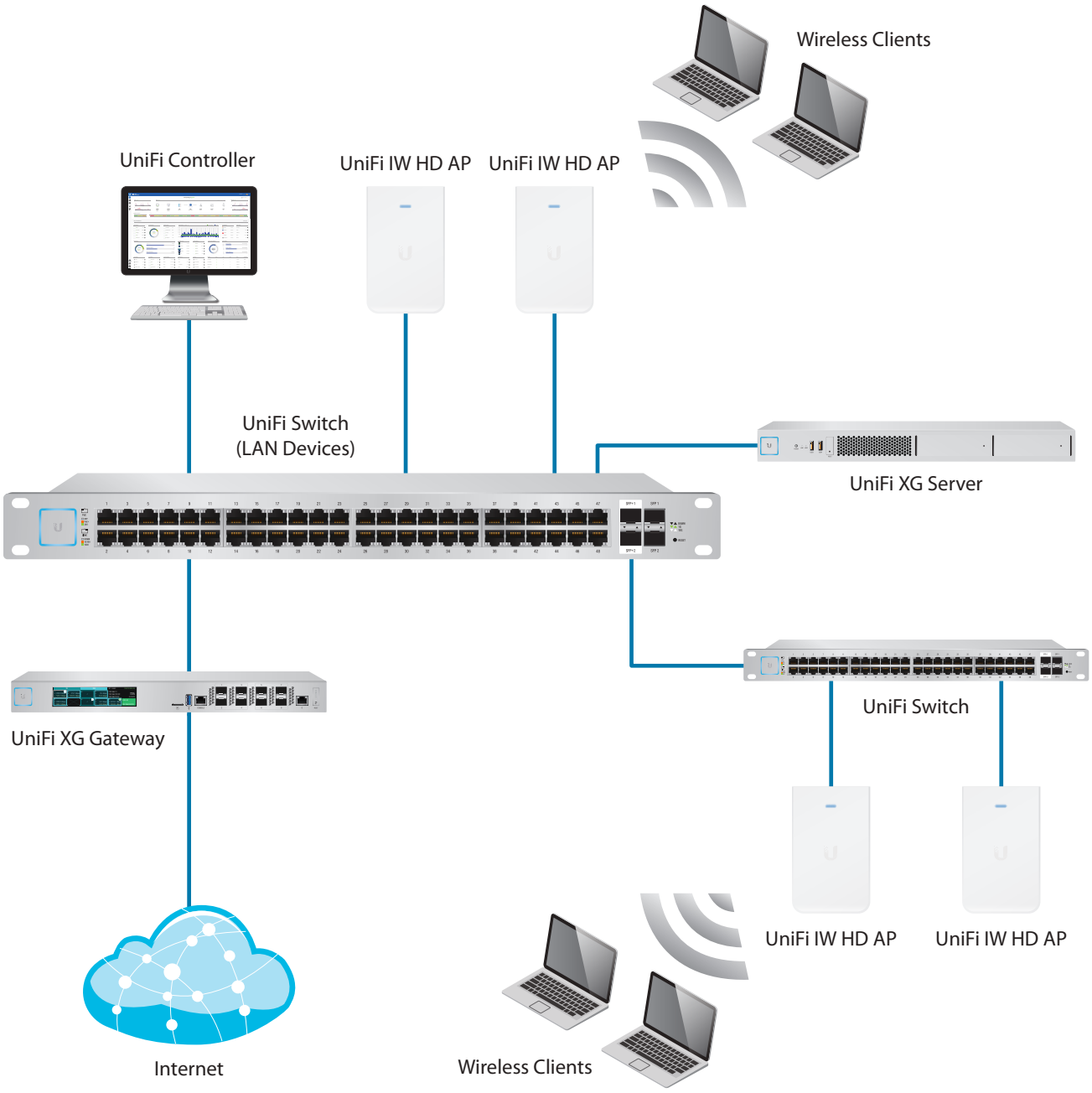
UAP-IW-HD	
Dimensions	139.7 x 86.7 x 25.75 mm (5.5 x 3.41 x 1.01")
Weight	210 g (7.41 oz)
Networking Interface	(5) 10/100/1000 Ethernet Ports
Buttons	Reset
Power Method	802.3af PoE 802.3at PoE+
Supported Voltage Range	44 to 57VDC
Power Supply	UniFi Switch (PoE)
PoE Out	48V Passthrough (Pins +1, 2; -3, 6)
Power Save	Supported
Beamforming	Supported
Maximum Power Consumption with PoE Passthrough	11W 23W*
TX Power 2.4 GHz 5 GHz	 23 dBm 26 dBm
Antennas Dual-Band Single-Band	 (2) Single-Port, Single-Polarity Dual-Band Antennas, 2.4 GHz: 1.8 dBi Each, 5 GHz: 3.4 dBi Each (2) Single-Port, Dual-Polarity, Single-Band Antennas, 5 GHz: 6 dBi Each
Wi-Fi Standards	802.11 a/b/g/n/r/k/v/ac/ac-wave2
Wireless Security	WEP, WPA-PSK, WPA-Enterprise (WPA/WPA2, TKIP/AES) 802.11w/PMF
BSSID	Up to 8 per Radio
Mounting	1-Gang Electrical Wall Box (Not Included)
Operating Temperature	-10 to 60° C (14 to 140° F)
Operating Humidity	5 to 95% Noncondensing
Certifications	CE, FCC, IC

* *Requires 802.3at PoE+ switch.*

Advanced Traffic Management	
VLAN	802.1Q
Advanced QoS	Per-User Rate Limiting
Guest Traffic Isolation	Supported
WMM	Voice, Video, Best Effort, and Background
Concurrent Clients	200+

Supported Data Rates (Mbps)	
Standard	Data Rates
802.11a	6, 9, 12, 18, 24, 36, 48, 54 Mbps
802.11n	6.5 Mbps to 300 Mbps (MCS0 - MCS15, HT 20/40)
802.11ac	6.5 Mbps to 1.7 Gbps (MCS0 - MCS9 NSS1/2/3/4, VHT 20/40/80) 58 Mbps to 1.7 Gbps (MCS0 - MCS9 NSS1/2, VHT 160)
802.11b	1, 2, 5.5, 11 Mbps
802.11g	6, 9, 12, 18, 24, 36, 48, 54 Mbps

System Example



UniFi Switch Compatibility

The UniFi switches are compatible with UniFi Access Points and UniFi G3 Video Cameras, as detailed below.

AP/Camera Model	US-8	US-8-60W	US-8-150W	US-16-150W	US-24-250W	US-24-500W	US-48-500W	US-48-750W
UVC-G3			✓	✓	✓	✓	✓	✓
UVC-G3-AF	✓	✓	✓	✓	✓	✓	✓	✓
UVC-G3-DOME	✓	✓	✓	✓	✓	✓	✓	✓
UVC-G3-FLEX	✓	✓	✓	✓	✓	✓	✓	✓
UAP			✓	✓	✓	✓	✓	✓
UAP-LR			✓	✓	✓	✓	✓	✓
UAP-PRO	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-LITE	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-LR	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-PRO	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-M	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-M-PRO	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-IW*	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-IW-PRO*	✓	✓	✓	✓	✓	✓	✓	✓
UAP-AC-HD	–	–	✓	✓	✓	✓	✓	✓
UAP-IW-HD*	✓	✓	✓	✓	✓	✓	✓	✓

✓ Compatible with the UniFi switch

Requires an Instant 802.3af Gigabit PoE Converter: INS-3AF-I-G or INS-3AF-O-G

Note:

* *UAP-AC-IW, UAP-AC-IW-PRO, and UAP-IW-HD: PoE passthrough is supported by all of the switches listed above except for models US-8 and US-8-60W.*

Related Product Datasheets

UniFi Switch 8, UniFi Switch 8-60W:

dl.ubnt.com/datasheets/unifi/UniFi_Switch_8_DS.pdf

UniFi PoE Switches:

dl.ubnt.com/datasheets/unifi/UniFi_PoE_Switch.pdf

Specifications are subject to change. Ubiquiti products are sold with a limited warranty described at: www.ubnt.com/support/warranty
The limited warranty requires the use of arbitration to resolve disputes on an individual basis, and, where applicable, specify arbitration instead of jury trials or class actions.
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