

**AP6010DN-AGN Wireless LAN Access Point  
V200R001C00**

**Product Description**

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# 1 Product Orientation and Characteristics

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## Product Orientation

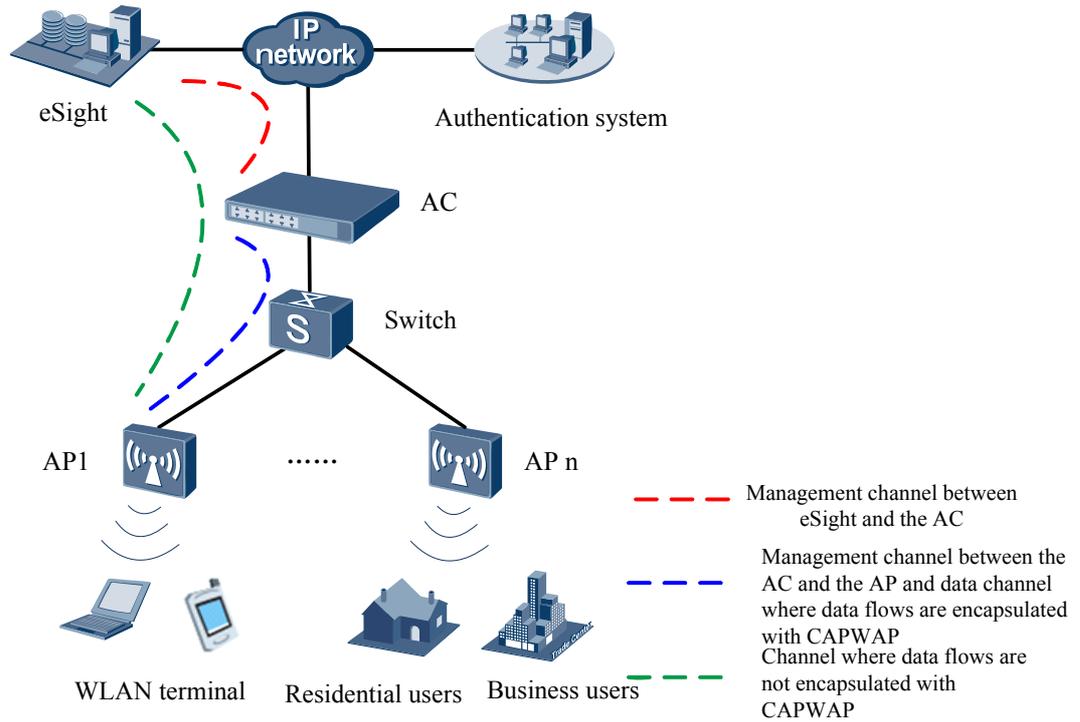
The AP6010DN is a standard indoor dual-band 2x2 MIMO access point (AP) that supports 2.4 GHz and 5 GHz frequency bands. It complies with IEEE 802.11a/b/g/n connects a large number of users, and works as a Fit AP. The AP6010DN has the following advantages:

- High reliability
- High security
- Simple network deployment
- Automatic AC discovery and configuration
- Real-time management and maintenance

The AP6010DN is recommended for use in buildings with a simple structure, small area, a high density of users, and require a high capacity, for example, small-scale meeting rooms, bars, and entertainment places. The AP6010DN APs can be flexibly deployed in these places and work in both Fit AP and bridge mode.

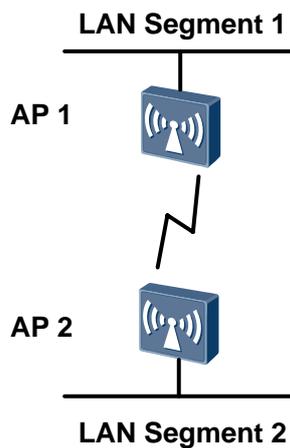
The AP6010DN is for use in Fit AP and bridge networking scenarios.

**Figure 1-1** Fit AP networking

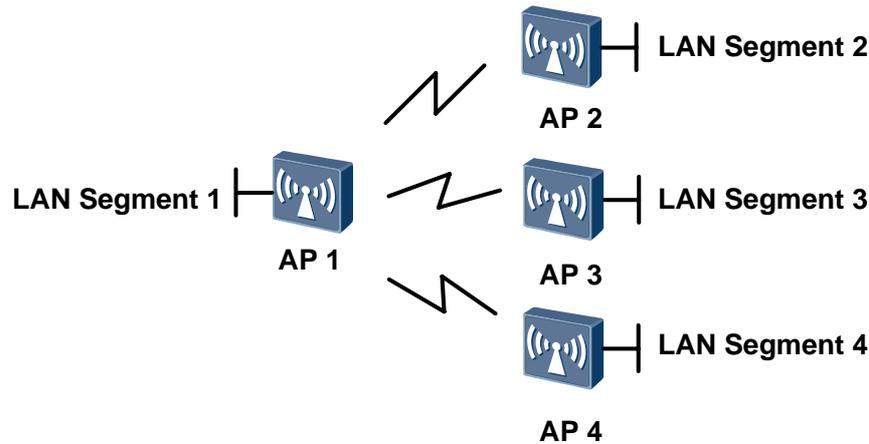


In this networking, the AP6010DN functions as a Fit AP that provides only data forwarding functions. The AC is responsible for user access, authentication, AP management, and configurations of security protocols, routing, and QoS.

**Figure 1-2** WDS networking (point-to-point)



**Figure 1-3** WDS networking (point-to-multipoint)



In this networking, the AP6010DN connects two or more independent wired or wireless LANs through wireless links. In a Wireless Distribution System (WDS), the AP6010DN supports point-to-point, point-to-multipoint networking modes. The AP implements wireless bridging and access functions using 5 GHz and 2.4 GHz frequency bands.

## Product Characteristics

The AP6010DN has the following characteristics on the WLAN.

Product Characteristics	Description
<b>Highly reliable wireless access</b>	<ul style="list-style-type: none"> <li>Complies with IEEE 802.11 a/b/g/n.</li> <li>Provides a maximum rate of 300 Mbit/s for each radio.</li> <li>Uses Wi-Fi Multimedia (WMM) to implement priority scheduling based on the service type (voice, video, or data), and implements end-to-end QoS through priority mapping on wireless and wired interfaces.</li> <li>Supports wired link integrity check.</li> <li>Supports load balancing.</li> <li>Supports roaming without service interruptions.</li> <li>Supports AC hot standby.</li> <li>Supports the beamforming technique.</li> <li>Uses the latest 802.11n chip to increase the performance by 20%.</li> <li>Has a strong coverage capability.</li> </ul>
<b>Comprehensive user access control capability</b>	<ul style="list-style-type: none"> <li>Supports access control lists (ACLs) and user access controls based on user group policies.</li> <li>Provides per-user bandwidth management.</li> <li>Supports user isolation policies.</li> </ul>
<b>High security</b>	The AP6010DN supports multiple authentication and encryption modes and provides various measures to enhance system security:

Product Characteristics	Description
	<ul style="list-style-type: none"> <li>• Wired Equivalent Privacy (WEP)</li> <li>• Wi-Fi Protected Access (WPA)/WPA2</li> <li>• WLAN Authentication and Privacy Infrastructure (WAPI)</li> <li>• 802.1x</li> <li>• Detection of unauthorized APs</li> </ul>
<b>Flexible networking and environment adaptability</b>	<ul style="list-style-type: none"> <li>• For use in Fit AP and WDS networking scenarios.</li> <li>• Automatically selects the transmission rate, channel, and transmit power to adapt to multiple radio environments and limit interference in real time.</li> <li>• Adjusts bandwidth allocation based on the number of users and radio environment.</li> </ul>
<b>Simple device management and maintenance</b>	<ul style="list-style-type: none"> <li>• Automatically discovers ACs and loads the AC (plug-and-play) configuration.</li> <li>• Supports batch upgrade.</li> <li>• Monitored by the NMS in real time. You can remotely configure APs and locate faults on APs using the NMS.</li> <li>• Supports the Link Layer Discovery Protocol (LLDP) to implement automatic link discovery and obtain the network topology.</li> </ul>

# 2 Product Structure

## Appearance

Figure 2-1 shows the appearance of the AP6010DN.



### NOTE

The actual device appearance may differ from the figure, but the appearance does not affect device

Figure 2-1 Appearance of the AP6010DN



## Ports

Figure 2-2 shows ports on the AP6010DN.

Figure 2-2 Ports of the AP6010DN



1. Console port.
2. ETH/PoE: 10/100/1000M port, which connects to the Ethernet. The port can connect to a PoE switch or a PoE power source to receive power.

3. Default: restores factory settings.
4. Power input port: 12 V DC.

## LED Indicators

Type	Color	Frequency	Description
Default status	Green	Steady on	The AP is just powered on.
Running	Green	0.5 Hz	The system is running properly, the Ethernet connection is correct, and STAs are associated with the AP.
		0.2 Hz	The system is running properly, the Ethernet connection is correct, no user is connected, and the system is in low power consumption state.
Alarm	Green	4 Hz	<ul style="list-style-type: none"> <li>• The AP is being upgraded.</li> <li>• The CAPWAP tunnel is disconnected.</li> <li>• The AP is running properly, but does not go online.</li> </ul>
Error	Red	Steady on	A fault that affects services occurs and cannot be rectified automatically. For example, the system fails to load the DRAM or system software. The fault needs to be rectified manually.

# 3 Functions and Features

## Functions and Features Supported by the AP6010DN

**Table 3-1** Features

Features	Description
<b>WLAN features</b>	<ul style="list-style-type: none"> <li>• Compliance with IEEE 802.11a/b/g/n, providing a maximum rate of 300 Mbit/s for each radio</li> <li>• Priority mapping and packet scheduling based on a Wi-Fi Multimedia (WMM) profile to implement priority-based data processing and forwarding</li> <li>• Automatic and manual rate adjustment (the rate is adjusted automatically by default)</li> <li>• WLAN channel management and channel rate adjustment:               <ul style="list-style-type: none"> <li>– Number of 802.11a channels: 27</li> <li>– Number of 802.11b/g channels: 13</li> <li>– Number of 802.11n channels: 13 at 2.4 GHz 27 at 5 GHz</li> </ul> </li> <li>• Automatic channel scanning (the AP6010DN scans channels used by other APs, measures their interference, and reports the scanning result to the AC to trigger channel adjustment)</li> <li>• Service set identifier (SSID) hiding</li> <li>• Signal sustain technology (SST)</li> <li>• STA power-saving mode</li> <li>• Control and Provisioning of Wireless Access Points (CAPWAP)</li> <li>• Automatic AC discovery</li> </ul>
<b>Network features</b>	<ul style="list-style-type: none"> <li>• Compliance with IEEE 802.3u</li> <li>• Ports: Auto-negotiation of the rate and duplex mode and automatic switching between the Media Dependant Interface (MDI) and Media Dependant Interface Crossover (MDI-X) mode</li> <li>• 1024 unicast MAC addresses</li> <li>• VLAN assignment based on SSIDs</li> <li>• VLAN aggregation on uplink Ethernet ports</li> </ul>

Features	Description
	<ul style="list-style-type: none"> <li>• 4093 VLAN IDs (1-4093) and 16 virtual APs (VAPs)</li> <li>• Uplink ports in tagged and untagged mode</li> <li>• DHCP client</li> <li>• PPPoE dialup</li> <li>• Centralized data forwarding and local data forwarding</li> <li>• STA isolation in the same VLAN</li> <li>• ACL</li> <li>• LLDP</li> </ul>
<b>QoS features</b>	<ul style="list-style-type: none"> <li>• Priority mapping and packet scheduling based on WMM profiles to implement priority-based data processing and forwarding</li> <li>• WMM parameter management for each radio frequency</li> <li>• WMM power saving</li> <li>• Priority mapping for upstream packets and flow-based mapping for downstream packets</li> <li>• Queue mapping and scheduling</li> <li>• User-based bandwidth limiting</li> <li>• Adaptive bandwidth allocation (the system dynamically adjusts bandwidth based on the number of users and radio environment)</li> </ul>
<b>Security features</b>	<ul style="list-style-type: none"> <li>• Open system authentication</li> <li>• WEP authentication/encryption</li> <li>• WPA/WPA2 authentication and encryption</li> <li>• 802.1x authentication and encryption</li> <li>• WAPI authentication and encryption</li> <li>• SMS4 decryption for data packets</li> <li>• Wired link integrity check (the AP stops sending radio signals if the tunnel between the AP and AC is terminated)</li> </ul>
<b>Maintenance features</b>	<ul style="list-style-type: none"> <li>• AP management and maintenance by the AC</li> <li>• Plug-and-play: automatic AC discovery and automatic configuration loading</li> <li>• Batch upgrade</li> <li>• Debugging using Telnet and the serial interface</li> <li>• Real-time configuration monitoring and fast fault location by using the NMS</li> <li>• System status alarm</li> </ul>

# 4 Technical Specifications

## Specifications

**Table 4-1** Specifications of the AP6010DN

Item	Description	
Technical specifications	Dimensions (H x W x D)	50 mm x 180 mm x 180 mm
	Weight	0.4 kg
	System memory	<ul style="list-style-type: none"> <li>• 128 MB DRAM</li> <li>• 32 MB flash memory</li> </ul>
Power specifications	Power input	<ul style="list-style-type: none"> <li>• DC 12V±10%</li> <li>• POE Power:-48V DC</li> </ul>
	Maximum power consumption	10.2 W <b>NOTE</b> The maximum power consumption depends on local laws.
Environment parameters	Operating temperature	-10°C to +50°C
	Storage temperature	-40°C to +70°C
	Humidity	5% to 95% (non-condensing)
	Waterproof grade	IP31
	Altitude	-60m to 4000 m

## Antenna Parameters

**Table 4-2** Antenna parameters of the AP6010DN

Item	Description				
Antenna type	Built-in antenna				
Antenna gain	2.4G: 4dBi 5G: 5dBi				
Maximum number of concurrent users	≤ 128				
Maximum transmit power	20dBm(max) <ul style="list-style-type: none"> <li>You can adjust the transmit power by 100%, 50%, 25%, or 12.5%, with a step of 3 dBm.</li> <li>You can adjust the transmit power from the maximum to 15 dBm, with a step of 1 dBm.</li> </ul> <b>NOTE</b> Actual transmit power depends on local laws and regulations.				
Maximum number of non-overlapping channels	2.4 GHz <ul style="list-style-type: none"> <li>802.11b/g               <ul style="list-style-type: none"> <li>20 MHz: 3</li> </ul> </li> <li>802.11n               <ul style="list-style-type: none"> <li>20 MHz: 3</li> <li>40 MHz: 1</li> </ul> </li> </ul>	5 GHz <ul style="list-style-type: none"> <li>802.11a               <ul style="list-style-type: none"> <li>20 MHz: 21</li> </ul> </li> <li>802.11n               <ul style="list-style-type: none"> <li>20 MHz: 21</li> <li>40 MHz: 9</li> </ul> </li> </ul>			
Channel rate	802.11b: 1, 2, 5.5, and 11 Mbit/s				
	802.11g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s				
	802.11n data rate (2.4 GHz and 5 GHz)				
	MCS index	GI=800 ns		GI=400 ns	
		20 MHz (Mbit/s)	40 MHz (Mbit/s)	20 MHz (Mbit/s)	40 MHz (Mbit/s)
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
5	52	108	57.8	123	
6	58.5	121.5	65	135	

Item	Description				
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
	13	104	216	115.6	240
	14	117	243	130	270
	15	130	270	144.4	300
	<p><b>NOTE</b></p> <p>Modulation coding scheme (MCS) index: determines the spatial flow quantity, modulation, coding rate, and data rate.</p> <p>Guard interval (GI): indicates the period in nanoseconds the radio listens between packets.</p>				
Receiver sensitivity	2.4 GHz 802.11b (CCK) <ul style="list-style-type: none"> <li>-97 dBm @ 1 Mb/s</li> <li>-92 dBm @ 2 Mb/s</li> <li>-92 dBm @ 5.5 Mb/s</li> <li>-90 dBm @ 11 Mb/s</li> </ul>		2.4GHz 802.11g (non-HT20) <ul style="list-style-type: none"> <li>-92 dBm @ 6 Mb/s</li> <li>-91 dBm @ 9 Mb/s</li> <li>-90 dBm @ 12 Mb/s</li> <li>-87 dBm @ 18 Mb/s</li> <li>-83 dBm @ 24 Mb/s</li> <li>-80 dBm @ 36 Mb/s</li> <li>-76 dBm @ 48 Mb/s</li> <li>-74 dBm @ 54 Mb/s</li> </ul>		5G 802.11a (non-HT20) <ul style="list-style-type: none"> <li>-89 dBm @ 6 Mb/s</li> <li>-88 dBm @ 9 Mb/s</li> <li>-85 dBm @ 12 Mb/s</li> <li>-83 dBm @ 18 Mb/s</li> <li>-80 dBm @ 24 Mb/s</li> <li>-76 dBm @ 36 Mb/s</li> <li>-71 dBm @ 48 Mb/s</li> <li>-70 dBm @ 54 Mb/s</li> </ul>
	2.4 GHz 802.11n (HT20) <ul style="list-style-type: none"> <li>-92 dBm @ MCS0/8</li> <li>-89 dBm @ MCS1/9</li> <li>-86 dBm @ MCS2/10</li> <li>-82 dBm @ MCS3/11</li> <li>-79 dBm @ MCS4/12</li> <li>-74 dBm @ MCS5/13</li> <li>-73 dBm @</li> </ul>		2.4 GHz 802.11n (HT40) <ul style="list-style-type: none"> <li>-89 dBm @ MCS0/8</li> <li>-86 dBm @ MCS1/9</li> <li>-83 dBm @ MCS2/10</li> <li>-79 dBm @ MCS3/11</li> <li>-76 dBm @ MCS4/12</li> <li>-72 dBm @ MCS5/13</li> <li>-70 dBm @</li> </ul>		5G 802.11n (HT20) <ul style="list-style-type: none"> <li>-88 dBm @ MCS0/8</li> <li>-85 dBm @ MCS1/9</li> <li>-84 dBm @ MCS2/10</li> <li>-77 dBm @ MCS3/11</li> <li>-74 dBm @ MCS4/12</li> <li>-70 dBm @ MCS5/13</li> <li>-68 dBm @</li> </ul>
				5G 802.11n (HT40) <ul style="list-style-type: none"> <li>-85 dBm @ MCS0/8</li> <li>-80 dBm @ MCS1/9</li> <li>-78 dBm @ MCS2/10</li> <li>-74 dBm @ MCS3/11</li> <li>-71 dBm @ MCS4/12</li> <li>-67 dBm @ MCS5/13</li> <li>-65 dBm @</li> </ul>	

Item	Description			
	MCS6/14 • -71 dBm @ MCS7/15	MCS6/14 • -68 dBm @ MCS7/15	MCS6/14 • -67 dBm @ MCS7/15	MCS6/14 • -63 dBm @ MCS7/15

## Standards Compliance

- Safety standards
  - UL 60950-1
  - IEC 60950-1
  - EN 60950-1
  - GB 4943
- Radio standards
  - ESTI EN 300 328
  - ESTI EN 301 893
  - Part 15C:15.247
  - Part 15E:15.407
  - RSS-210
- EMC standards
  - EN 301.489-1
  - EN 301.489-17
  - FCC Part 15 (15.107,15.109,15.247,15.407)
  - ICES-003
  - YD/T 1312.2-2004
  - EN55022 (Class B)
- IEEE standards
  - IEEE 802.11a/b/g
  - IEEE 802.11n
  - IEEE 802.11h
  - IEEE 802.11d
  - IEEE 802.11e
- Security standards
  - 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA
  - 802.1x
  - Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP)
  - EAP Type(s)
- Environment standards
  - ETSI 300 019-2-1
  - ETSI 300 019-2-2
  - ETSI 300 019-2-3
- EAP types

- EAP-TLS/TTLS, PEAP, EAP-MD5, EAP-SIM
- Multimedia
  - WMM™