



# H3C WA6022H New Generation Wall-Plate Access Point

**802.11ax Indoor Series Access Point**

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New H3C Technologies Co., Limited

# H3C WA6022H Wi-Fi 6 (802.11ax) Wall-Plate Wireless Access Point

## Overview

H3C WA6022H is a Wi-Fi 6 (802.11ax) wall-plate access point (AP) individually developed by New H3C Technologies Co., Ltd. (H3C). It can be widely applied to scenarios such as enterprises, schools, and healthcare.

The AP adopts a dual-band and four-stream design with a maximum access rate of 1500Mbps. For 5 GHz radio 2 spatial streams, the maximum negotiation rate is 1200Mbps. For 2.4 GHz radio 2 spatial streams, the maximum negotiation rate is 300Mbps.

The AP features flexible installation methods, including 86×86mm panel mounting, wall mounting, and ceiling mounting.



WA6022H Wi-Fi 6 (802.11ax) wireless access point

## Product features

### Install AP in 3 to 5 minutes, 5 steps only

Wall-Mount series AP uses the international standard wall plate design. Installing an AP is just as simple as installing other switching panels. All it takes is 5 steps in less than 5 minutes which effectively accelerates the wireless network deployment process.

## Operating mode

The built-in all-in-one version of the WA6022H AP enables the switching of operating mode as required, to save the implementation costs and is usable upon unpacking.

## Fit AP mode

The WA6022H supports the Fit AP mode and can be managed by the wireless controller equipped with the Comware system. In this networking mode, the user can locally manage the APs in batches.

## Cloud AP mode

WA6022H supports H3C Cloudnet solution that enables wireless networking without hardware AC and authentication server. It can perform authentications via PSK, Portal, SMS, and WeChat. Customized development is implemented for multi-branch scenarios such as hotel chains and supermarkets, enabling features such as easy deployment, hierarchical and decentralized management, smart large screen at headquarters, and customized configuration templates. The Cloudnet smart O&M platform enables users to grasp the status of wireless devices, networks, and terminal devices, and allows for simple management and O&M. This helps to reduce customer capital investment and O&M labor costs, and increase efficiency.

WA6022H supports Quicknet local automatic networking solution. Automatic discovery and construction of devices to achieve unified management of multiple devices and ensure network experience by relying on AP intelligent native technology

## Smart O&M

The visualized, measurable, and auto-optimized H3C smart O&M system facilitates operation and maintenance and saves labor costs.

### Data visualization

The H3C smart O&M system collects and displays rich O&M data via telemetry techniques. On the terminal side, it records the terminal's roaming log, authentication log, signal strength, important packet interaction log, packet loss, latency, etc., and can identify over 150 reasons for terminal failures to go online, over 140 reasons for terminals to go offline, and over 100 reasons for authentication failures. On the AP side, it collects data such as AP association failures, reasons for detaching from the AC, traffic composition of each wired interface, error packet information, radio traffic composition, radio channel utilization, radio interference strength, and WIPS wireless attacks.

### Measurability

The H3C smart O&M system has established a perfect evaluation system to measure the user experience, device health status, and network status, enabling the administrators to view and maintain the network easily.

## Security protection of wired and wireless networks

### Terminal device access and admission security

With the wireless controller, wireless switches, and authentication system self-developed by H3C, WA6022H can support authentication and encryption via 802.1x, PSK, MAC address, and Portal. This ensures network security.

## Wireless intrusion prevention system (WIPS)

WA6022H supports WIPS. In combination with the wireless controller/wireless switch, it supports WIPS features such as detection, intrusion detection, as well as blacklist and whitelist of rogue devices at the same time. The WIPS features enable the device to detect, identify, take countermeasures against, and effectively intercept rogue devices.

## Wired network security

WA6022H supports wired access and control of APs. The wireless port of APs can be authenticated as an 802.1X client of the wired access network to ensure the legality of the AP. It guarantees the security of the wireless tunnel through encryption methods such as CAPWAP tunnel and DTLS.

## Radio resource management (RRM)

RRM monitors in real time the environmental conditions such as the utilization rate of radio channels, channel interference, and signal conflict through systematic intelligent radio management. Moreover, it adjusts in real time the radio parameters such as the working channel, bandwidth, and power to maintain optimal radio resource status. In this way, it enables auto network planning and auto network repair.

## Roaming optimization

The wireless AP supports the fast BSS transition feature defined in the 802.11r standard that helps to facilitate the roaming of wireless users, reduce the possibility of network interruptions, and enhance roaming quality. Through the 802.11k mechanism, the AP and the wireless client perform interactive detection and perceive multi-dimensional network topologies. The AC identifies and comprehensively calculates the roaming timing and access location of the wireless client from a full perspective and negotiates switching with the client via the 802.11v and 802.11r mechanisms. During the switching period, the AC will ensure the traffic of the downlink service, to achieve seamless switching and improve user experience.

## Only 11ax access

WA6022H supports the only 11ax access feature. The Wi-Fi 6 (802.11ax) is backward-compatible with 802.11a/b/g/n/ac standard, so the users of the 802.11a/b/g/n/ac standard can access a Wi-Fi 6 (802.11ax) wireless access device. However, its compatibility causes a decline in the actual performance of devices with high access capabilities such as Wi-Fi 6 (802.11ax) to some extent. The H3C devices enable the user to set the access mode of a certain radio frequency to only 11ax (only users using Wi-Fi 6 (802.11ax) can access). This ensures bandwidth transmission and device performance.

## Orthogonal frequency division multiple access (OFDMA)

WA6022H supports OFDMA technology. An AP can divide wireless bandwidth and transmit data to multiple terminals simultaneously via different subcarriers. This reduces transmission latency caused by multi-user radio resource contention and backoffs and improves the user experience of low-latency applications such

as speech output and video in multi-user scenarios.

## Spatial reuse (SR)

WA6022H supports spatial reuse technology and basic service set (BSS) coloring technology. With these technologies, it identifies the color of the packets at the link layer to control the terminal device and adjusts transmit power to improve the reuse rate of channels in high-density deployment and avoid co-channel interference in case of simultaneous multi-user operation. This greatly improves the utilization rate of spectrum resources.

## Orthogonal frequency division multiple access (TWT)

WA6022H supports the target wake times (TWT) technology. It allows the AP to uniformly schedule the wake-up and sleep time of the terminal, reducing contention and improving power efficiency by decreasing unnecessary wake-up times of the terminal.

## Flexible forwarding

When the WA6022H AP is connected via a wide area network (WAN), the wireless access points (AP) are deployed in branch offices, while wireless access controllers (AC) are deployed in headquarters. In the traditional forwarding mode, all packets are sent from APs to ACs, and centrally forwarded by the AC. However, for WA6022H, the packets can be converted to wired packets on the wireless access device directly avoiding data packets sent through AC but forwarded locally, which significantly saves wired network bandwidth. Besides, WA6022H supports flexible policy-based forwarding and allows terminal devices of the same wireless service to implement centralized forwarding and local forwarding, so as to release export bandwidth and save costs of network bandwidth.

## IPv4 and IPv6 dual stack (Native IPv6)

WA6022H is fully compliant with IPv6 and implements dual IPv4/IPv6 protocol stacks. It can automatically register on the wireless controller and provide wireless services no matter in an IPv4 or IPv6 network via broadcast, multicast, DHCP option 43, or DNS, so that it never runs as an information silo.

# Specifications

## Hardware specifications

|                                                                  |                         |
|------------------------------------------------------------------|-------------------------|
| Name                                                             | WA6022H                 |
| Dimensions (with no antenna connectors and mounting accessories) | 45×86×86 mm (H x W x D) |

|                                           |                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                                      | WA6022H                                                                                                                                                                                                                                                                                               |
| Fixed port                                | Uplink: 10/100/1000M×1, RJ-45<br>LAN: 10/100/1000M×1, RJ-45                                                                                                                                                                                                                                           |
| PoE In                                    | 802.3af                                                                                                                                                                                                                                                                                               |
| Built-in antenna                          | Internal Omni-directional antenna<br>3dBi antenna gain @2.4GHz<br>4dBi antenna gain @5GHz                                                                                                                                                                                                             |
| Working frequencies                       | 802.11ax/ac/n/a: 5.725 GHz - 5.850 GHz; 5.47 GHz - 5.725 GHz; 5.15 GHz - 5.35 GHz<br>802.11ax/b/g/n: 2.4 GHz - 2.483 GHz                                                                                                                                                                              |
| Modulation technology                     | OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps<br>DSSS: DBPSK@1Mbps, DQPSK@2Mbps, CCK@5.5/11Mbps<br>MIMO-OFDM (11n): MCS 0-15<br>MIMO-OFDM (11ac): MCS 0-9<br>MIMO-OFDM (11ax): MCS 0-11                                                                                         |
| Modulation mode                           | 11b: DSS: CCK@5.5/11Mbps, DQPSK@2Mbps, DBPSK@1Mbps<br>11a/g: OFDM:64QAM@48/54Mbps, 16QAM@24Mbps, QPSK@12/18Mbps, BPSK@6/9Mbps<br>11n: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM<br>11ac/ac wave2: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM<br>11ax: MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM |
| Transmit power (combined power)           | 20 dBm (Varies depending on local laws and regulations)                                                                                                                                                                                                                                               |
| Adjustable power granularity              | 1 dBm                                                                                                                                                                                                                                                                                                 |
| Power consumption                         | ≤15W (include USB)                                                                                                                                                                                                                                                                                    |
| Reset/restoration to factory default      | Supported                                                                                                                                                                                                                                                                                             |
| Operating temperature/storage temperature | -10°C to +55°C/-40°C to +70°C                                                                                                                                                                                                                                                                         |
| Operating humidity/storage humidity       | 5% - 95% (non-condensing)                                                                                                                                                                                                                                                                             |
| Protection grade                          | IP31                                                                                                                                                                                                                                                                                                  |
| Safety compliance                         | GB 4943, EN/IEC/UL 60950-1, EN/IEC/UL 62368-1                                                                                                                                                                                                                                                         |

|                               |                                                                                                                                                                                              |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                          | WA6022H                                                                                                                                                                                      |
| EMC                           | EN 55024, EN 55032, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 60601-1-2, EN 301 489-1, EN 301 489-17 |
| Environment                   | GB/T 2423, GB/T 13543, GB 4208                                                                                                                                                               |
| Radio frequency certification | FCC Part 15, EN 300 328, EN 301 893, and MIIT SRRC                                                                                                                                           |
| MTBF                          | 2230121H                                                                                                                                                                                     |

## Software specifications

|                |                                               |                                                                  |
|----------------|-----------------------------------------------|------------------------------------------------------------------|
| Name           |                                               | WA6022H                                                          |
| Positioning    |                                               | Indoor wall-plate AP (5 GHz 2*2 MIMO + 2.4 GHz 2*2 MIMO)         |
| Operating mode | Fit mode                                      | Controlled by AC                                                 |
|                | Cloud mode (Fat mode)                         | Controlled via Cloudnet or operates independently                |
|                | Mode switching                                | Mode switching via command lines, ACs, Cloudnet, or reset button |
| 11ax supported | Maximum Wi-Fi 6 (802.11ax) transmission speed | 1500Mbps<br>(1200Mbps + 300Mbps)                                 |
|                | TWT                                           | Supported                                                        |
|                | BSS Color                                     | Supported                                                        |
|                | OFDMA                                         | Supported                                                        |
|                | Only 11ax                                     | Supported                                                        |
| WLAN basics    | Working frequencies                           | 5 GHz + 2.4 GHz                                                  |
|                | A-MPDU                                        | Supported                                                        |
|                | A-MSDU                                        | Supported                                                        |
|                | Maximum likelihood demodulation (MLD)         | Supported                                                        |
|                | Maximal ratio combining (MRC)                 | Supported                                                        |
|                | Spatial-Time block coding (STBC)              | Supported                                                        |
|                | Low-density parity check (LDPC)               | Supported                                                        |

|                           |                                                |                                                                                                                                                                                                                                       |
|---------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Recommended number of clients                  | 100                                                                                                                                                                                                                                   |
|                           | Maximum number of SSID                         | 8                                                                                                                                                                                                                                     |
| WLAN extended             | STA related                                    | STA offline anomaly check, STA aging, statistics and status query                                                                                                                                                                     |
|                           | User number limit                              | Supported                                                                                                                                                                                                                             |
|                           | Link integrity check                           | Supported                                                                                                                                                                                                                             |
|                           | Broadcast probe acknowledgment control         | Supported                                                                                                                                                                                                                             |
|                           | Prohibition of client access with weak signals | Supported                                                                                                                                                                                                                             |
|                           | Hidden SSID                                    | Supported                                                                                                                                                                                                                             |
|                           | WLAN RRM                                       | Supported                                                                                                                                                                                                                             |
|                           | Wireless bridging                              | Supported                                                                                                                                                                                                                             |
|                           | 11k                                            | Supported                                                                                                                                                                                                                             |
|                           | 11v                                            | Supported                                                                                                                                                                                                                             |
|                           | 11r                                            | Available in Fit mode                                                                                                                                                                                                                 |
| Security control policies | Encryption                                     | TKIP, CCMP, WPA3                                                                                                                                                                                                                      |
|                           |                                                | Multiple encryption key triggered dynamic unicast/multicast key update                                                                                                                                                                |
|                           | 802.11i                                        | Supported                                                                                                                                                                                                                             |
|                           | Authentication                                 | 802.1X authentication, MAC address authentication, PSK authentication, Portal authentication;<br>Open system/shared key authentication;<br>Enhanced open system authentication<br>Mixed access of WPA, WPA2, WPA3, and Pre-RSNA users |
|                           | User isolation                                 | Layer 2 user isolation<br>SSID-based user isolation                                                                                                                                                                                   |
|                           | Forwarding security                            | Packet filtering, MAC address filtering, and broadcast storm suppression                                                                                                                                                              |
|                           | SSID and VLAN binding                          | Supported                                                                                                                                                                                                                             |
|                           | WIDS/WIPS                                      | Supported                                                                                                                                                                                                                             |
|                           | MFP (802.11w)                                  | Supported                                                                                                                                                                                                                             |

|                              |                                                                |                                                                                                                                                                       |
|------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | 802.1X Client                                                  | Supported                                                                                                                                                             |
| AAA                          | Radius Client                                                  | Supported                                                                                                                                                             |
|                              | Multiple-domain authentication server                          | Supported                                                                                                                                                             |
|                              | Backup authentication server                                   | Supported                                                                                                                                                             |
| Layer 2 and layer 3 features | IP address configuration                                       | Static IP or DHCP assigned IP (option 60)                                                                                                                             |
|                              | Native IPv6                                                    | Supported                                                                                                                                                             |
|                              | IPv6 Portal                                                    | Supported                                                                                                                                                             |
|                              | IPv6 SAVI                                                      | Supported                                                                                                                                                             |
|                              | ACL                                                            | IPv4/IPv6                                                                                                                                                             |
|                              | NAT                                                            | Available in Cloud mode                                                                                                                                               |
|                              | PPPoE Client                                                   | Available in Cloud mode                                                                                                                                               |
|                              | Local forwarding                                               | Local forwarding based on SSID+VLAN supported in Fit mode                                                                                                             |
| QoS                          | 802.11e                                                        | WMM                                                                                                                                                                   |
|                              | Priority                                                       | Ethernet port based 802.1p identification and marking priority                                                                                                        |
|                              |                                                                | Priority mapping for wired and wireless connection                                                                                                                    |
|                              | Strategic QoS mapping                                          | Distinctive QoS policies based on individual SSID/VLAN                                                                                                                |
|                              | Layer 2 to Layer 4 packet filtering and traffic classification | Supported                                                                                                                                                             |
|                              | CAR                                                            | Supported                                                                                                                                                             |
|                              | User bandwidth management                                      | Bandwidth allocation per STA<br>All STAs sharing bandwidth with a common SSID<br>Dynamical adjusting of the available bandwidth of the STAs in terms of service needs |
|                              | Load balancing                                                 | Traffic-based load balancing<br>User-based load balancing<br>Radio-based load balancing for dual-5G devices                                                           |
|                              | Spectrum guide                                                 | Supported                                                                                                                                                             |
|                              | CAC (Call Admission Control)                                   | Session-based and channel usage-based CAC                                                                                                                             |
|                              | Application recognition                                        | Supports audio and video optimization (SQA/UCC) in Fit mode                                                                                                           |

|                            |                                                 |                                                                                                      |
|----------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------|
|                            | Airtime fairness (ATF)                          | Supported                                                                                            |
| Green features             | Green AP mode                                   | Supported                                                                                            |
|                            | Dynamic MIMO power saving                       | Supported                                                                                            |
|                            | Enhanced automatic power save delivery (E-APSD) | Supported                                                                                            |
|                            | SM Power Save                                   | Supported                                                                                            |
| Management and maintenance | Centralized AC management                       | Fit mode: supports centralized management<br>Cloud mode: supports version upgrade and mode switching |
|                            | Cloudnet management                             | Available in Cloud mode                                                                              |
|                            | Local Web                                       | Available in Cloud mode                                                                              |
|                            | Telnet                                          | Available in Cloud mode                                                                              |
|                            | SSH                                             | Available in Cloud mode                                                                              |
|                            | Debug serial port                               | Supported                                                                                            |
|                            | Smart O&M                                       | Available in Fit/Cloud mode                                                                          |

## Ordering Information:

| Product ID        | Product Description                                                                    |
|-------------------|----------------------------------------------------------------------------------------|
| EWP-WA6022H       | H3C WA6022H Internal Antennas 4 Streams Dual Radio 802.11ax/ac/n Walljack Access Point |
| EWPAM1HPOE-GL     | EWPAM1HPOE 55V/30W Single port POE Injector, Overseas Version                          |
| ADP040-54V-PoE-GL | H3C 54V 40W High Power Adapter Power Supply (including PoE Injector)                   |



The Leader in Digital Solutions

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