2 Indoor Access Points

About This Chapter

2.1 AP1050DN-S Product Description

2.1.1 Product Characteristics (AP1050DN-S)

Huawei AP1050DN-S is a wireless access point (AP) targeted at the SMB distribution market that supports 1 x 1 MU-MIMO. It provides comprehensive service support capabilities and features high reliability, high security, easy network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meet indoor network requirements. It provides basic 802.11ac Wave 2 wireless networks for small- and medium-sized enterprises and can be flexibly deployed in distributed mode for different environments.

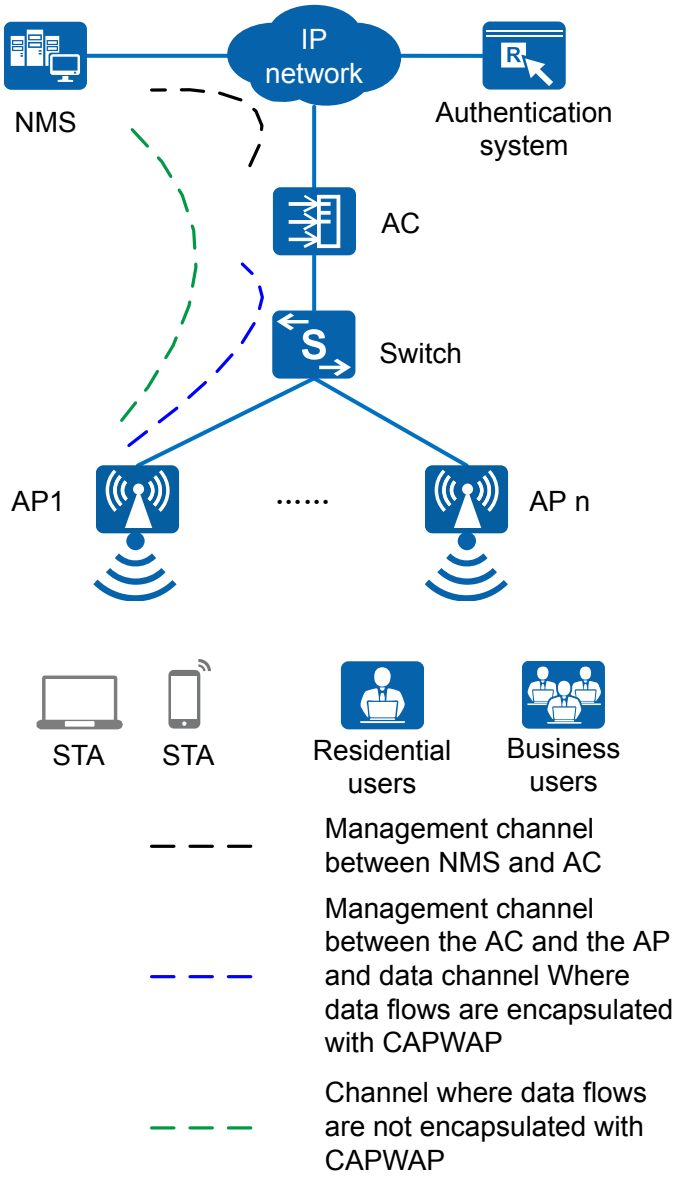
- 802.11ac Wave 2 compliance, 1 x 1 MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 200 Mbit/s at 2.4 GHz and 433 Mbit/s at 5 GHz, and 633 Mbit/s for the device
- One GE uplink interface
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.1.2 Usage Scenarios (AP1050DN-S)

The AP1050DN-S can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-1 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-2 Fit AP networking (WDS mode: point-to-point)

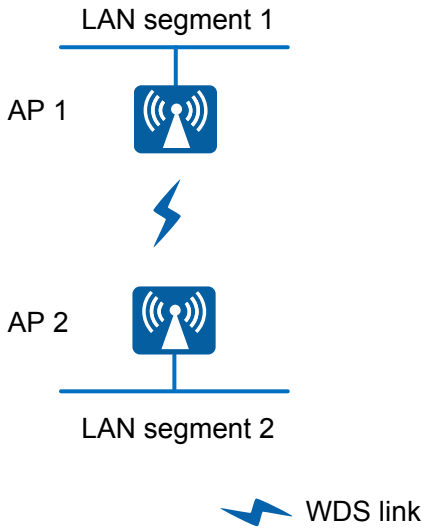
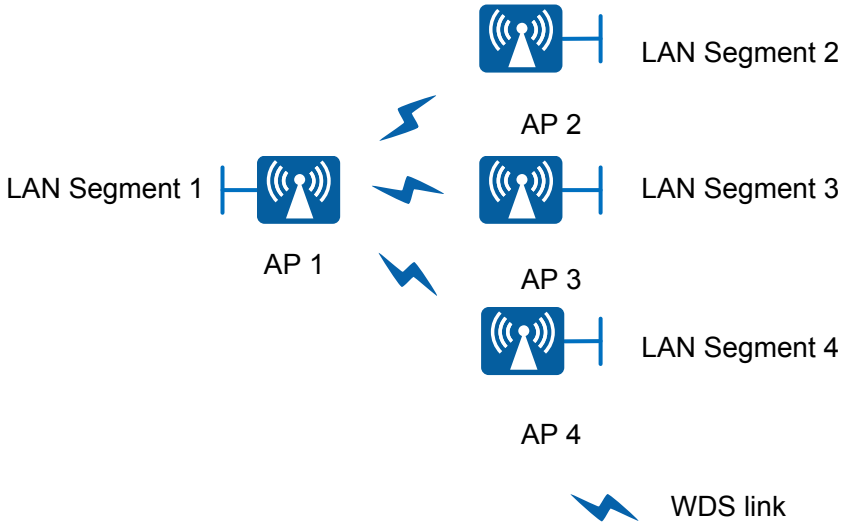
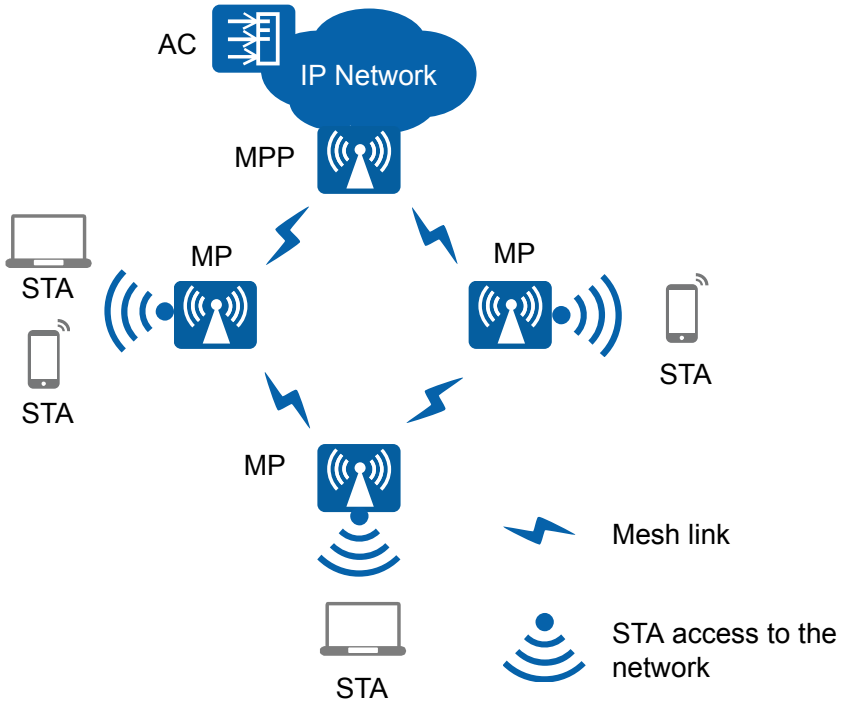


Figure 2-3 Fit AP networking (WDS mode: point-to-multipoint)



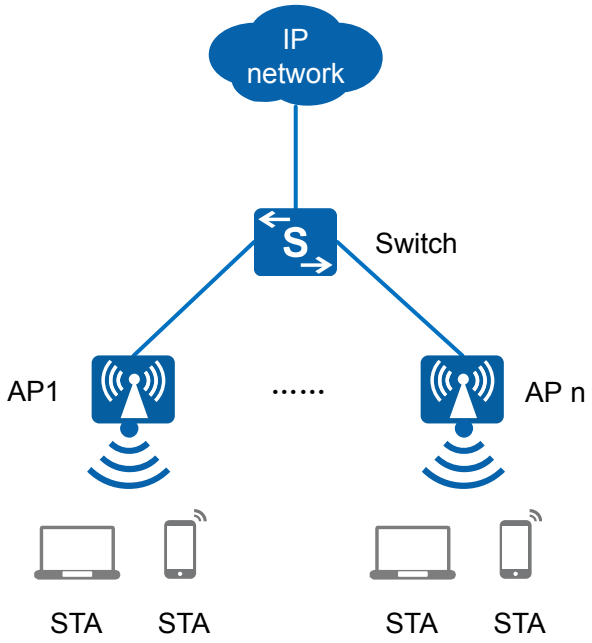
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-4 Fit AP mesh networking



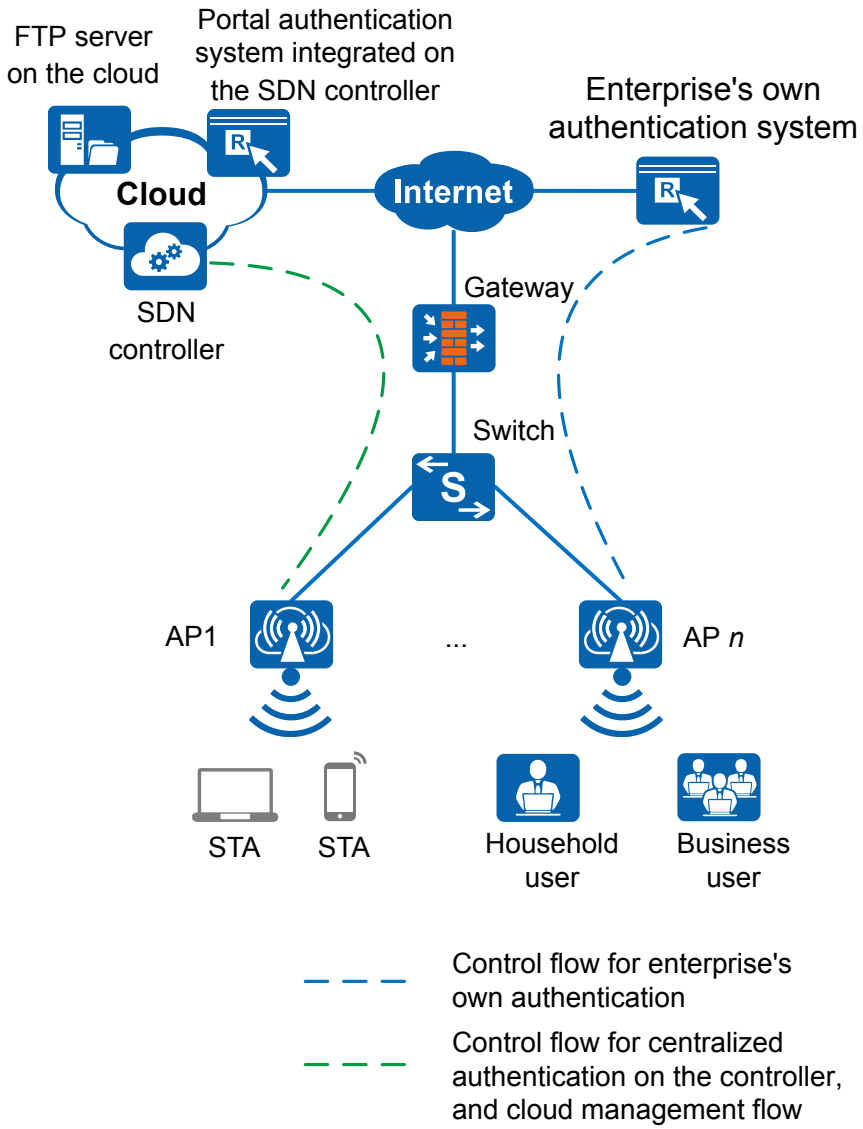
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-5 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-6 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.1.3 Hardware Information (AP1050DN-S)

Appearance

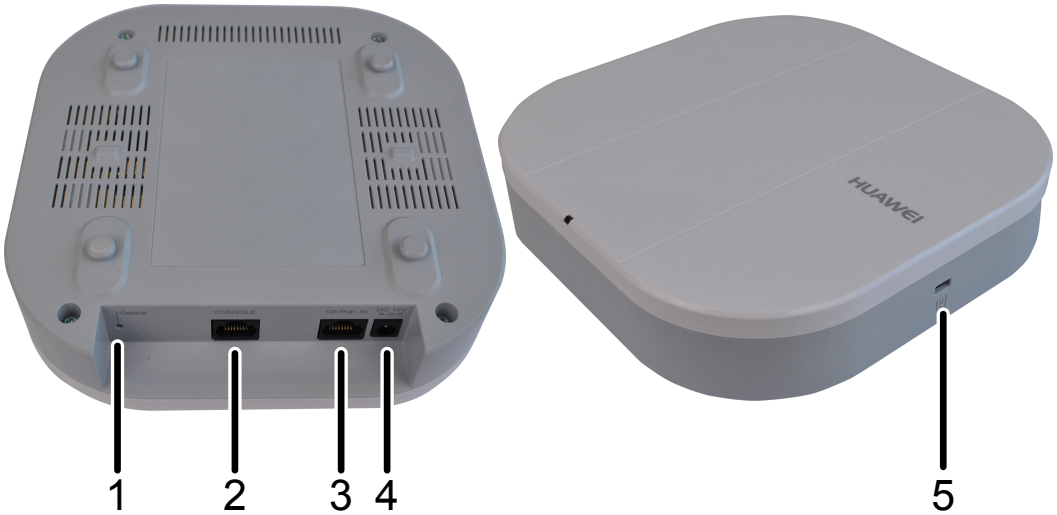
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-7 AP1050DN-S appearance

Ports

Figure 2-8 AP1050DN-S ports



As shown in **Figure 2-8**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

2. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
3. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4. DC 12V: Connects a 12 V power adapter to the AP.
5. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-1 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-2 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	35 mm × 170 mm × 170 mm
	Weight	0.41 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	8.1 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: The maximum temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-3 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 20 dBm • 5 GHz: 20 dBm **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 200 Mbit/s • 802.11ac: 6.5 to 433.3 Mbit/s		

2.1.4 Performance Specifications (AP1050DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.2 AP2030DN Product Description

2.2.1 Product Characteristics (AP2030DN)

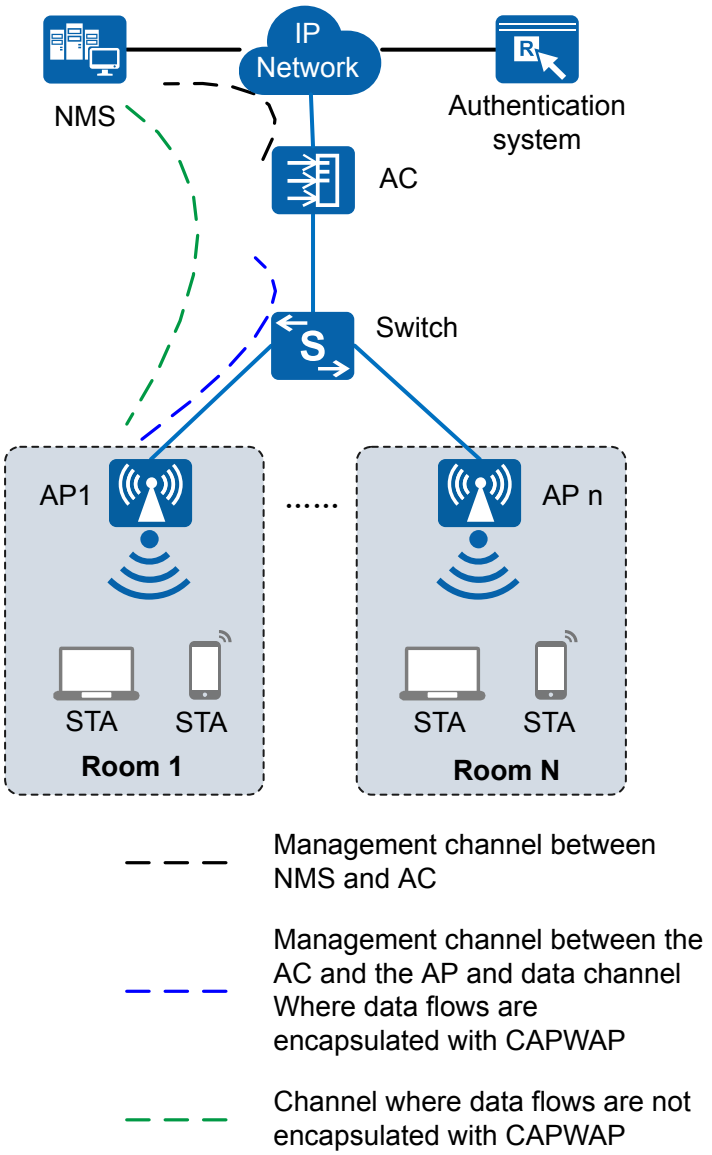
Table 2-4 Product characteristics

Model	Frequency Band Supported	IEEE Standards Compliance	Positioning	Usage Scenario
AP2030DN	Dual bands supported: • 2.4 GHz • 5 GHz The AP provides services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	Huawei AP2030DN is a wall plate access point that can be easily installed in a junction box (86 mm). The AP2030DN is beautifully designed, with built-in antennas, a hidden indicator, and a sliding panel. It provides comprehensive service support capabilities and features high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP2030DN can connect to wireless terminals through wireless connections or to wired terminals using wired cables. This makes it the ideal choice of customers to construct indoor distributed networks.	Huawei AP2030DN offers both wired and wireless network connections, applicable to hotels, apartments, and offices.

2.2.2 Usage Scenarios (AP2030DN)

The following figure shows typical AP2030DN networking.

Figure 2-9 Fit AP networking



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

2.2.3 Hardware Information (AP2030DN)

Appearance

Figure 2-10 shows the appearance of the device.

NOTE

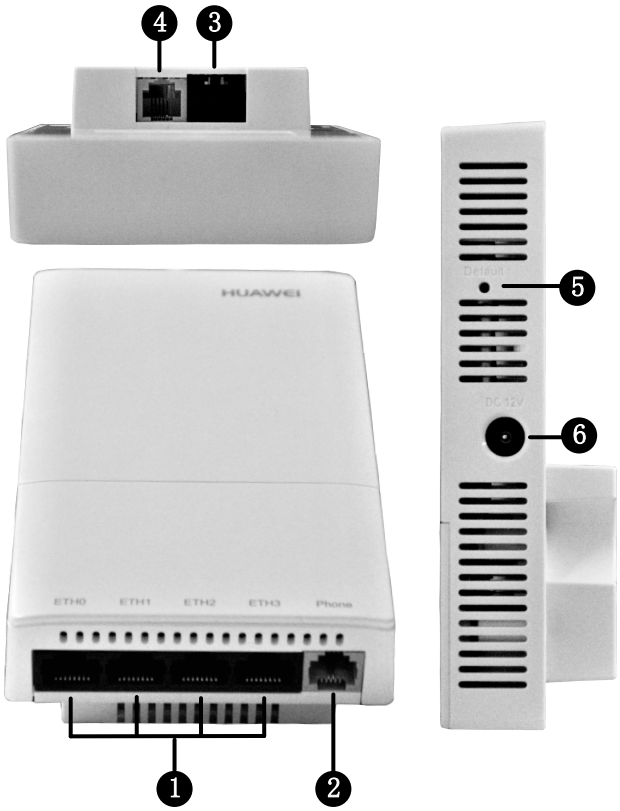
The actual device appearance may be different from the following device appearance; these differences will not affect device functions.

Figure 2-10 Appearance

Port

Figure 2-11 shows ports on the device.

Figure 2-11 Ports



Each port can be described as follows:

1. ETH0 to ETH3: 10/100M port used to connect to the wired Ethernet.
2. Phone: Phone interface used to connect to a POTS phone or modem device.
3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for the device.
4. Phone: Phone interface used to connect to a traditional PSTN.
5. Default: Reset button used to restore factory settings if you hold down the button more than 3 seconds.
6. Power input interface: 12 V DC.

LED Indicator

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Table 2-5 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-6 Basic specifications of the AP2030DN

Item		Description
Technical specifications	Dimensions outside the wall (H x W x D)	25 mm x 140 mm x 86 mm
	Dimensions inside the wall (H x W x D)	16.5 mm x 51.5 mm x 63.5 mm
	Weight	0.2 kg
	System memory	• 128 MB DDR2 • 32 MB Flash
Power specifications	Power input	12 V ± 10% PoE power: in compliance with IEEE 802.3af/at
	Maximum power consumption	8.7 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature and altitude	-60 m to +1800 m: 0°C to +40°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-7 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 2 dBi • 5 GHz: 3 dBi
Maximum number of users	≤ 64
Maximum number of VAPs for each radio	8
Maximum transmit power	• 2.4 GHz: 21 dBm (combined power) • 5 GHz: 20 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations. The AP2030DN applies only to countries and regions that support junction boxes (86 mm).

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) 802.11b/g • 20 MHz: 3 802.11n • 20 MHz: 3 • 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 300 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.2.4 Performance Specifications (AP2030DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.3 AP2030DN-S Product Description

2.3.1 Product Characteristics (AP2030DN-S)

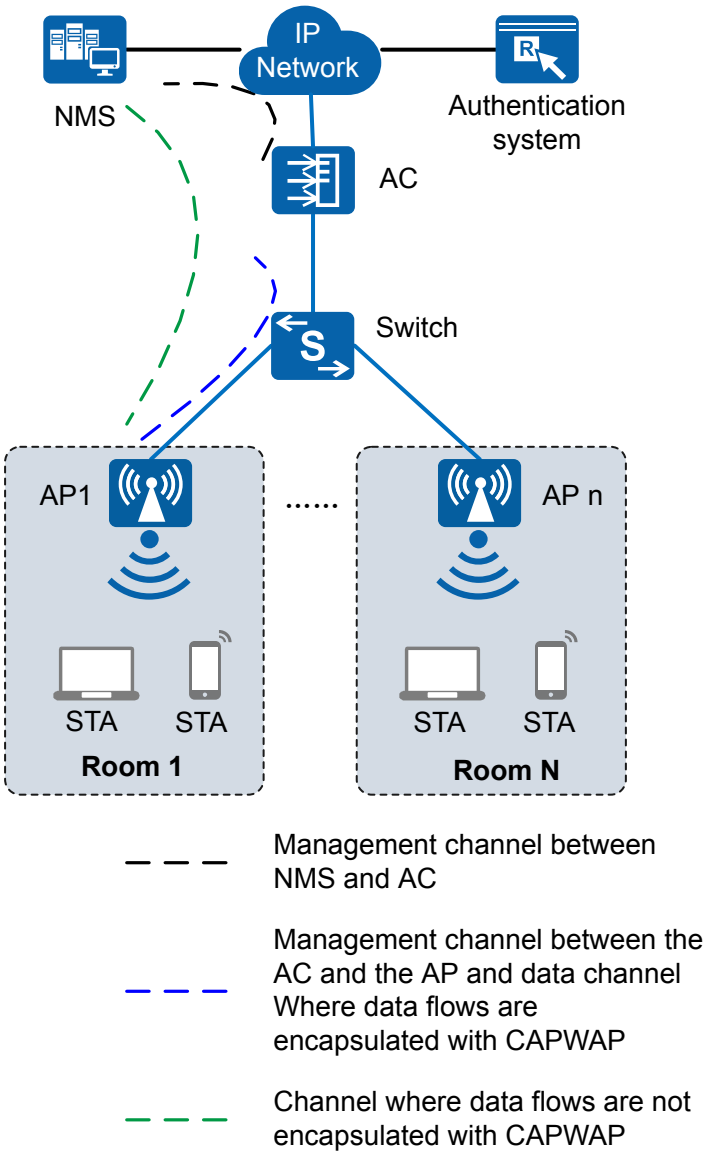
Table 2-8 Product characteristics

Model	Frequency Band Supported	IEEE Standards Compliance	Positioning	Usage Scenario
AP2030DN-S	Dual bands supported: • 2.4GHz • 5GHz The AP provides services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11 a/b/g/n/ac	Huawei AP2030DN-S is a wall plate access point that can be easily installed in a junction box (86 mm). The AP2030DN-S is beautifully designed, with built-in antennas, a hidden indicator, and a sliding panel. It provides comprehensive service support capabilities, and features high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP2030DN-S connects to wireless STAs through wireless connections, and is ideal for constructing indoor distributed Wi-Fi networks.	The AP2030DN-S provides wireless network connections and is applicable to scenarios such as hotels, apartments, and offices.

2.3.2 Usage Scenarios (AP2030DN-S)

The following figure shows typical AP2030DN-S networking.

Figure 2-12 Fit AP networking



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

2.3.3 Hardware Information (AP2030DN-S)

Appearance

Figure 2-13 shows the appearance of the device.

NOTE

The actual device appearance may be different from the following device appearance; these differences will not affect device functions.

Figure 2-13 Appearance

Port

Figure 2-14 shows ports on the device.

Figure 2-14 Ports

Each port can be described as follows:

1. ETH/PoE: 10/100M auto-sensing network port that connects to the central AP and supports PoE input.
2. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

LED Indicator

The AP2030DN-S provides only one indicator, as shown in **Figure 2-15**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-15 Indicator

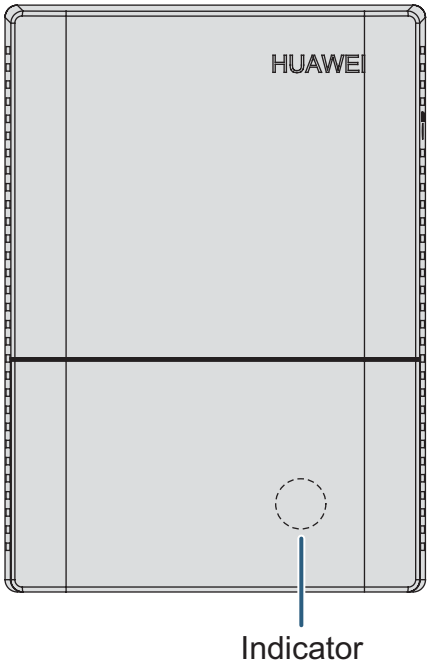


Table 2-9 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-10 Basic specifications of the AP2030DN-S

Item		Description
Physical specifications	Dimensions (H x W x D)	26 mm x 86 mm x 120 mm
	Weight	0.1 kg
	System memory	128 MB DDR2
	Flash	32 MB NOR flash

Item		Description
Power specifications	Power input	PoE power supply: in compliance with IEEE 802.3af
	Maximum power consumption	5.1 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment parameters	Operating temperature and altitude	-60 m to +1800 m: 0°C to 40°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-11 Radio specifications

Item	Description
Antenna type	Built-in antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi
Maximum number of users	≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 21 dBm (combined power)
• 5 GHz: 20 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations. The AP2030DN-S can be installed in a junction box (86 mm) and applies only to countries and regions that support the junction boxes of such specifications.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.3.4 Performance Specifications (AP2030DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.4 AP2050DN and AP2050DN-E Product Description

2.4.1 Product Characteristics (AP2050DN and AP2050DN-E)

Huawei AP2050DN and AP2050DN-E are latest-generation gigabit wall plate access points (APs) in compliance with 802.11ac Wave 2. They use an 86 mm x 86

mm plate design and can be easily installed in a standard 86-type junction box. The APs are beautifully designed, with built-in antennas, a hidden indicator, and a sliding panel. These highlights make the APs suitable for environments with densely distributed small rooms, such as hotel guest rooms, student dormitories, hospital wards, and small offices. The APs provide enhanced service support capabilities and feature high security, easy network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The APs can connect to wireless terminals through wireless connections or to wired terminals using wired cables. This makes them the ideal choice of customers to construct indoor distributed networks.

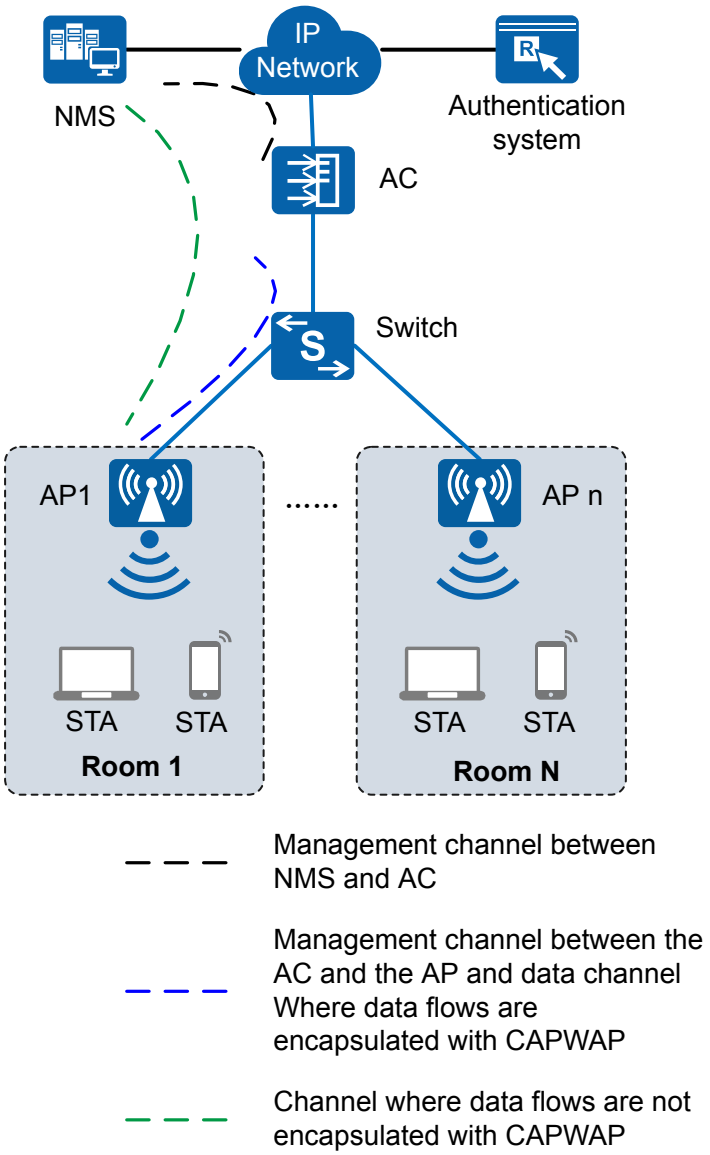
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- One GE uplink interface, four GE downlink interfaces, and two RJ45 pass-through phone ports
- USB interface used for external power supply and storage
- AP2050DN-E: Built-in Bluetooth to implement positioning with eSight
- AP2050DN-E: PoE out function, supplying power for terminals such as IP phones
- Various installation modes for easy deployment, including ceiling-mounting, wall-mounting, plate-mounting, and desk-mounting
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.4.2 Usage Scenarios (AP2050DN, AP2050DN-E)

AP2050DN and AP2050DN-E can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

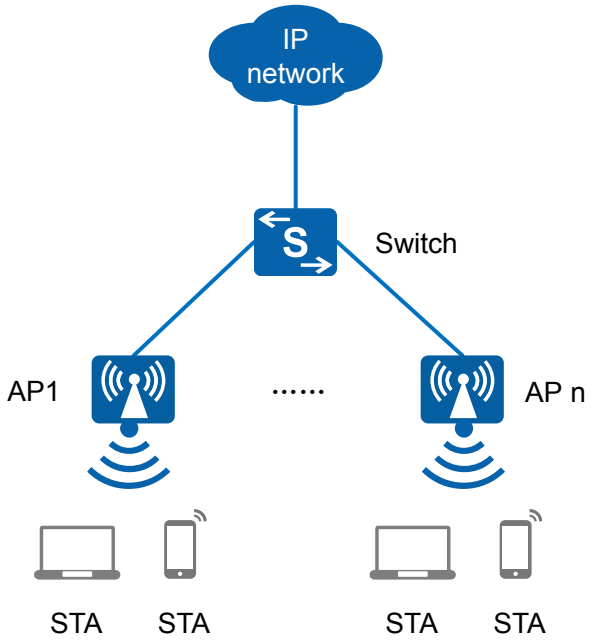
The following figure shows typical AP2050DN and AP2050DN-E networking.

Figure 2-16 Fit AP networking



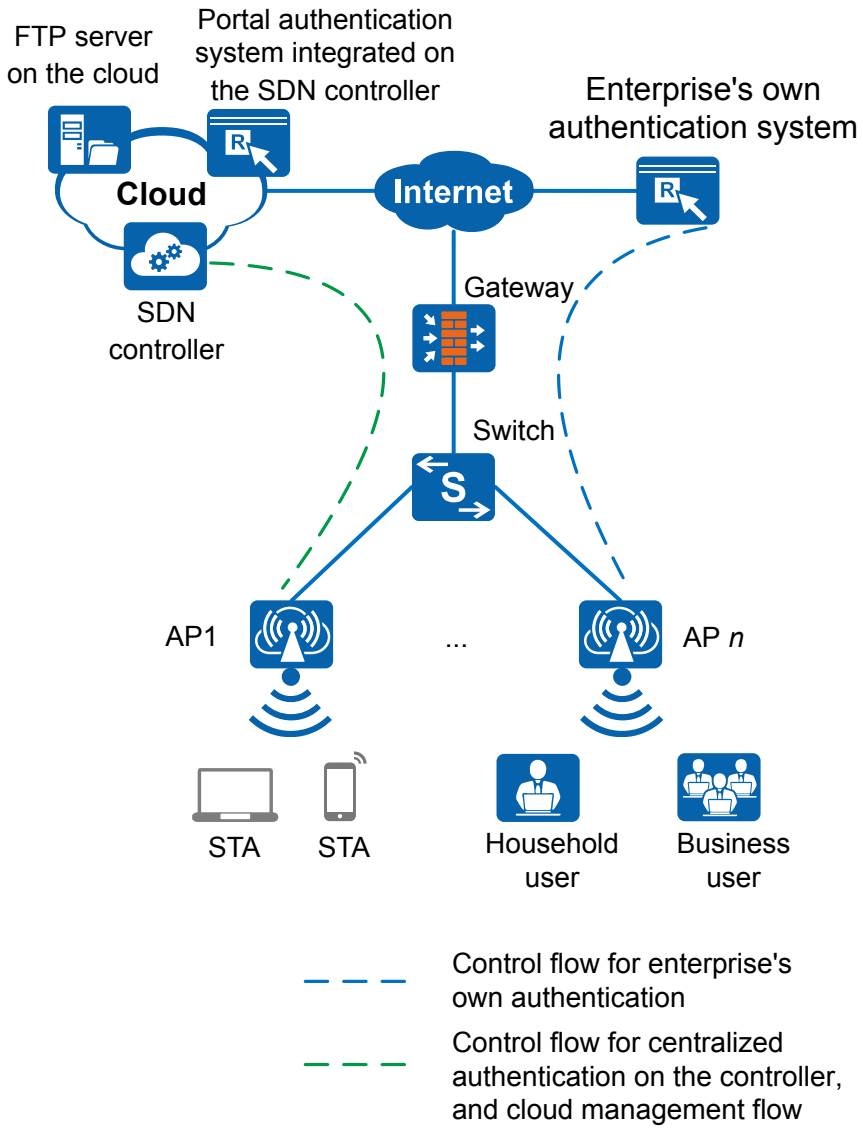
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-17 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-18 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.4.3 Hardware Information (AP2050DN)

Appearance

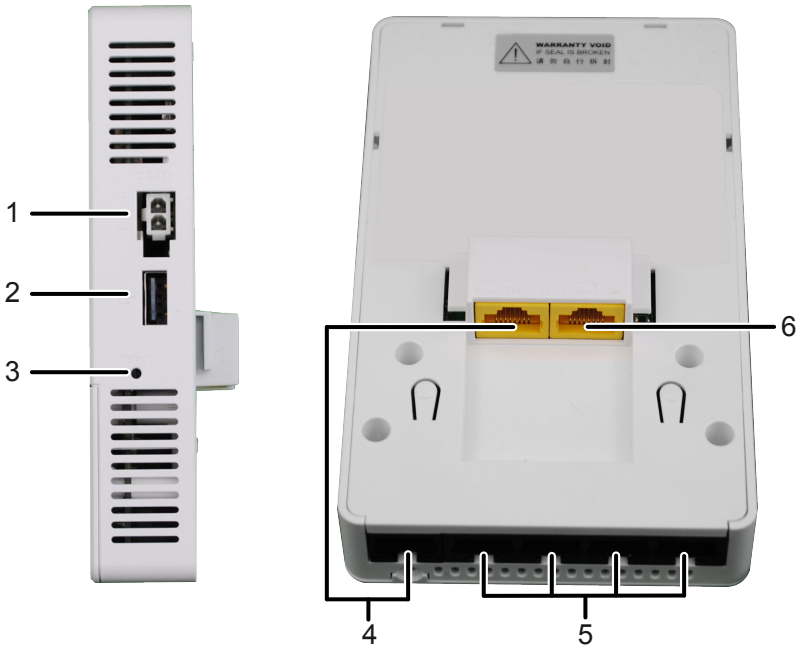
NOTE

The actual device appearance may slightly differ from the following device appearance; these differences will not affect device functions.

Figure 2-19 Appearance

Port

Figure 2-20 Ports



Each port can be described as follows:

1. DC 48V: DC power socket connecting a 48 V power adapter to the AP.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB 2.0 standard is supported.
3. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.

4. Pass Through port (RJ45): Connects to a network cable or phone cable for transparent transmission.
5. GE1 to GE4: 10/100/1000M port connected to the wired Ethernet.
6. GE0/PoE_IN: 10/100/1000M port connected to the wired Ethernet. The port supports PoE input.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Table 2-12 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-13 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	36 mm x 86 mm x 140 mm (1.42 in. x 3.39 in. x 5.51 in.)
	Weight	0.26 kg
	System memory	256 MB DDR3L
	Flash	64 MB NOR FLASH
Power specifications	Power input	● DC: 48 V±5% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	11.5 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-14 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 21 dBm (combined power) • 5 GHz: 20 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations. The AP2050DN and AP2050DN-E can be installed in junction boxes (86 mm) and apply only to countries and regions that support the junction boxes of such specifications.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.4.4 Hardware Information (AP2050DN-E)

Appearance

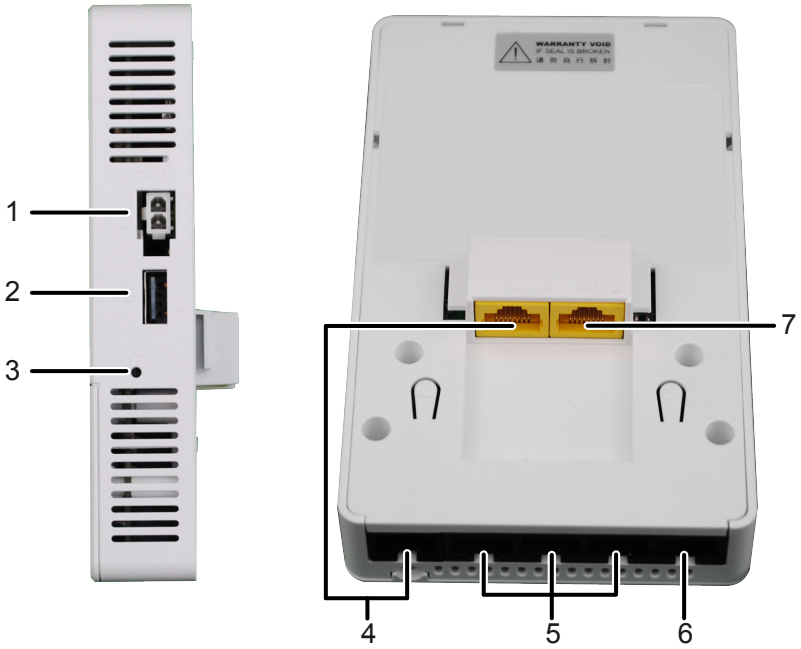
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-21 AP2050DN-E appearance

Ports

Figure 2-22 AP2050DN-E ports



As shown in **Figure 2-22**, each port can be described as follows:

1. DC 48V: DC power socket connecting a 48 V power adapter to the AP.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB 2.0 standard is supported.
3. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.

4. Pass Through port (RJ45): Connects to a network cable or phone cable for transparent transmission.
5. GE2 to GE4: 10/100/1000M port connected to the wired Ethernet.
6. GE1/PoE_OUT: 10/100/1000M port connected to the wired Ethernet and supports PoE output.
7. GE0/PoE_IN: 10/100/1000M port connected to the wired Ethernet. The port supports PoE input.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Table 2-15 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-16 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	36 mm x 86 mm x 140 mm (1.42 in. x 3.39 in. x 5.51 in.)
	Weight	0.26 kg
	System memory	256 MB DDR3L
	Flash	64 MB NOR FLASH
Power specifications	Power input	● DC: 48 V±5% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	11.5 W (excluding the output power of the USB port and PoE_OUT port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-17 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 21 dBm (combined power) • 5 GHz: 20 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations. The AP2050DN and AP2050DN-E can be installed in junction boxes (86 mm) and apply only to countries and regions that support the junction boxes of such specifications.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.4.5 Performance Specifications (AP2050DN, AP2050DN-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.5 AP2050DN-S Product Description

2.5.1 Product Characteristics (AP2050DN-S)

Huawei AP2050DN-S is the latest-generation wall plate access point (AP) targeted at the SMB distribution market in compliance with 802.11ac Wave 2, providing high-quality wireless network services. The device has built-in antennas and can be quickly deployed with a standard 86-type junction box. The front is beautifully designed with a sliding panel, applicable to hotels, apartments, offices, and other places.

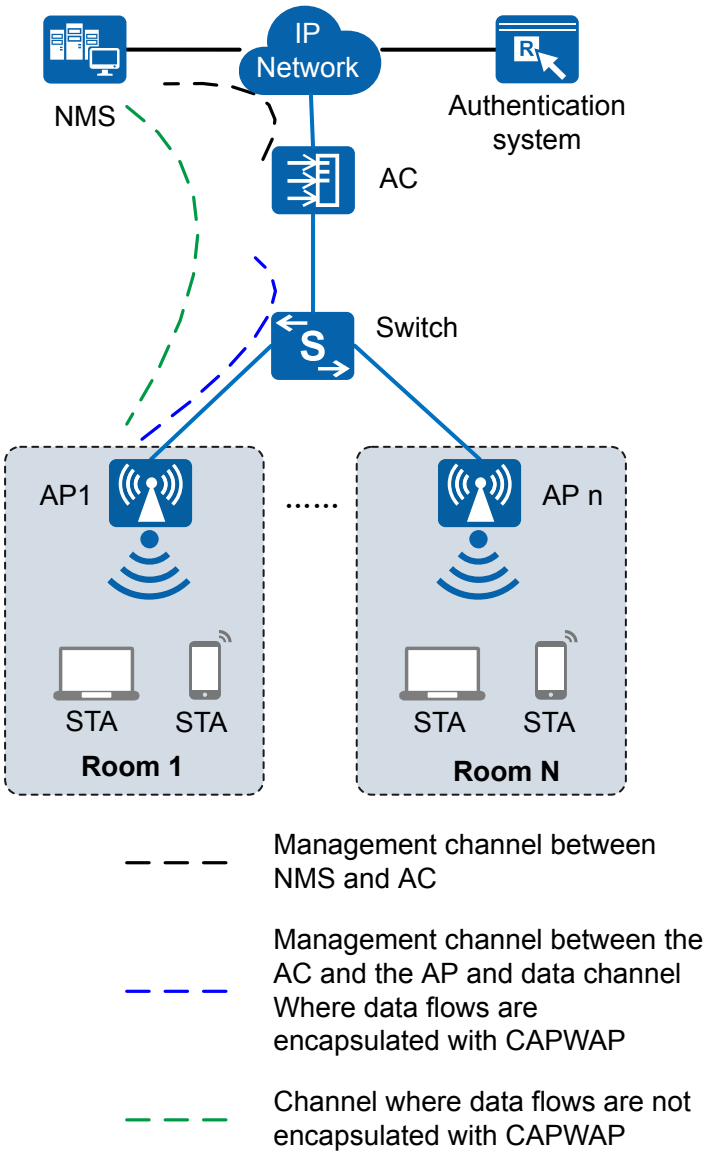
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- One GE uplink interface, four GE downlink interfaces, and two RJ45 pass-through phone ports
- USB interface used for external power supply and storage
- Various installation modes for easy deployment, including ceiling-mounting, wall-mounting, plate-mounting, and desk-mounting
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.5.2 Usage Scenarios (AP2050DN-S)

The AP2050DN-S can work as a Fat, Fit, or cloud AP, and switch its working mode based on network planning requirements.

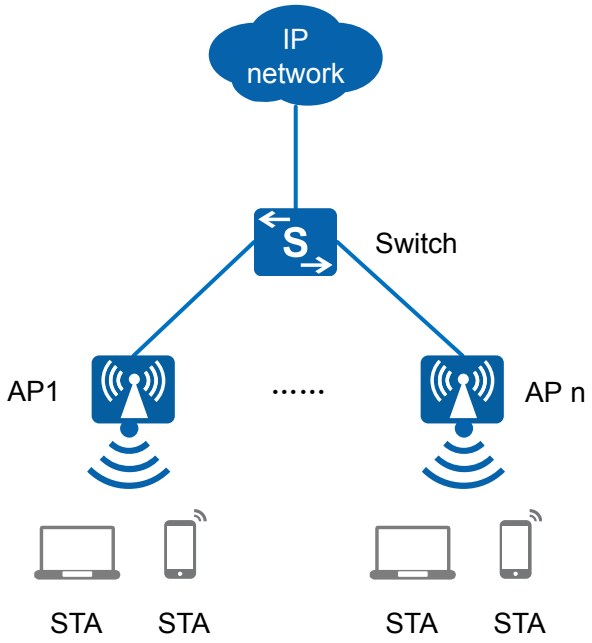
The following figure shows a typical AP2050DN-S networking.

Figure 2-23 Fit AP networking



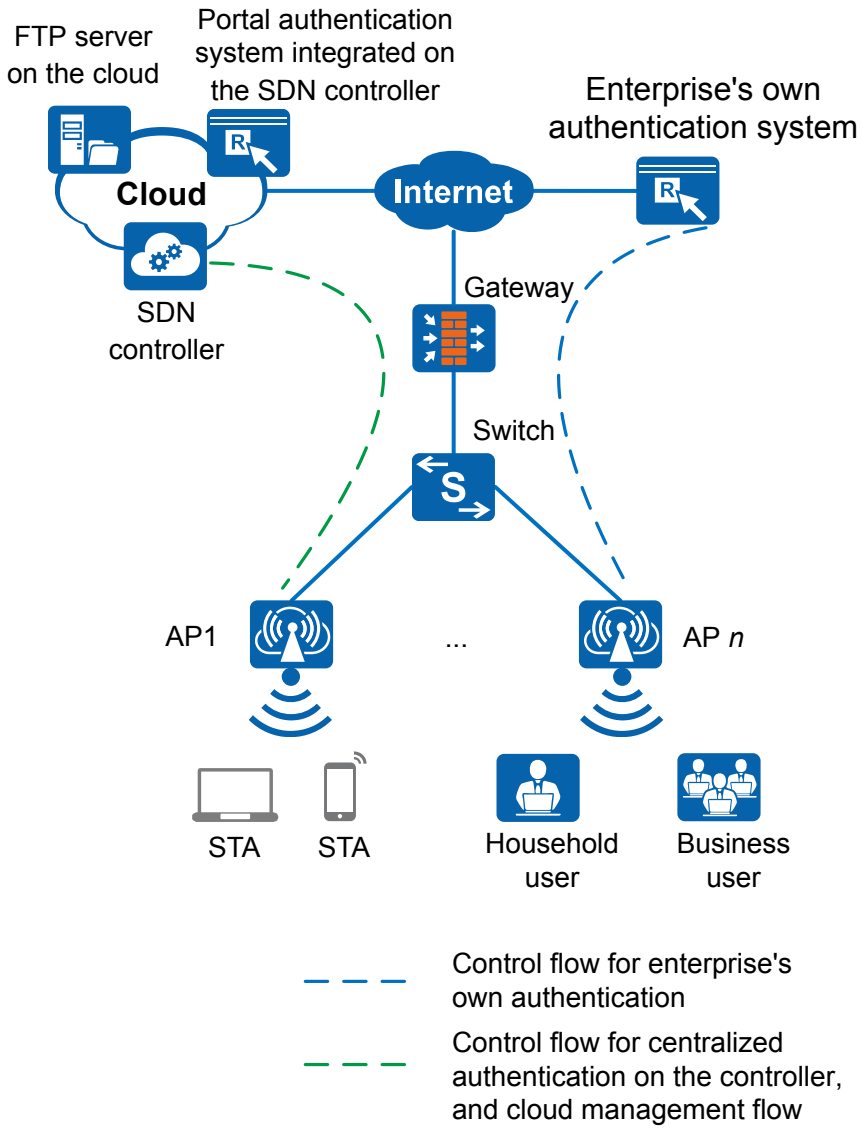
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-24 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-25 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.5.3 Hardware Information (AP2050DN-S)

Appearance

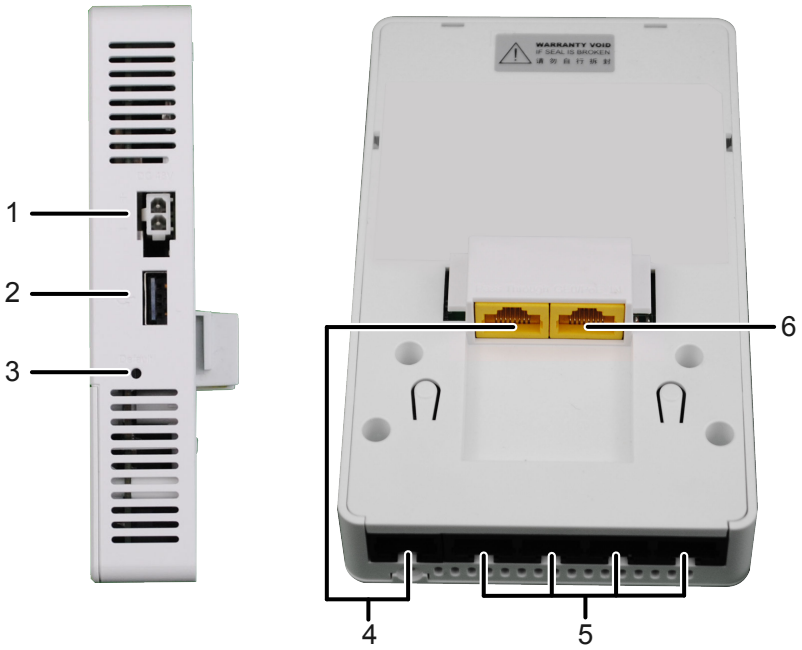
NOTE

The actual device appearance may slightly differ from the following device appearance; these differences will not affect device functions.

Figure 2-26 Appearance

Port

Figure 2-27 Ports



Each port can be described as follows:

1. DC 48V: DC power socket connecting a 48 V power adapter to the AP.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB 2.0 standard is supported.
3. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.

4. Pass Through port (RJ45): Connects to a network cable or phone cable for transparent transmission.
5. GE1 to GE4: 10/100/1000M port connected to the wired Ethernet.
6. GE0/PoE_IN: 10/100/1000M port connected to the wired Ethernet. The port supports PoE input.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Table 2-18 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-19 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	36 mm x 86 mm x 140 mm
	Weight	0.26 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 48 V ± 5% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	11.5 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-20 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 21 dBm (combined power) • 5 GHz: 20 dBm (combined power) **NOTE** The actual maximum transmit power varies depending on local laws and regulations. The AP2050DN-S is installed in a junction box (86 mm), and therefore is applicable only to countries and regions where junction boxes of 86 mm are supported.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.5.4 Performance Specifications (AP2050DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.6 AP2051DN and AP2051DN-E Product Description

2.6.1 Product Characteristics (AP2051DN and AP2051DN-E)

Huawei AP2051DN and AP2051DN-E are the gigabit wall plate access points (APs) in compliance with 802.11ac Wave 2. With mounting brackets, the APs can be easily adapted to junction boxes (86/118/120 mm) and wall-mounting scenarios. The APs boast built-in smart antennas, a hidden indicator, and a brand-new "morning dew" style. These highlights make the APs suitable for environments with densely distributed small rooms, such as hotel guest rooms, student dormitories, hospital wards, and small offices. The APs provide enhanced service support capabilities and feature high security, easy network deployment,

automatic AC discovery and configuration, and real-time management and maintenance. The APs can connect to wireless terminals through wireless connections or to wired terminals using wired cables. This makes them the ideal choice of customers to construct indoor distributed networks.

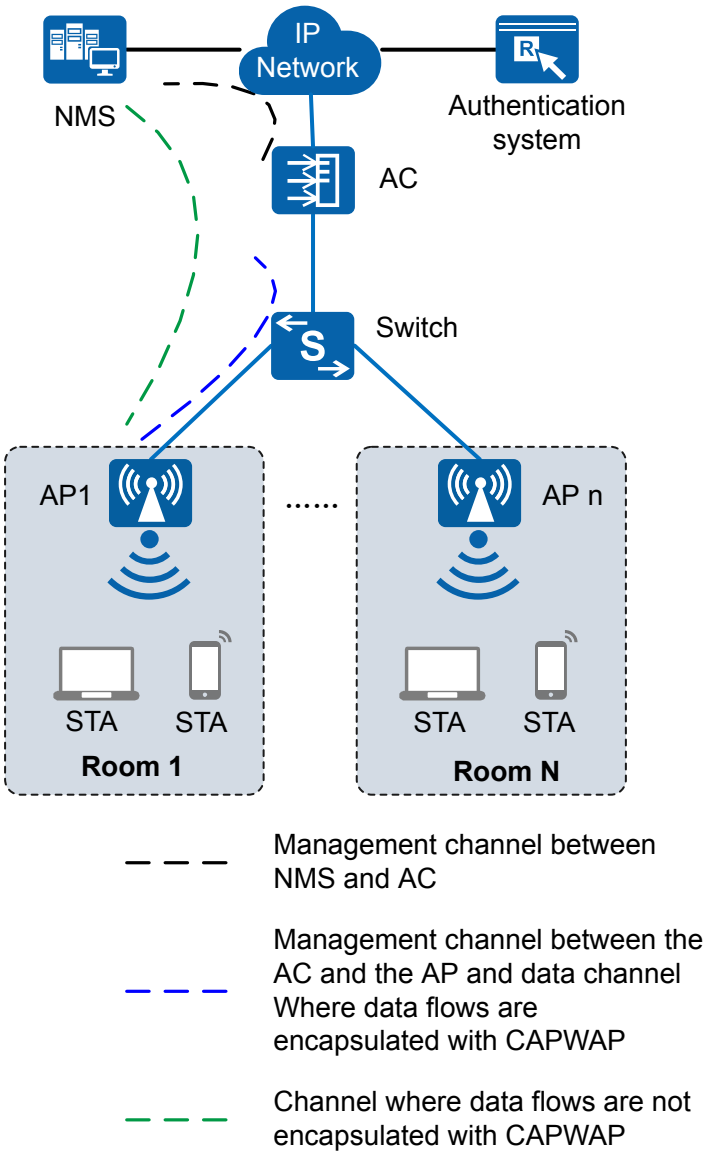
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- One GE uplink interface, four GE downlink interfaces, and two RJ45 pass-through phone ports
- Various installation modes for easy deployment, including ceiling-mounting, wall-mounting, plate-mounting, and desk-mounting
- USB interface used for external power supply and storage
- Built-in smart antennas, increasing the coverage area
- AP2051DN-E: the PoE out function, supplying power for terminals such as IP phones
- AP2051DN-E: Built-in Bluetooth to implement positioning with eSight
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.6.2 Usage Scenarios (AP2051DN and AP2051DN-E)

The AP2051DN and AP2051DN-E can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

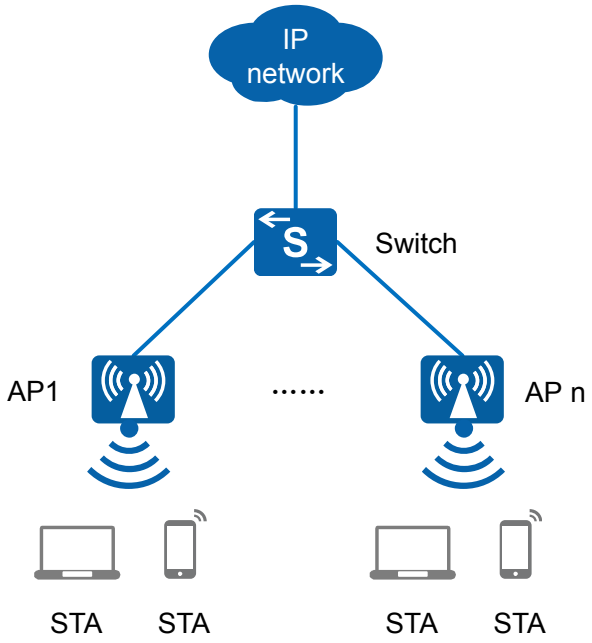
The following figure shows typical AP2051DN and AP2051DN-E networking.

Figure 2-28 Fit AP networking



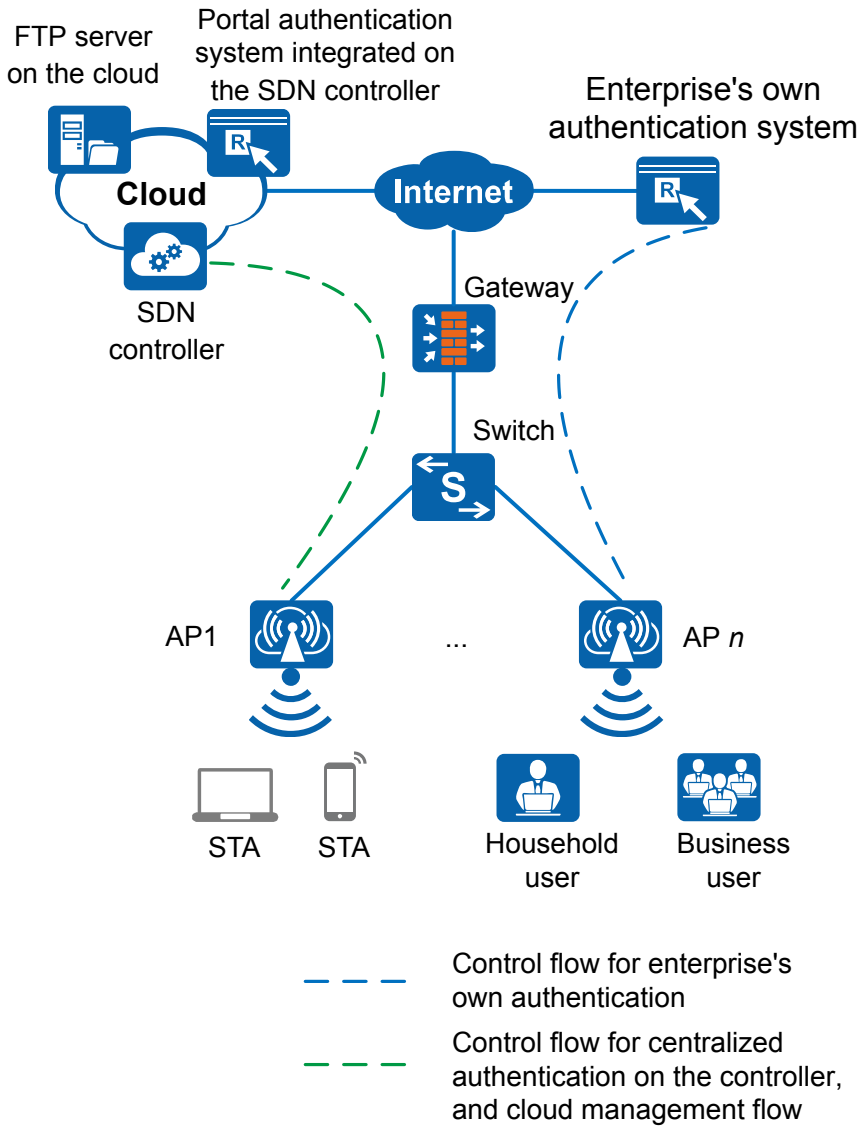
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-29 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-30 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.6.3 Hardware Information (AP2051DN)

Appearance

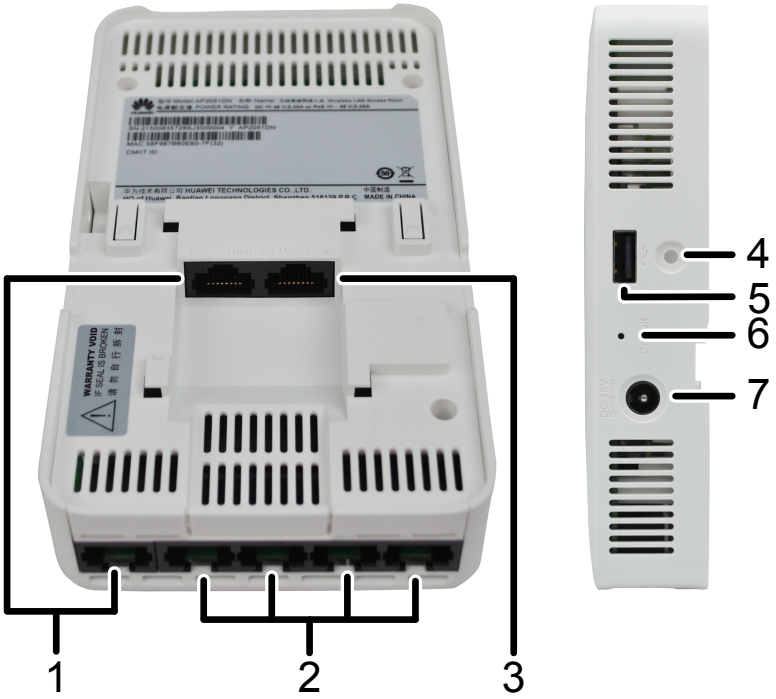
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-31 Appearance

Port

Figure 2-32 Ports



Each port can be described as follows:

1. Pass Through: RJ45 ports that connect to network cables or phone cables for transparent transmission.
2. GE4 to GE1: 10/100/1000M port that connects to the wired Ethernet.
3. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4. Captive screw hole: Accommodates a captive screw.

   NOTE

   Tighten an M3x4 crosshead screw into the device to prevent the device from dropping. If the anti-theft function is required, tighten an M3x4 torx screw (instead of an M3x4 crosshead screw) into the device using a T9 torx security screwdriver. The tightening torques of the two screw types are both 0.15 N•m.
5. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
6. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
7. DC 48V: Connects a 48 V power adapter to the AP.

   NOTE

   When the AP uses the DC power supply, use a power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP2051DN provides only one indicator, as shown in **Figure 2-33**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-33 Indicator

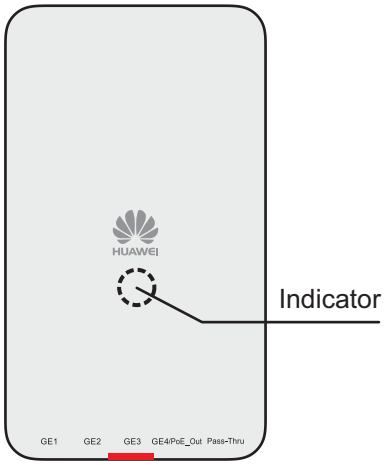


Table 2-21 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-22 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	32.5 mm x 86 mm x 150 mm (1.28 in. x 3.39 in. x 5.91 in.)
	Weight	0.25 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	• DC: 45.6 V to 57 V • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	11.5 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-23 Radio specifications

Item	Description
Antenna type	Built-in smart antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="3">Fit AP: ≤ 256
Fat AP: ≤ 256
Cloud AP: ≤ 256
NOTE
The actual number of users varies according to the environment.</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations. The AP2051DN and AP2051DN-E can be installed in junction boxes (86 mm) and apply only to countries and regions that support the junction boxes of such specifications.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 400 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.6.4 Hardware Information (AP2051DN-E)

Appearance

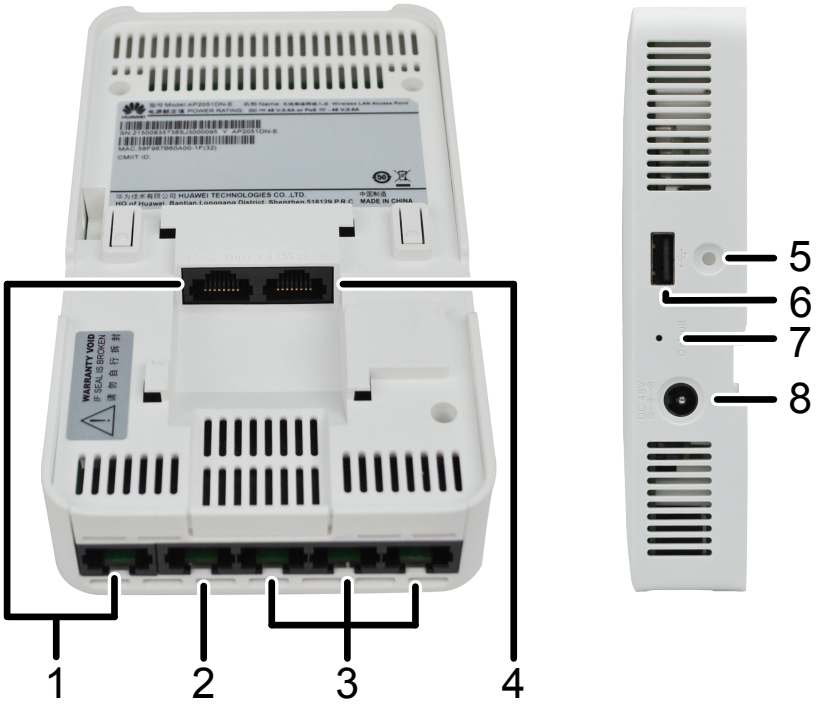
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-34 Appearance

Ports

Figure 2-35 Ports



As shown in **Figure 2-35**, each port can be described as follows:

1. Pass Through: RJ45 ports that connect to network cables or phone cables for transparent transmission.
2. GE4/PoE_Out: 10/100/1000M port that connects to the wired Ethernet and supports PoE output.
3. GE3 to GE1: 10/100/1000M port that connects to the wired Ethernet.
4. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
5. Captive screw hole: Accommodates a captive screw.

   NOTE

   Tighten an M3x4 crosshead screw into the device to prevent the device from dropping. If the anti-theft function is required, tighten an M3x4 torx screw (instead of an M3x4 crosshead screw) into the device using a T9 torx security screwdriver. The tightening torques of the two screw types are both 0.15 N•m.
6. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
7. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
8. DC 48V: Connects a 48 V power adapter to the AP.

   NOTE

   When the AP uses the DC power supply, use a power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP2051DN-E provides only one indicator, as shown in **Figure 2-36**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-36 Indicator

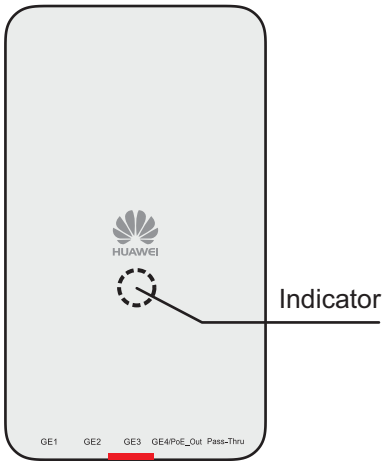


Table 2-24 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.

Indicator	Name	Color	Status	Description
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-25 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	32.5 mm x 86 mm x 150 mm (1.28 in. x 3.39 in. x 5.91 in.)
	Weight	0.25 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 45.6 V to 57 V ● PoE power supply: in compliance with IEEE 802.3af/at

Item		Description
	Maximum power consumption	11.5 W (excluding the output power of the USB port and PoE_OUT port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-26 Radio specifications

Item	Description
Antenna type	Built-in smart antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations. The AP2051DN and AP2051DN-E can be installed in junction boxes (86 mm) and apply only to countries and regions that support the junction boxes of such specifications.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.6.5 Performance Specifications (AP2051DN and AP2051DN-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.7 AP2051DN-S Product Description

2.7.1 Product Characteristics (AP2051DN-S)

Huawei AP2051DN-S is the latest-generation wall plate access point (AP) targeted at the SMB distribution market in compliance with 802.11ac Wave 2. The AP2051DN-S boasts built-in smart antennas and a hidden indicator. These highlights make the AP suitable for environments with densely distributed small rooms, such as hotel guest rooms, student dormitories, hospital wards, and small offices. The AP provides enhanced service support capabilities and features high security, easy network deployment, automatic AC discovery and configuration, and

real-time management and maintenance. With mounting brackets, the AP can be easily adapted to junction boxes (86/118/120 mm) and wall-mounting scenarios.

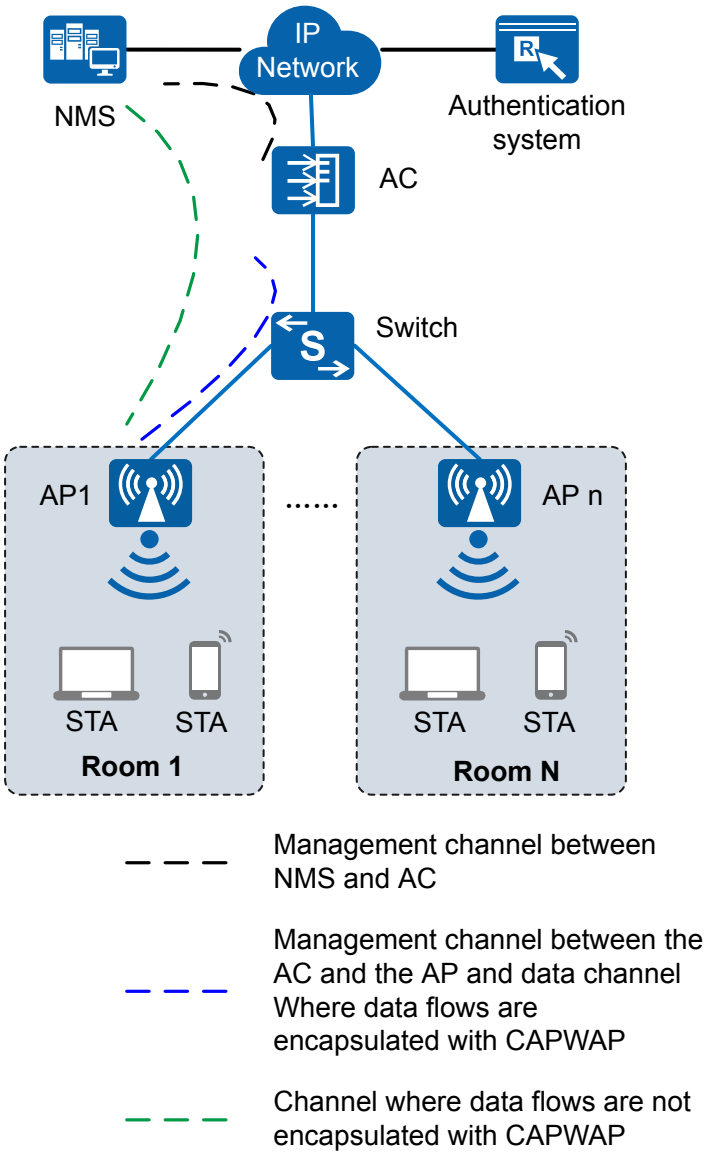
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- One GE uplink interface, four GE downlink interfaces, and two RJ45 pass-through phone ports
- Various installation modes for easy deployment, including ceiling-mounting, wall-mounting, plate-mounting, and desk-mounting
- USB interface used for external power supply and storage
- Built-in smart antennas, increasing the coverage area
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.7.2 Usage Scenarios (AP2051DN-S)

The AP2051DN-S can work as a Fat, Fit, or cloud AP, and switch its working mode based on network planning requirements.

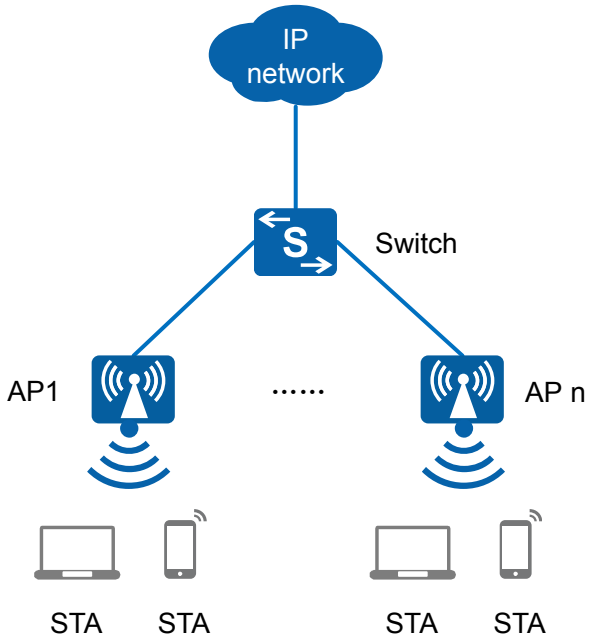
The following figure shows a typical AP2051DN-S networking.

Figure 2-37 Fit AP networking



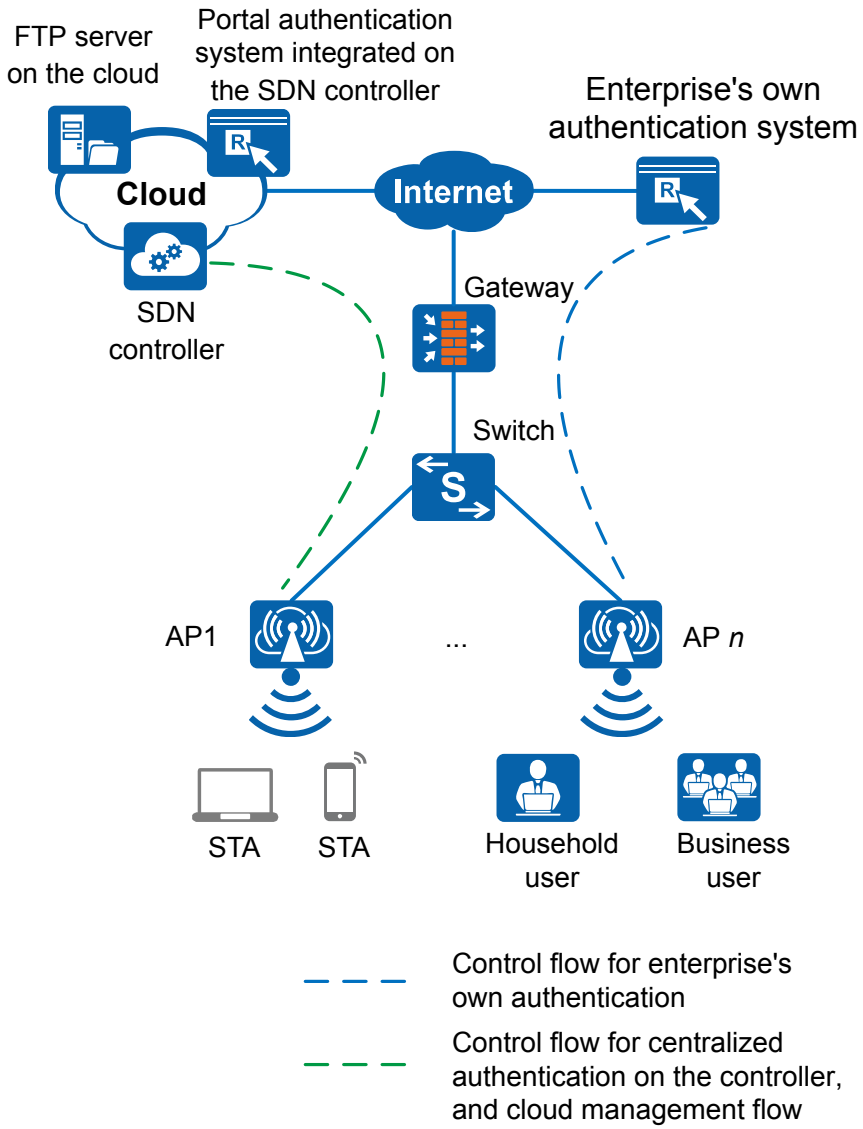
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-38 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-39 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.7.3 Hardware Information (AP2051DN-S)

Appearance

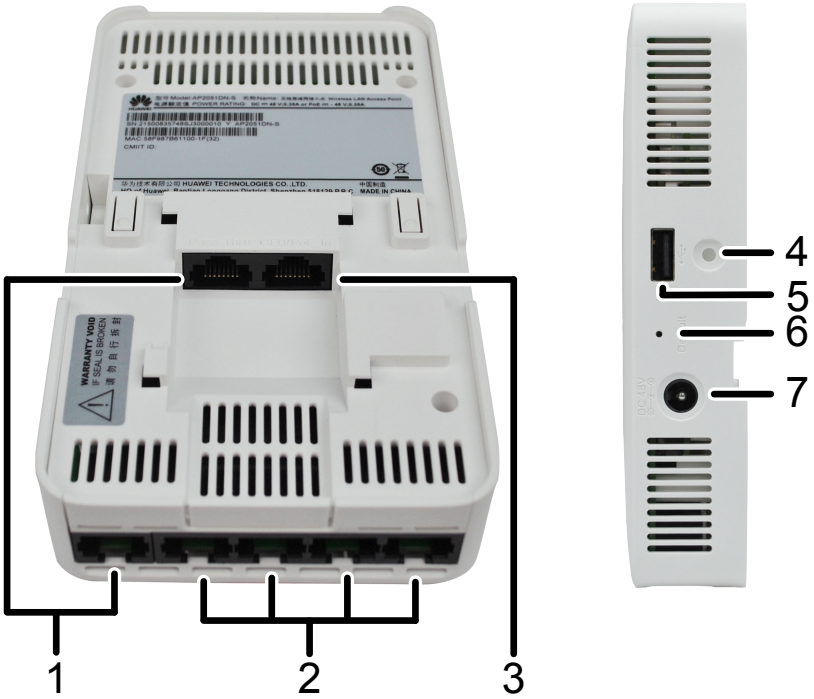
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-40 Appearance

Ports

Figure 2-41 AP2051DN-S ports



Each port can be described as follows:

1. Pass Through: RJ45 ports that connect to network cables or phone cables for transparent transmission.
2. GE4 to GE1: 10/100/1000M port that connects to the wired Ethernet.
3. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4. Captive screw hole: Accommodates a captive screw.

   NOTE

   Tighten an M3x4 crosshead screw into the device to prevent the device from dropping. If the anti-theft function is required, tighten an M3x4 torx screw (instead of an M3x4 crosshead screw) into the device using a T9 torx security screwdriver. The tightening torques of the two screw types are both 0.15 N•m.
5. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
6. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
7. DC 48V: Connects a 48 V power adapter to the AP.

   NOTE

   When the AP uses the DC power supply, use a power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP2051DN-S provides only one indicator, as shown in **Figure 2-42**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-42 Indicator

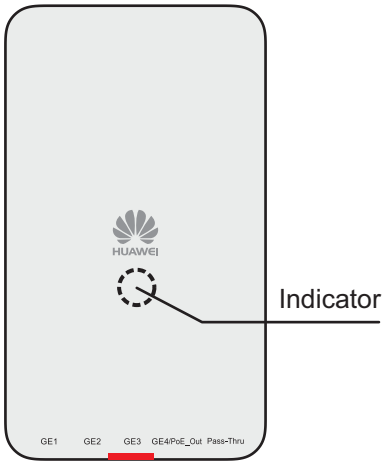


Table 2-27 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. • The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-28 Basic specifications of the AP2051DN-S

Item		Description
Physical specifications	Dimensions (H x W x D)	32.5 mm x 86 mm x 150 mm
	Weight	0.25 kg
	System memory	256 MB DDR3L
	Flash	64 MB NOR flash
Power specifications	Power input	• DC: 45.6 V to 57 V • PoE power supply: in compliance with IEEE 802.3af/at
	In this scenario, BLE tags are used, and tablet kiosks are installed on the shelves. Data on the BLE tags is uplinked to the smart shopping guide server through the tablet kiosks for Big Data analytics and statistics.	11.5 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment parameters	Operating temperature and altitude	• -60 m to +1800 m: 0°C to 40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-29 Radio specifications

Item	Description		
Antenna type	Built-in smart antenna		
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi		
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual maximum transmit power varies depending on local laws and regulations. The AP2051DN-S can be installed in a junction box (86 mm) and applies only to countries and regions that support the junction boxes of such specifications.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.

Item	Description
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s

2.7.4 Performance Specifications (AP2051DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.8 AP2051DN-L-S Product Description

2.8.1 Product Characteristics (AP2051DN-L-S)

Huawei AP2051DN-L-S is the latest-generation wall plate access point (AP) targeted at the SMB distribution market in compliance with 802.11ac Wave 2. It uses an 86 mm x 86 mm plate design and can be easily installed in a standard 86-type junction box. The AP is beautifully designed, with built-in antennas, a hidden indicator, and a sliding panel. These highlights make the AP suitable for environments with densely distributed small rooms, such as hotel guest rooms, student dormitories, hospital wards, and small offices. The AP provides enhanced service support capabilities and features high security, easy network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP can connect to wireless terminals through wireless connections or to wired terminals using wired cables. This makes it the ideal choice of customers to construct indoor distributed networks.

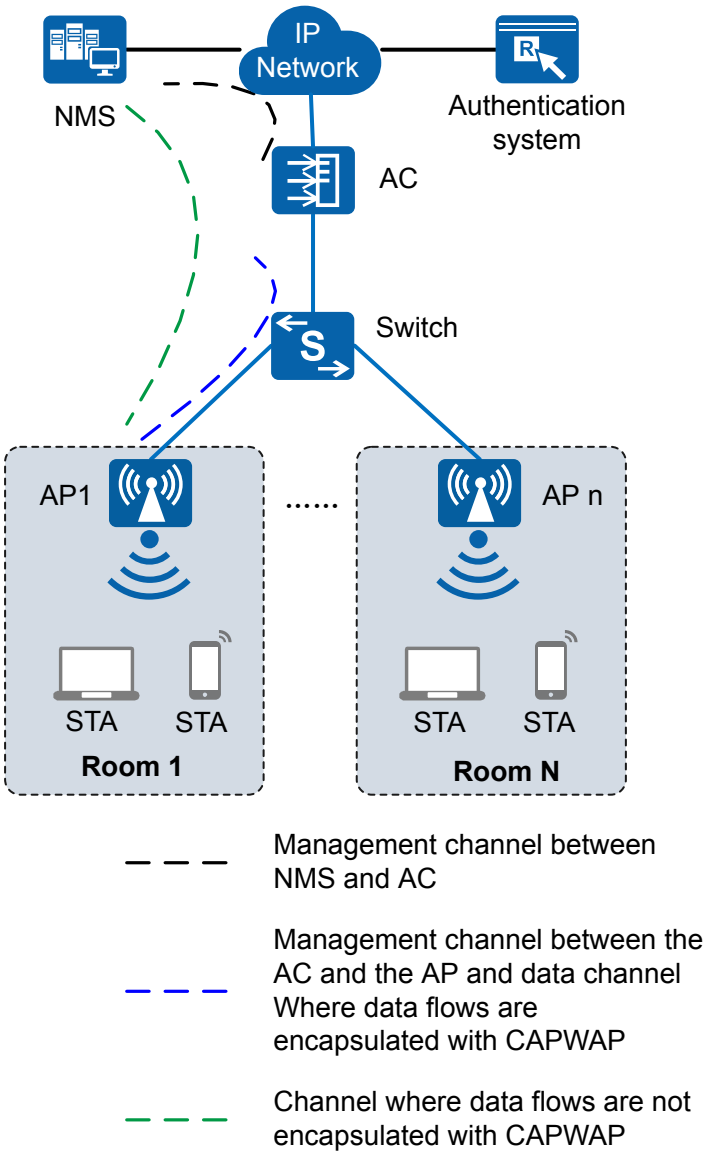
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 433 Mbit/s at 5 GHz, and 833 Mbit/s for the device
- One GE uplink interface and one FE downlink interface
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.8.2 Usage Scenarios (AP2051DN-L-S)

The AP2051DN-L-S can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

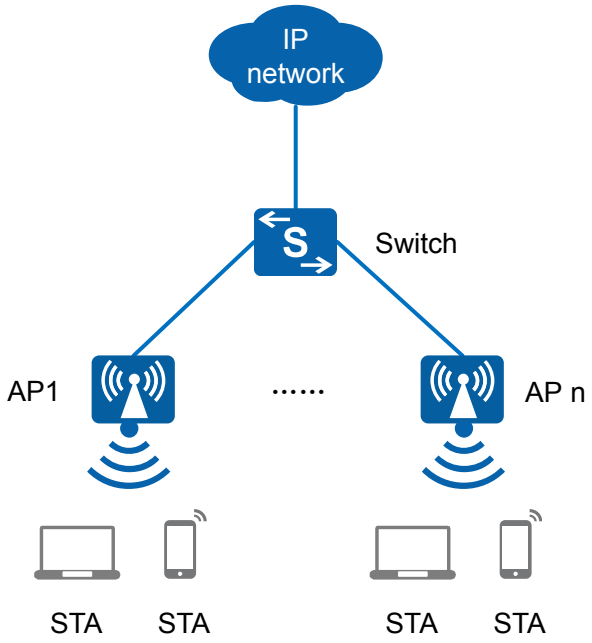
The following figure shows typical AP2051DN-L-S networking.

Figure 2-43 Fit AP networking



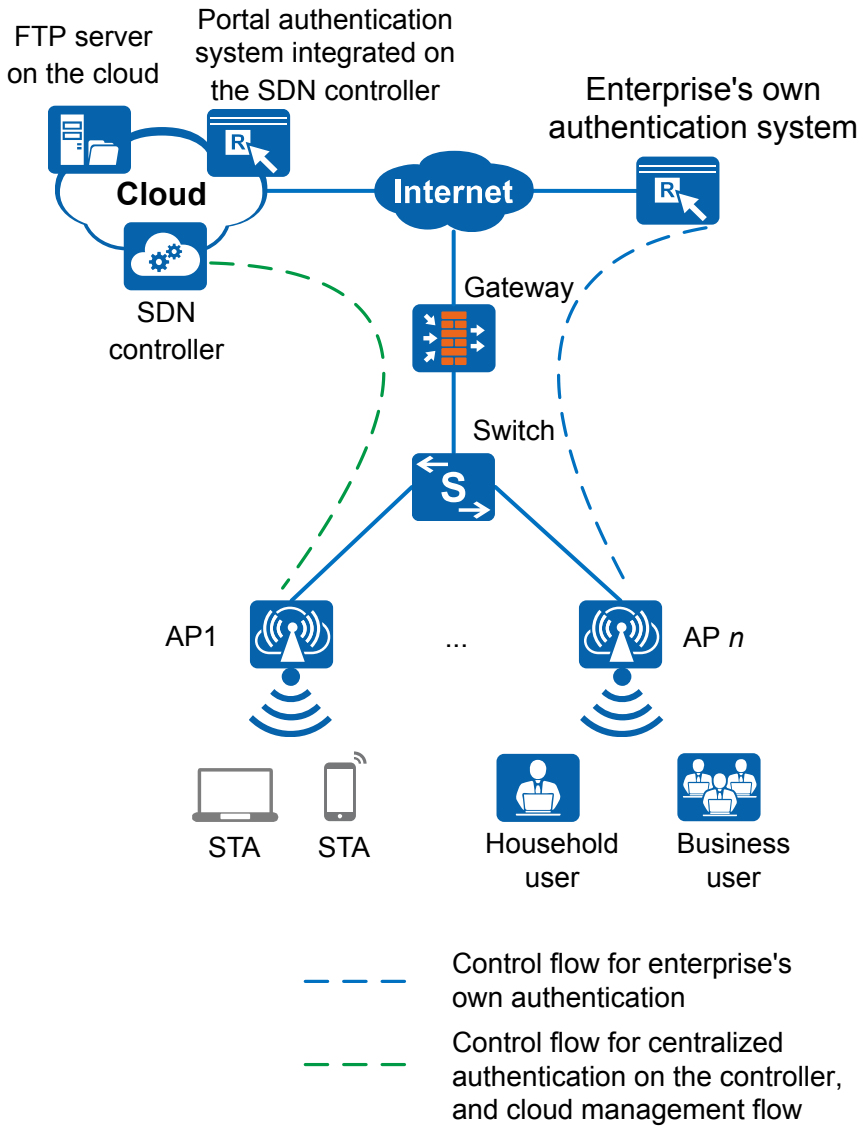
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-44 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-45 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

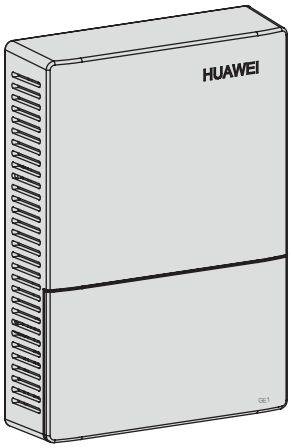
2.8.3 Hardware Information (AP2051DN-L-S)

Appearance

NOTE

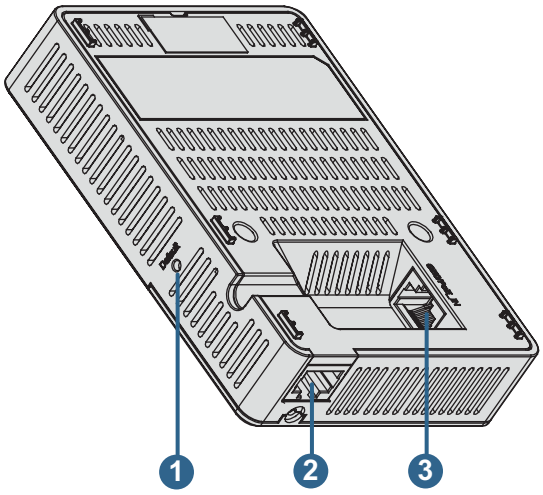
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-46 Appearance



Port

Figure 2-47 Ports



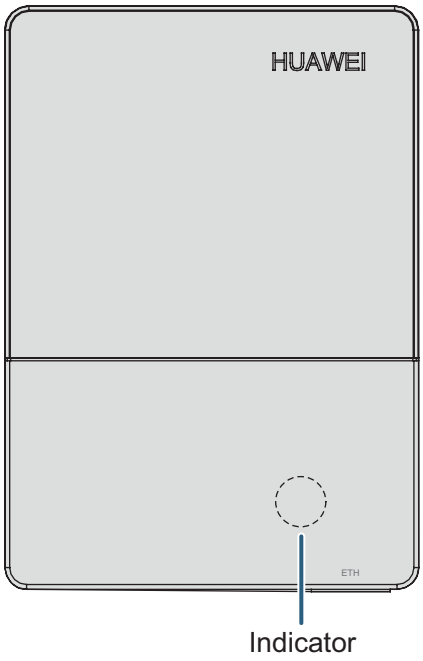
As shown in **Figure 2-47**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
2. ETH: 10/100M port that connects to the wired Ethernet.
3. GE/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

Indicator

The AP2051DN-L-S provides only one indicator, as shown in **Figure 2-48**.

Figure 2-48 Indicator



NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Table 2-30 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP.

Type	Name	Color	Status	Description
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once Alarm Green every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). ● The AP registration fails (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-31 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	26 mm x 86 mm x 120 mm
	Weight	0.2 kg
	System memory	● 256 MB DDR3L ● 64 MB Flash
Power specifications	Power input	PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	6.63 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to +40°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-32 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 6 dBi
Maximum number of users	Fit AP: ≤ 256 Fat AP: ≤ 256 Cloud AP: ≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 21 dBm (combined power) • 5 GHz: 17 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 433 Mbit/s		

2.8.4 Performance Specifications (AP2051DN-L-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.9 AP3010DN-V2 Product Description

2.9.1 Product Characteristics (AP3010DN-V2)

Table 2-33 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP3010DN-V2	Dual bands: • 2.4GHz • 5GHz The AP3010DN-V2 can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP3010DN-V2 supports 2 x 2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance.	The AP3010DN-V2 provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP3010DN-V2 can be flexibly deployed and work in hybrid mode (Fit AP +bridge).

2.9.2 Usage Scenarios (AP3010DN-V2)

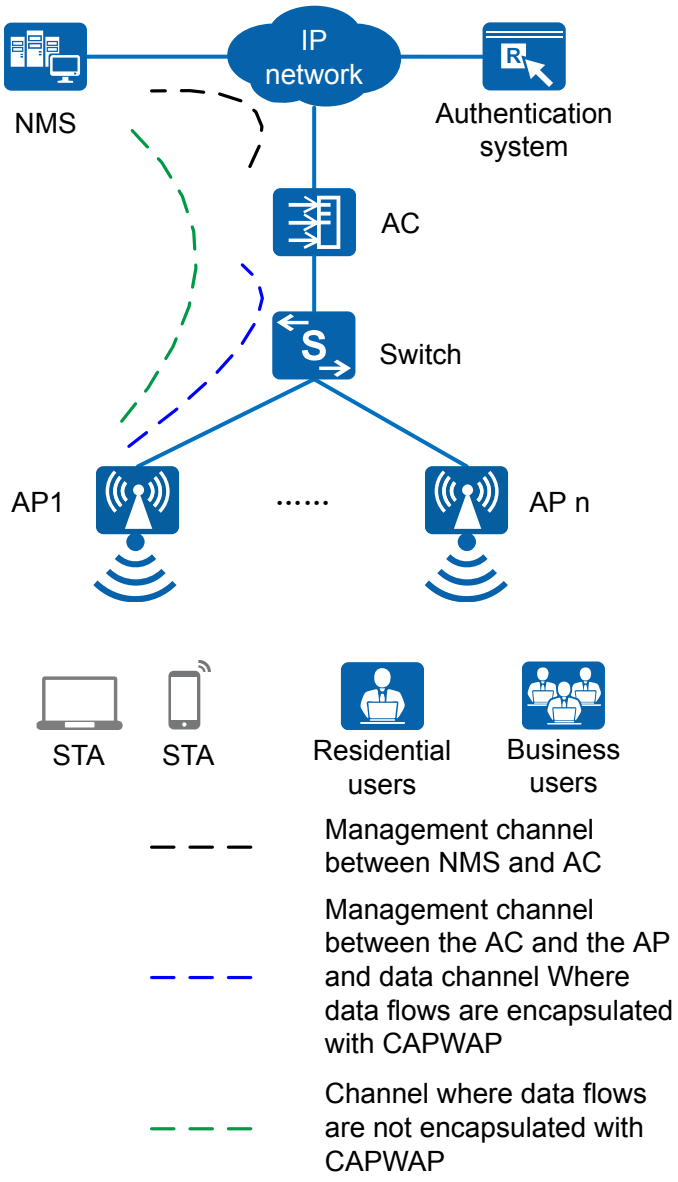
The AP3010DN-V2 can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network

management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-49 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-50 Fit AP networking (WDS mode: point-to-point)

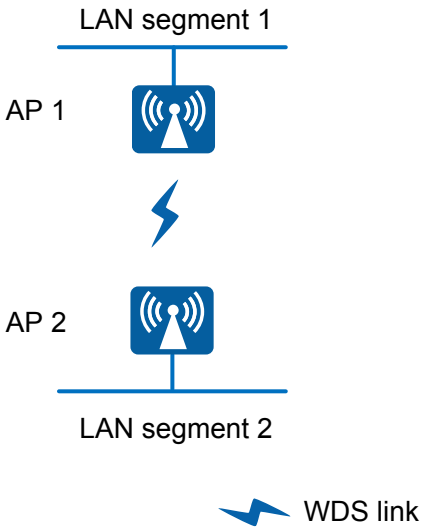
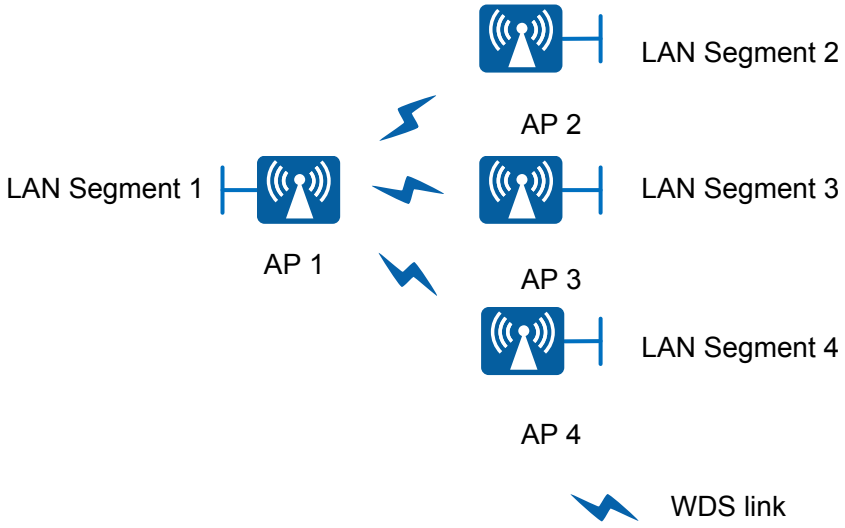
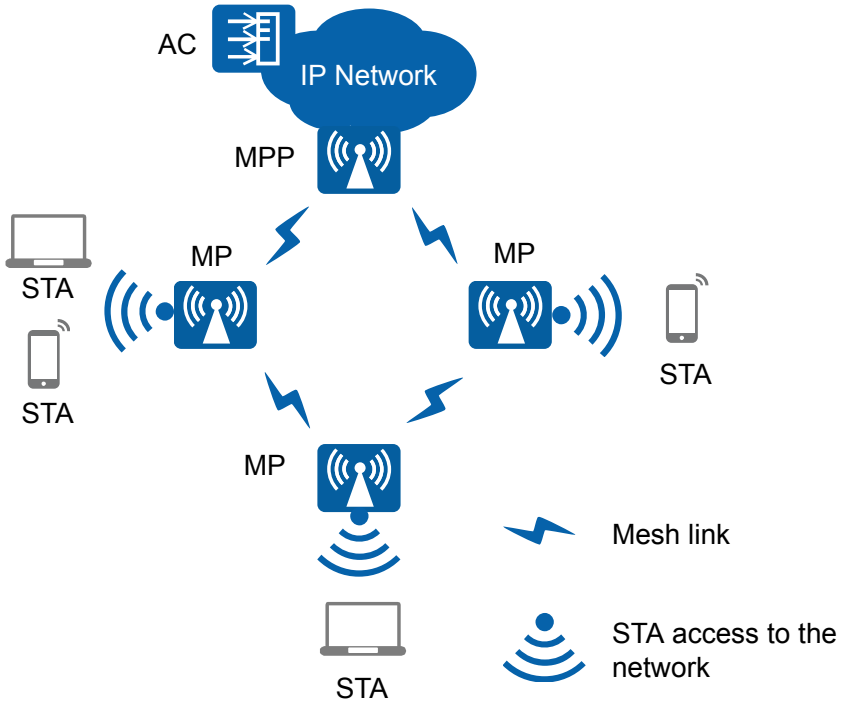


Figure 2-51 Fit AP networking (WDS mode: point-to-multipoint)



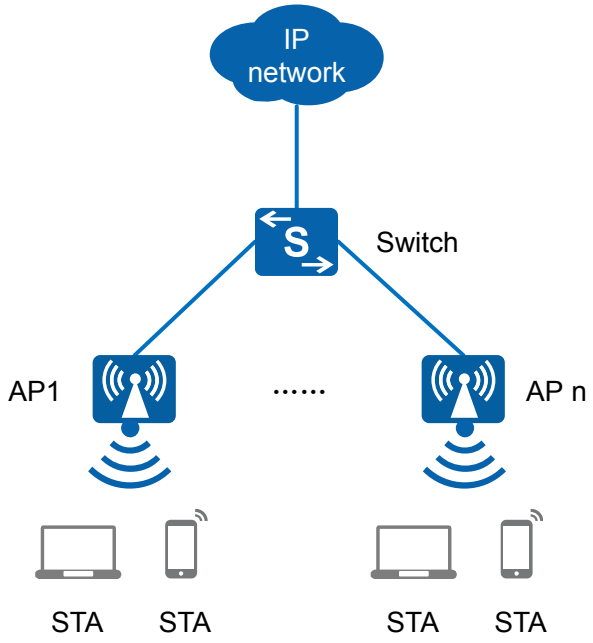
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-52 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-53 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.9.3 Hardware Information (AP3010DN-V2)

Appearance

Figure 2-54 shows the appearance of the AP.

NOTE

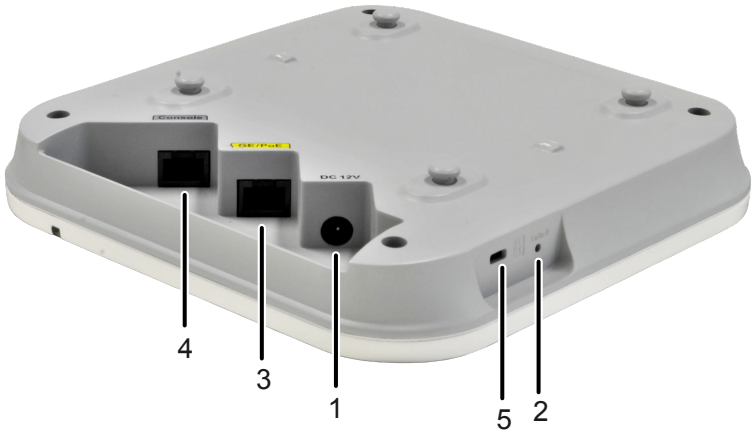
The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-54 AP3010DN-V2 appearance

Port

The following figure shows ports on the AP3010DN-V2.

Figure 2-55 AP3010DN-V2 ports



As shown in **Figure 2-55**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 4. Console port: connects to the maintenance terminal for AP configuration and management.
- 5. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-34 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-35 Basic specifications of the AP3030DN

Item		Description
Physical specifications	Dimensions (H x W x D)	39.5 mm x 180 mm x 180 mm
	Weight	0.4 kg
	System memory	• 256 MB DDR2 • 32 MB flash

Item		Description
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	10.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment parameters	Operating temperature and altitude	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-36 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4G: 4dBi • 5G: 6dBi
Maximum number of users	• Fit AP: ≤ 128 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.9.4 Performance Specifications (AP3010DN-V2)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.10 AP3030DN Product Description

2.10.1 Product Characteristics (AP3030DN)

Table 2-37 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP3030DN	Dual bands: • 2.4 GHz • 5 GHz The AP3030DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP3030DN supports 2x2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP3030DN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP3030DN provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP3030DN can be flexibly deployed and work in both Fit AP and bridge mode.

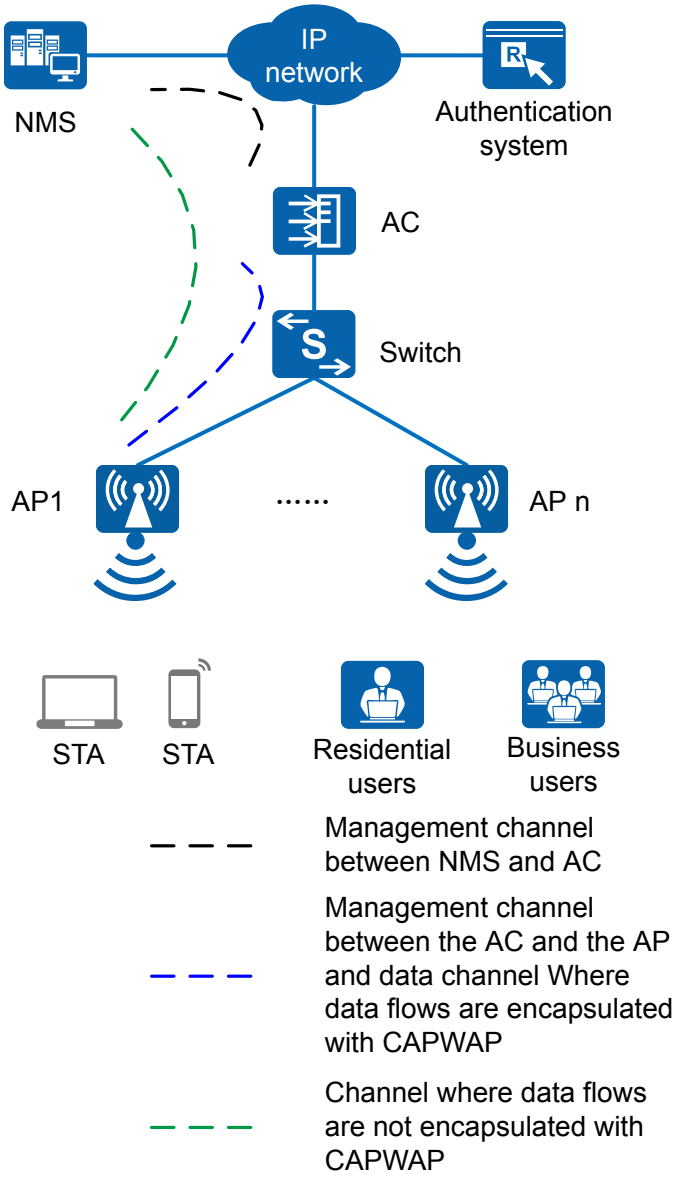
2.10.2 Usage Scenarios (AP3030DN)

The AP3030DN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-56 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-57 Fit AP networking (WDS mode: point-to-point)

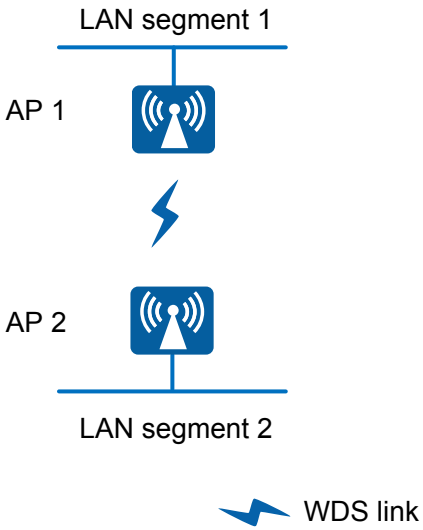
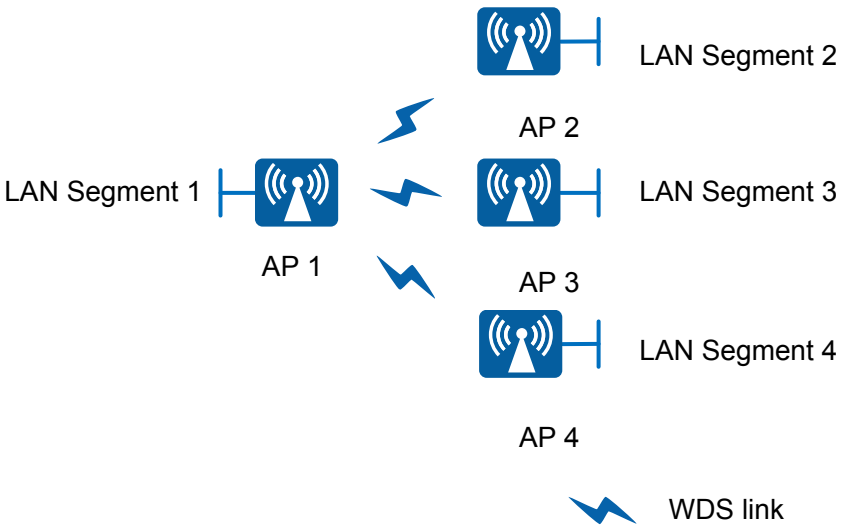
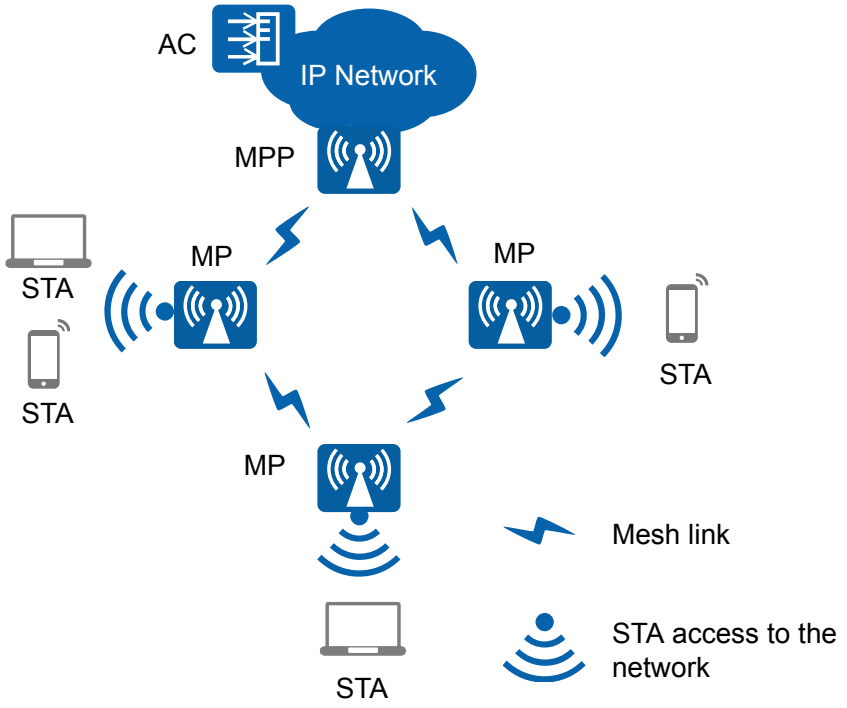


Figure 2-58 Fit AP networking (WDS mode: point-to-multipoint)



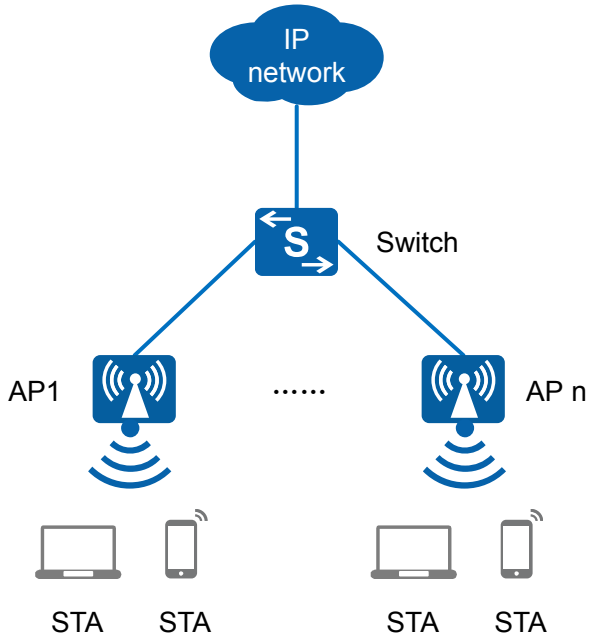
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-59 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-60 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.10.3 Hardware Information (AP3030DN)

Appearance

Figure 2-61 shows the appearance of the AP.

NOTE

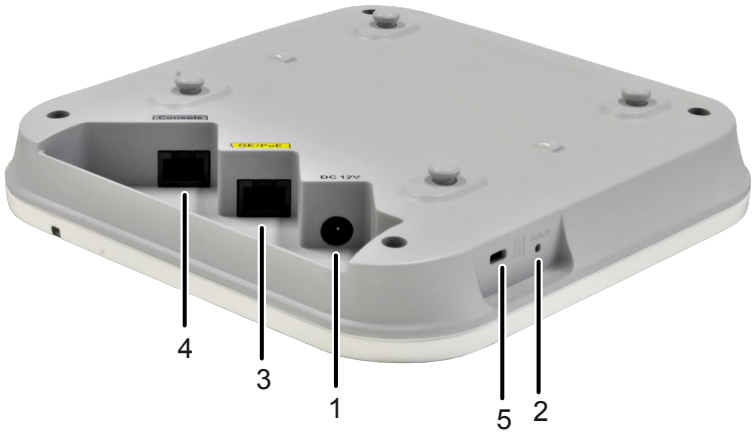
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-61 AP3030DN appearance

Port

The following figure shows ports on the AP3030DN.

Figure 2-62 AP3030DN ports



As shown in **Figure 2-62**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 4. Console port: connects to the maintenance terminal for AP configuration and management.
- 5. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-38 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-39 Basic specifications of the AP3030DN

Item		Description
Physical specifications	Dimensions (H x W x D)	39.5 mm x 180 mm x 180 mm
	Weight	0.4 kg
	System memory	• 256 MB DDR2 • 32 MB flash

Item		Description
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	10.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment parameters	Operating temperature and altitude	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-40 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 6 dBi
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.10.4 Performance Specifications (AP3030DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.11 AP3050DE Product Description

2.11.1 Product Characteristics (AP3050DE)

Huawei AP3050DE is a wireless access point (AP) in the business distribution market that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and

configuration, and real-time management and maintenance, which meets network deployment requirements. The AP has built-in smart antennas, complies with 802.11n and 802.11ac protocols, and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

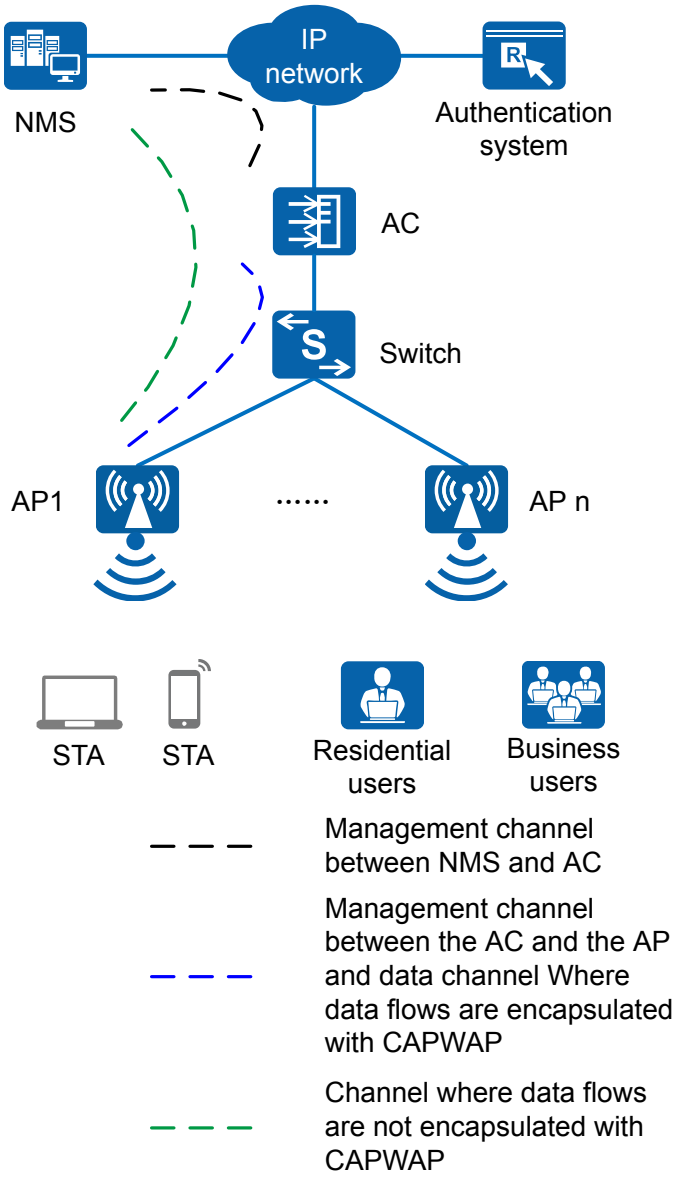
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.11.2 Usage Scenarios (AP3050DE)

The AP3050DE can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-63 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-64 Fit AP networking (WDS mode: point-to-point)

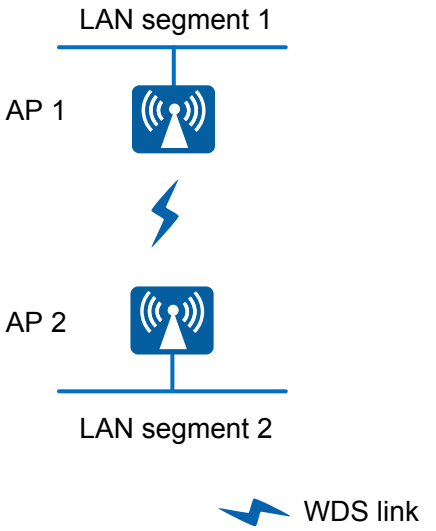
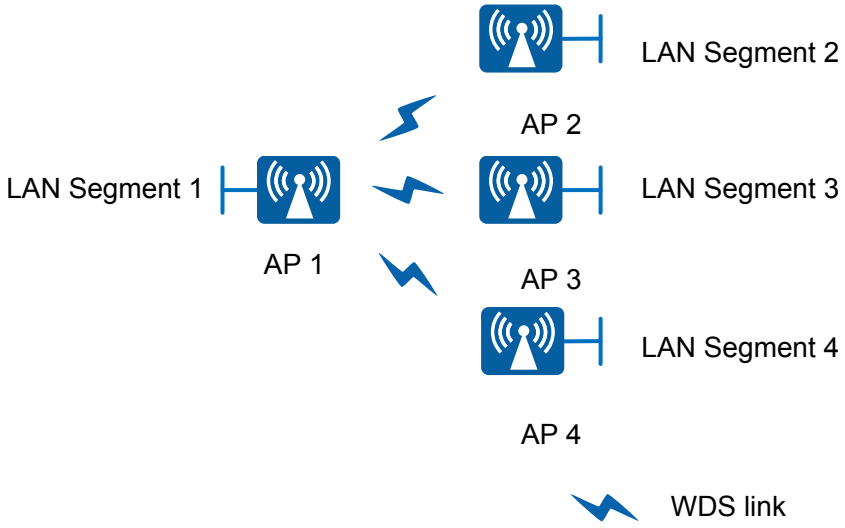
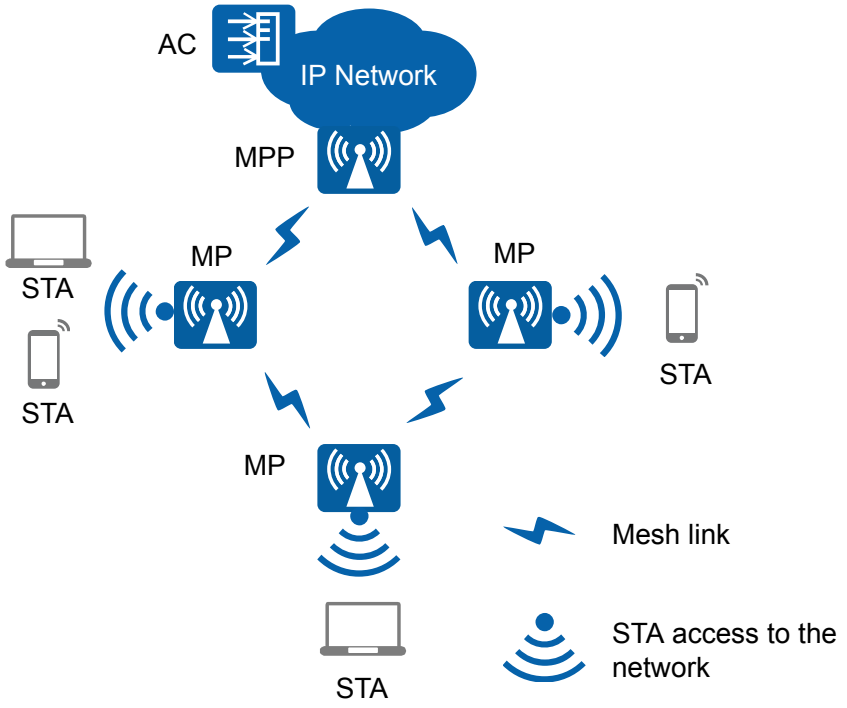


Figure 2-65 Fit AP networking (WDS mode: point-to-multipoint)



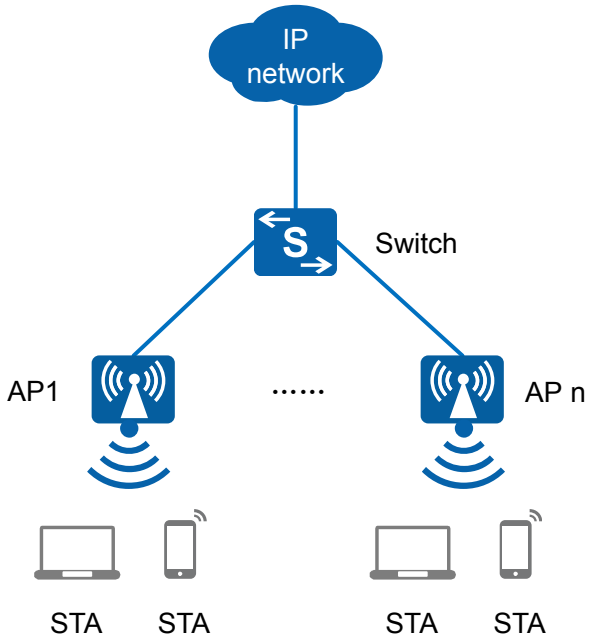
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-66 Fit AP mesh networking



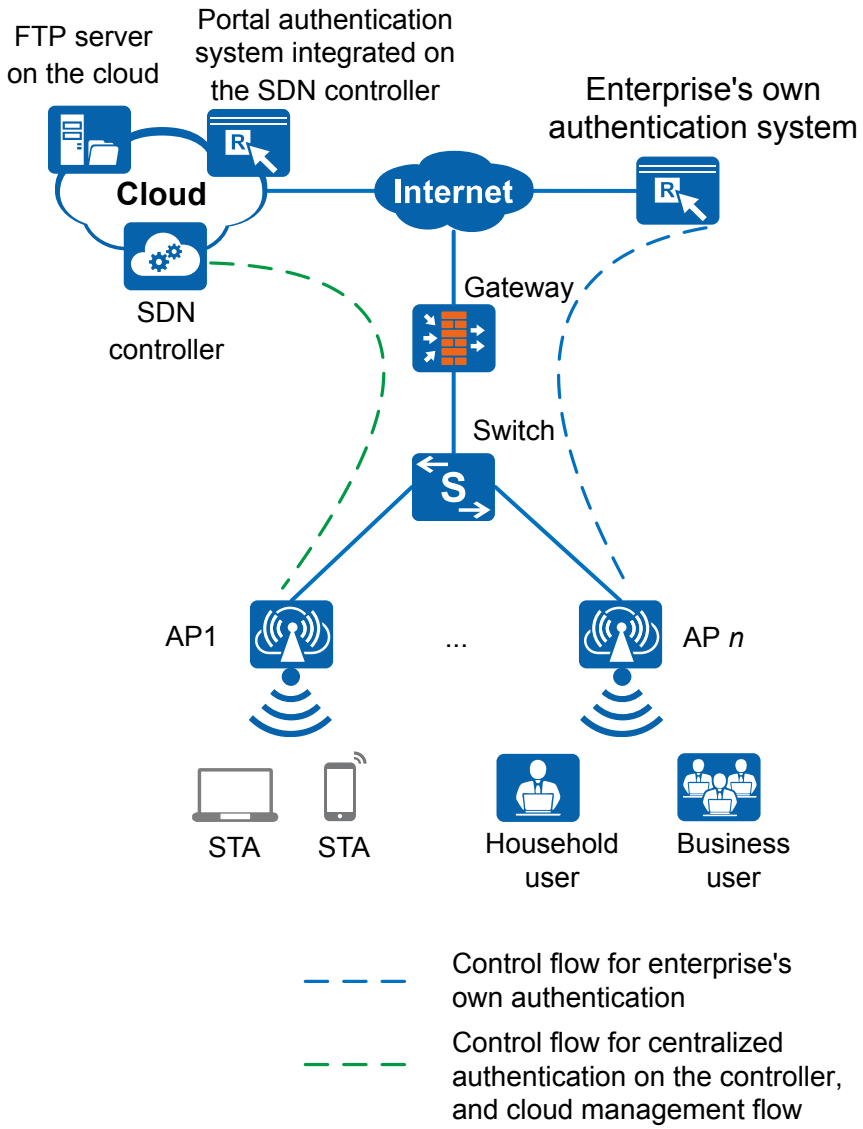
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-67 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-68 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.11.3 Hardware Information (AP3050DE)

Appearance

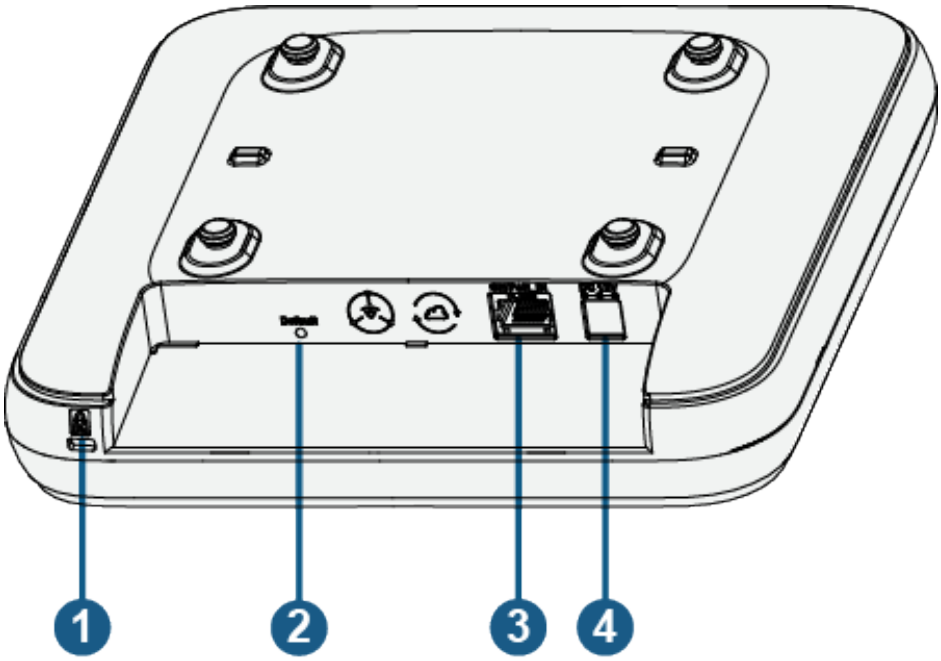
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-69 Appearance

Ports

Figure 2-70 Ports



As shown in **Figure 2-70**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
3. GE/PoE_IN: GE/PoE_IN
4. DC 12 V: Connects a 12 V power adapter to the AP.

NOTE

- The AP supports the following power supply modes: PoE power supply and DC power supply.
- Use the selected power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP3050DE provides only a single indicator, as shown in **Figure 2-71**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-71 Indicator

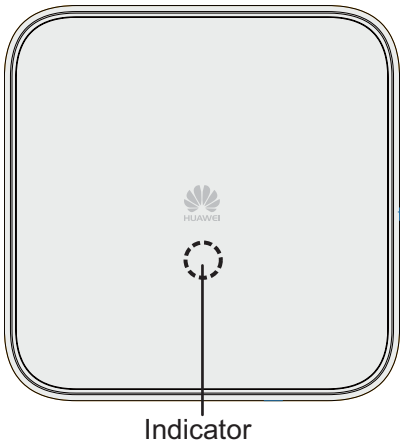


Table 2-41 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-42 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm x 200 mm x 200 mm
	Weight	0.7 kg

Item		Description
	System memory	• 256 MB DDR3L • 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	11.48 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-43 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart omnidirectional antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 3 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 20 dBm (combined power)
• 5 GHz: 20 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 400 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.11.4 Performance Specifications (AP3050DE)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.12 AP4030DN Product Description

2.12.1 Product Characteristics (AP4030DN)

Table 2-44 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP4030DN	Dual bands: • 2.4 GHz • 5 GHz The AP4030DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP4030DN supports 2 x 2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP4030DN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP4030DN provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP4030DN can be flexibly deployed and work in hybrid mode (Fit AP +bridge).

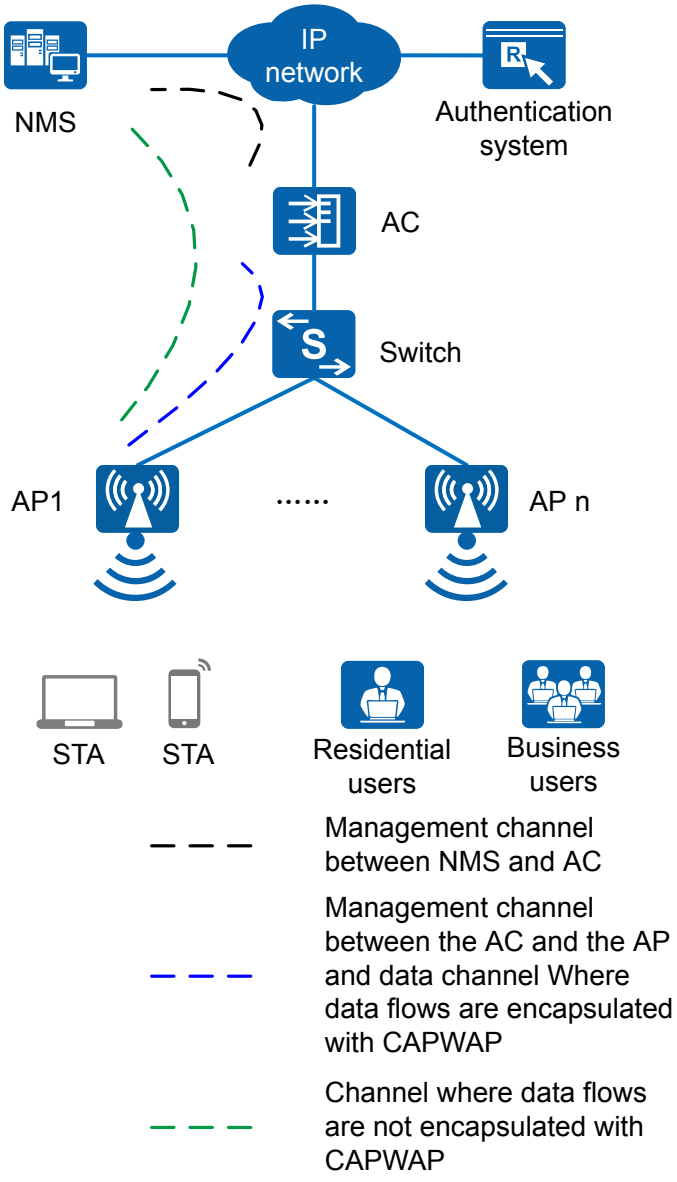
2.12.2 Usage Scenarios (AP4030DN)

The AP4030DN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-72 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-73 Fit AP networking (WDS mode: point-to-point)

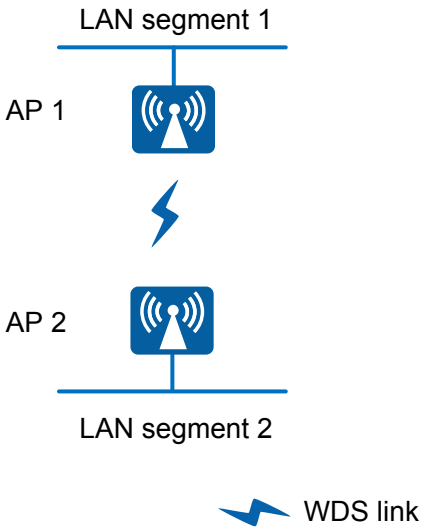
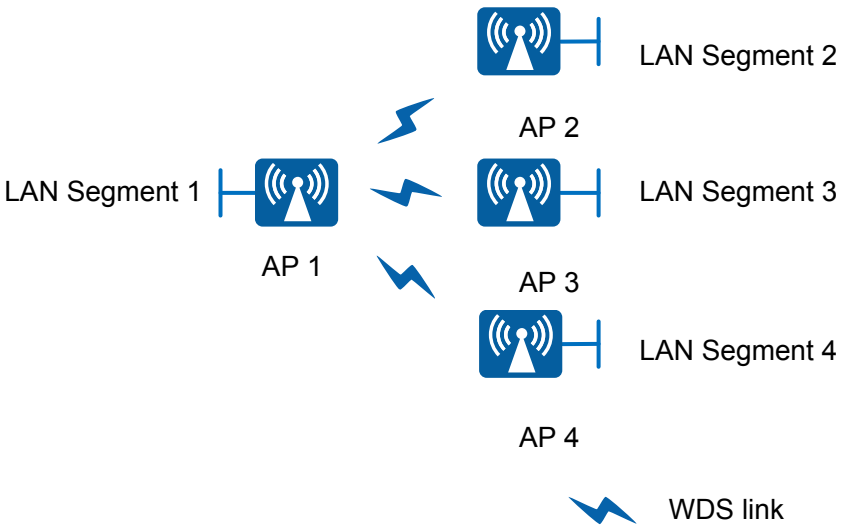
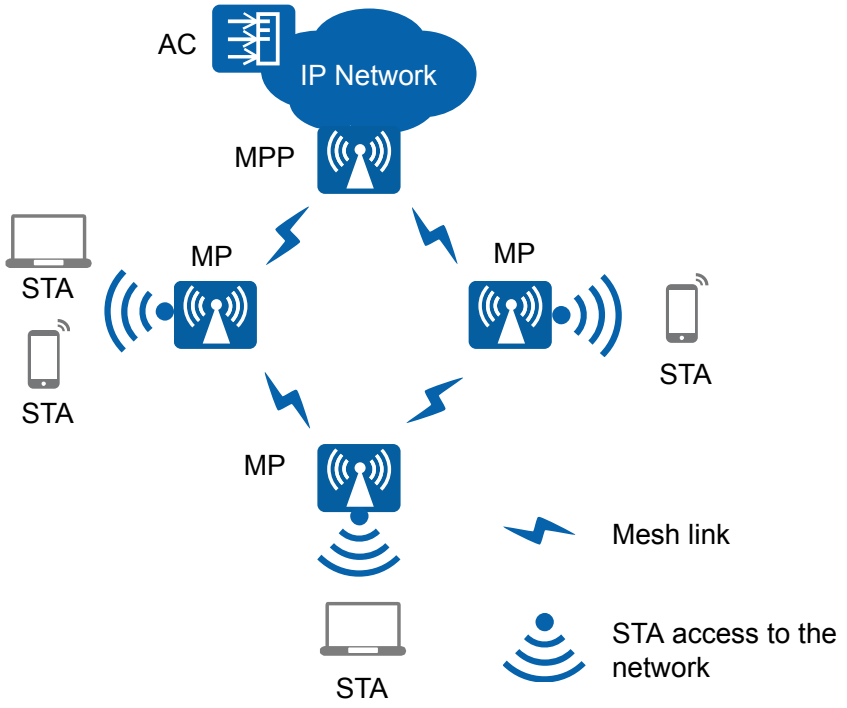


Figure 2-74 Fit AP networking (WDS mode: point-to-multipoint)



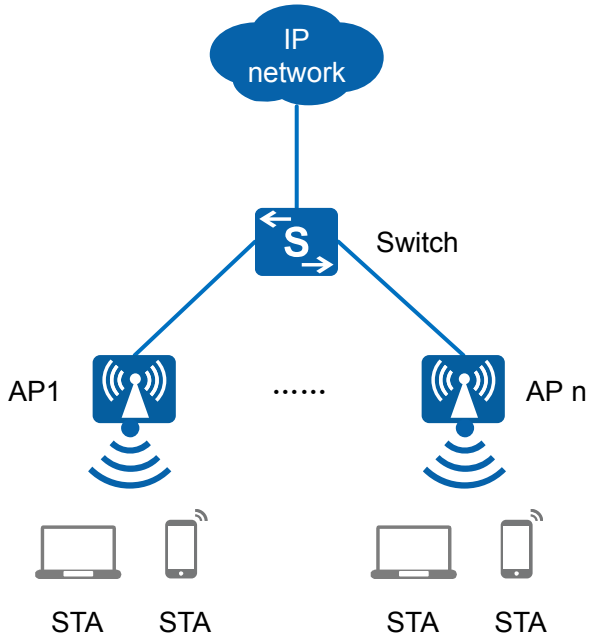
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-75 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-76 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.12.3 Hardware Information (AP4030DN)

Appearance

Figure 2-77 shows the appearance of the AP.

NOTE

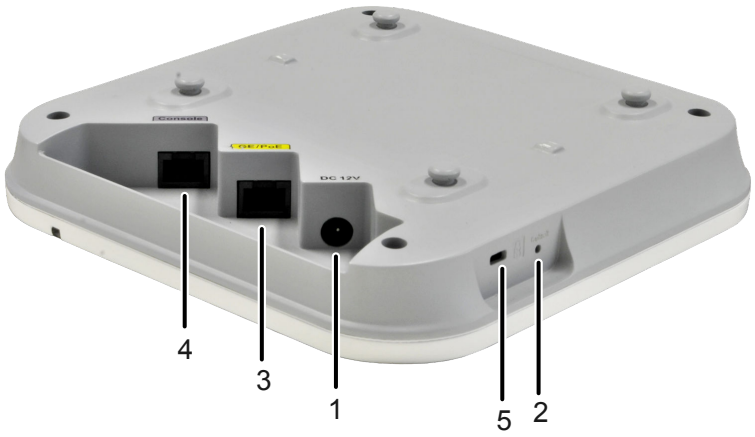
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-77 AP4030DN appearance

Port

Figure 2-78 shows ports on the AP4030DN.

Figure 2-78 AP4030DN ports



As shown in Figure 2-78, each port can be described as follows:

1. Input port for 12 V DC power supply
2. Default button: restores factory settings if you hold down the button more than 3 seconds.
3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
4. Console port: connects to the maintenance terminal for AP configuration and management.
5. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-45 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-46 Basic specifications of the AP4030DN

Item		Description
Technical specifications	Dimensions (H x W x D)	39.5 mm x 180 mm x 180 mm
	Weight	0.4 kg
	System memory	• 256 MB DDR2 • 32 MB Flash

Item		Description
Power specifications	Power input	• DC: 12 V ± 10% • PoE power: in compliance with IEEE 802.3af/at
	Maximum power consumption	10.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-47 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 6 dBi
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20MHz: 13
– 40MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.12.4 Performance Specifications (AP4030DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.13 AP4030DN-E Product Description

2.13.1 Product Characteristics (AP4030DN-E)

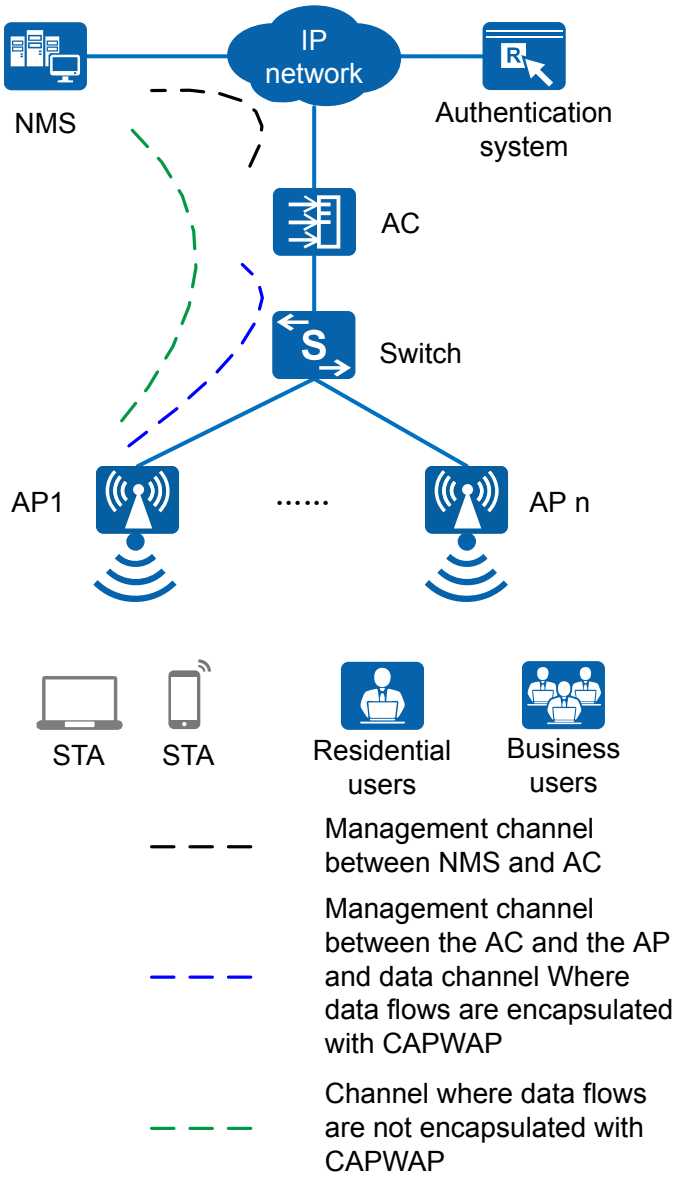
Table 2-48 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Application Scenario
AP4030DN-E	Dual bands: • 2.4 GHz • 5 GHz The AP4030DN-E can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP4030DN-E supports 2x2 MIMO on the 2.4 GHz band and 3x3 MIMO on the 5 GHz band, and provides comprehensive service support capabilities. It features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP4030DN-E complies with 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP4030DN-E provides basic 802.11n/ac wireless networks for scenarios with a simple building structure, a small area, densely located users, and high-capacity demands, for example, small- to medium-sized enterprises and enterprise branches. The AP4030DN-E can be flexibly deployed in different environments.

2.13.2 Usage Scenarios (AP4030DN-E)

The AP4030DN-E can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

Figure 2-79 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-80 Fit AP networking (WDS mode: point-to-point)

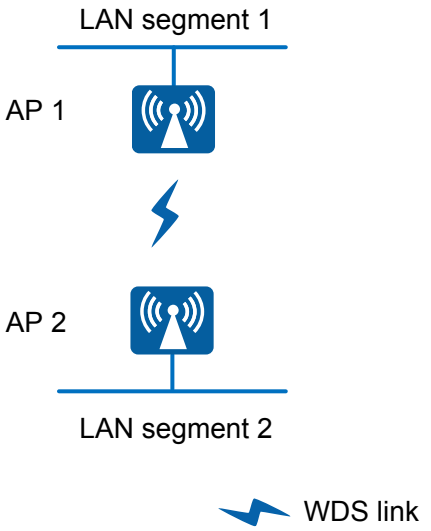
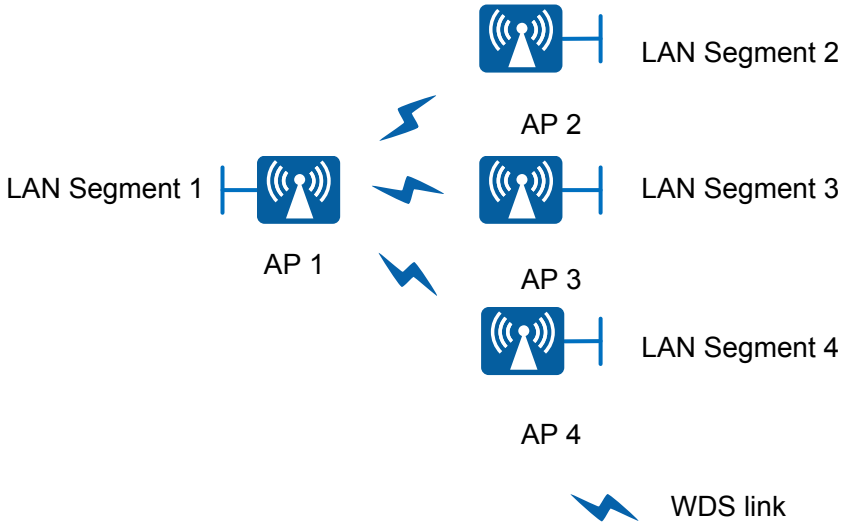
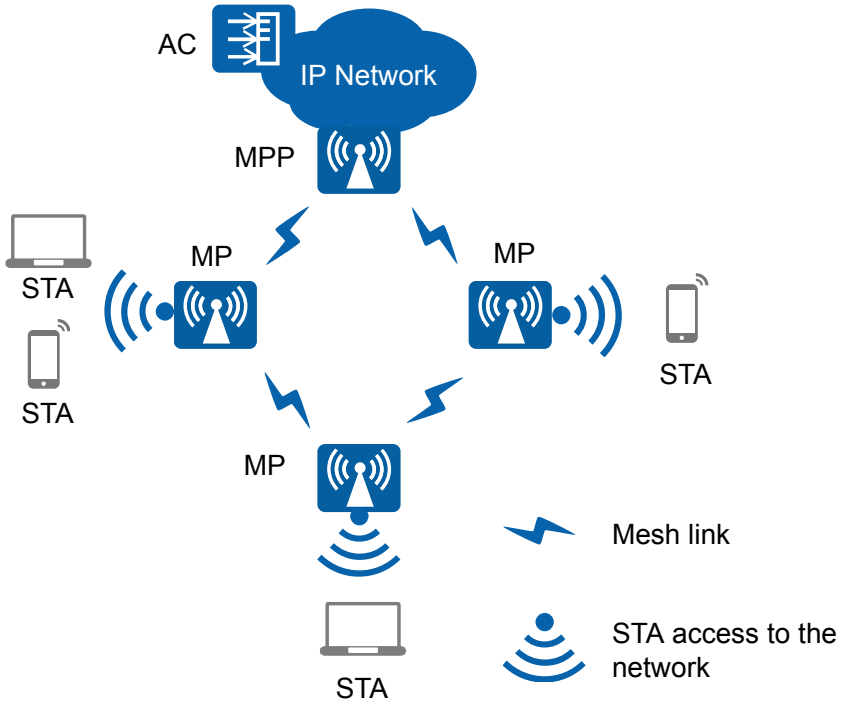


Figure 2-81 Fit AP networking (WDS mode: point-to-multipoint)



In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-82 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

2.13.3 Hardware Information (AP4030DN-E)

Appearance

Figure 2-83 shows the appearance of the AP.

NOTE

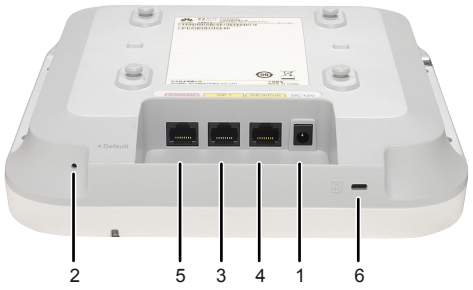
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-83 AP appearance

Port

The following figure shows ports on the AP.

Figure 2-84 AP ports



As shown in **Figure 2-84**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE1: 10/100/1000M port used to connect to the wired Ethernet.
- 4. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 5. Console port: connects to the maintenance terminal for AP configuration and management.
- 6. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-49 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-50 Basic specifications of the AP4030DN-E

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	0.8 kg
	System memory	• 256 MB DDR2 • 32 MB flash
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	11.5 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment parameters	Operating temperature and altitude	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.

Item		Description
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-51 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 25 dBm (combined power) **NOTE** The actual maximum transmit power varies depending on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 450 Mbit/s • 802.11ac: 6.5 to 1300 Mbit/s		

2.13.4 Performance Specifications (AP4030DN-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.14 AP4030TN Product Description

2.14.1 Product Characteristics (AP4030TN)

Table 2-52 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP4030TN	It supports three radios. One radio supports only the 5 GHz frequency band and the other radios support 2.4 GHz and 5 GHz frequency bands, providing more flexible and larger-capacity access capabilities.	IEEE 802.11a/b/g/n/ac	The cost-effective AP4030TN supports 2x2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP4030TN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP4030TN provides basic 802.11n/ac wireless networks for electronic classrooms in elementary education, high-density scenarios, shopping malls, and supermarkets. The AP4030TN supports flexible radio switchover and 2.4G + dual-5G access for education and office scenarios. One radio of an AP4030TN can be used for processing value-added services such as WIDS, Wi-Fi terminal location, and spectrum analysis, reducing impact on Wi-Fi coverage. The AP4030TN can be flexibly

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
				deployed and work in hybrid mode (Fit AP +bridge).

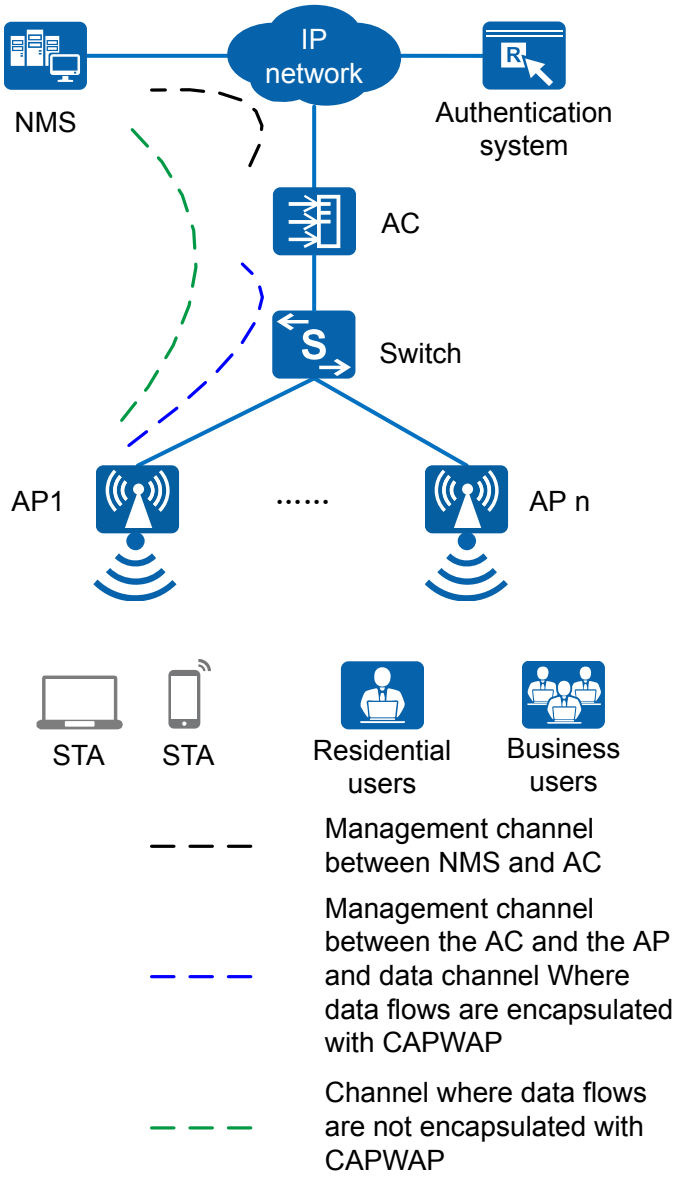
2.14.2 Usage Scenarios (AP4030TN)

The AP4030TN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-85 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-86 Fit AP networking (WDS mode: point-to-point)

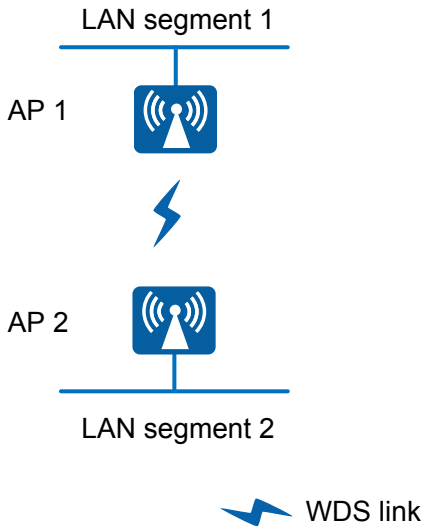
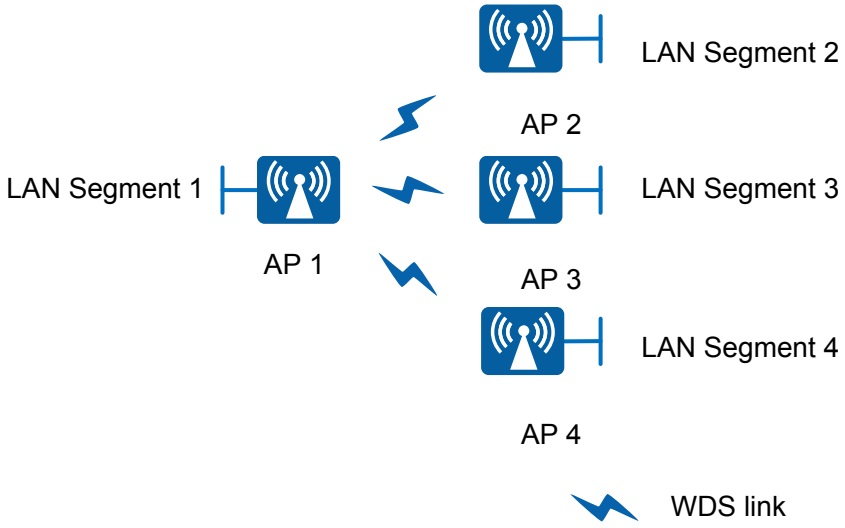
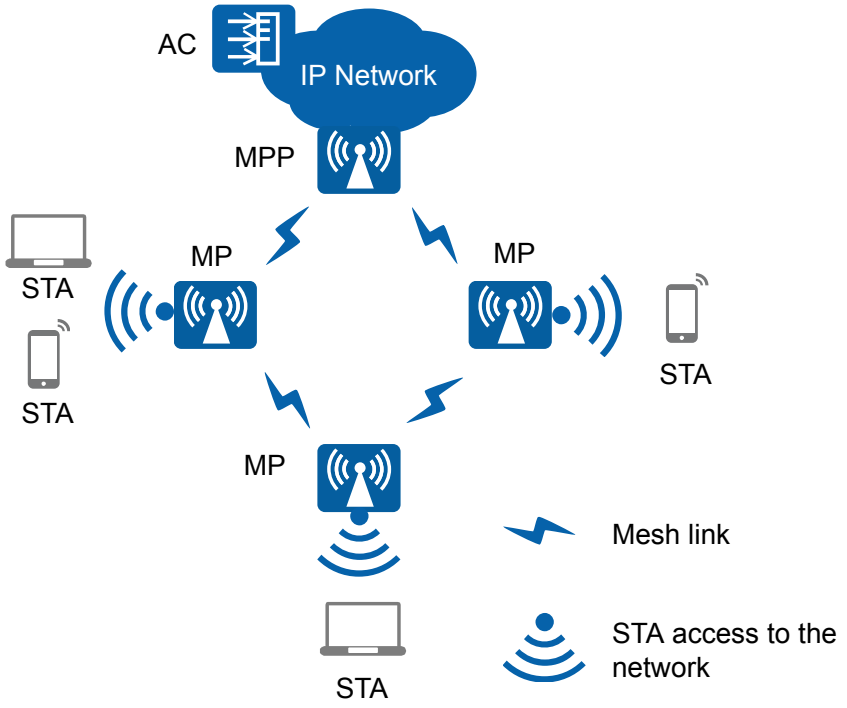


Figure 2-87 Fit AP networking (WDS mode: point-to-multipoint)



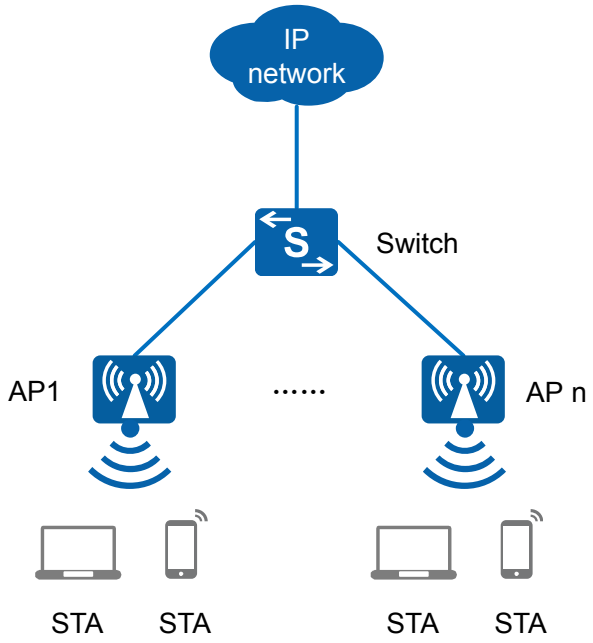
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-88 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-89 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.14.3 Hardware Information (AP4030TN)

Appearance

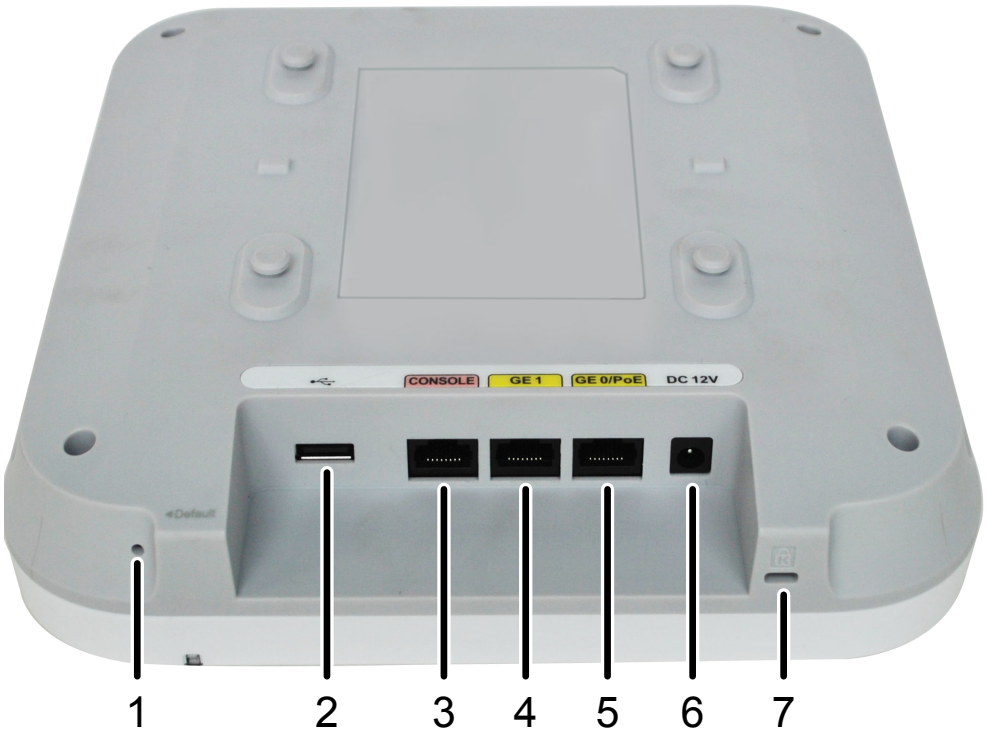
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-90 AP4030TN appearance

Ports

Figure 2-91 AP4030TN ports



As shown in **Figure 2-91**, each port can be described as follows:

1. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.
2. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
3. Console port: connects to a maintenance terminal for AP configuration and management.
4. GE1: 10/100/1000M port used to connect to the wired Ethernet.
5. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
6. Input port for 12 V DC power supply.
7. Security lock slot: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-53 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). ● The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-54 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	0.86 kg
	System memory	• 256 MB DDR2 • 64 MB NOR FLASH
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	21.5 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +45°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-55 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="3">• Fit AP: ≤ 384
• Fat AP: ≤ 96</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.14.4 Performance Specifications (AP4030TN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.15 AP4050DN Product Description

2.15.1 Product Characteristics (AP4050DN)

Huawei AP4050DN is a wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP complies with 802.11n and 802.11ac protocols and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

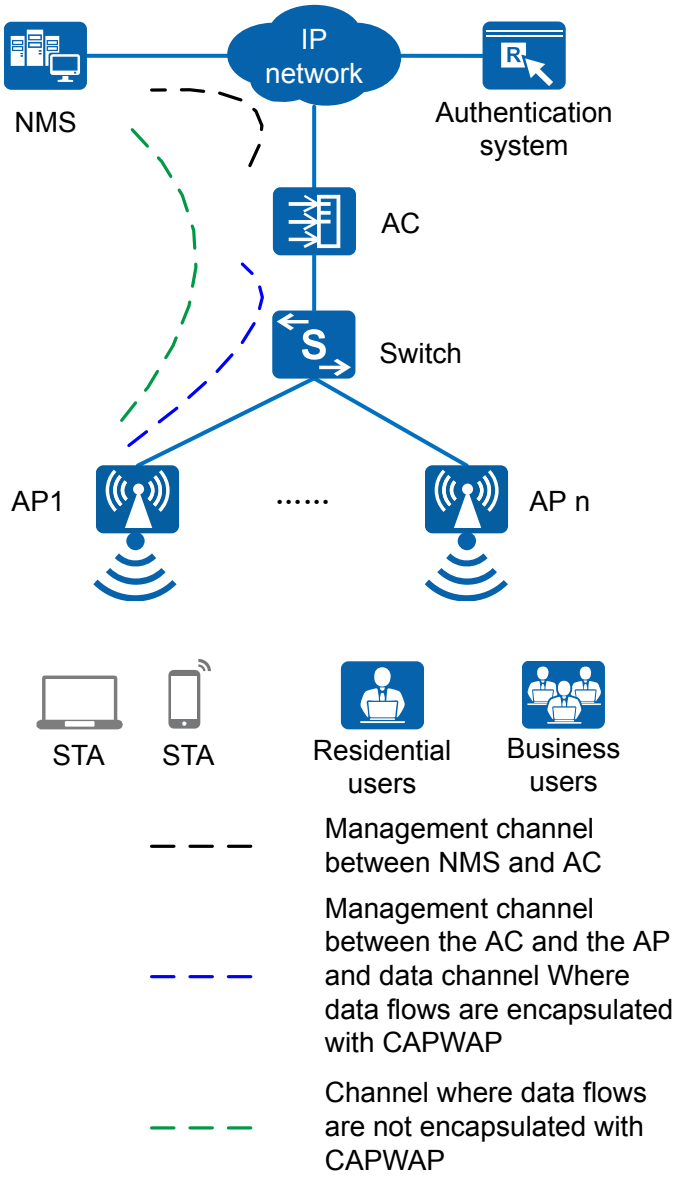
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.15.2 Usage Scenarios (AP4050DN)

The AP4050DN can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-92 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-93 Fit AP networking (WDS mode: point-to-point)

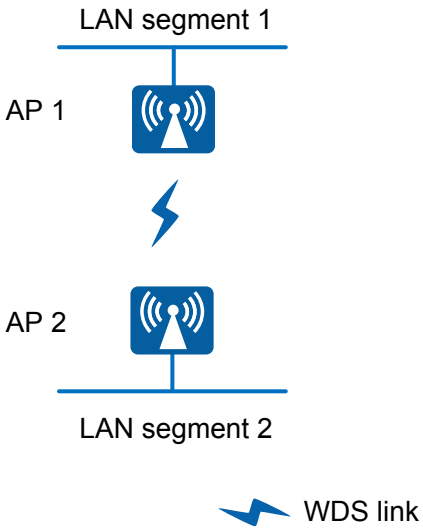
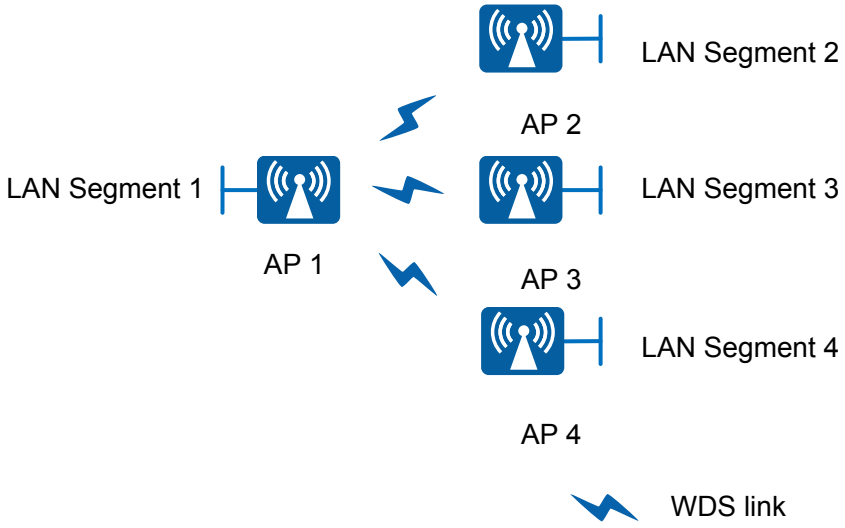
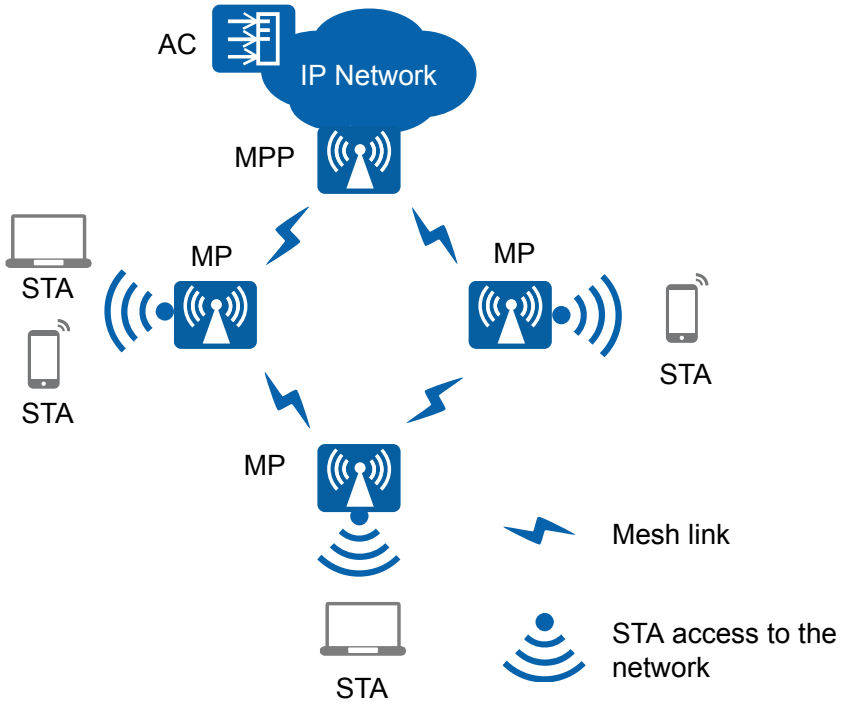


Figure 2-94 Fit AP networking (WDS mode: point-to-multipoint)



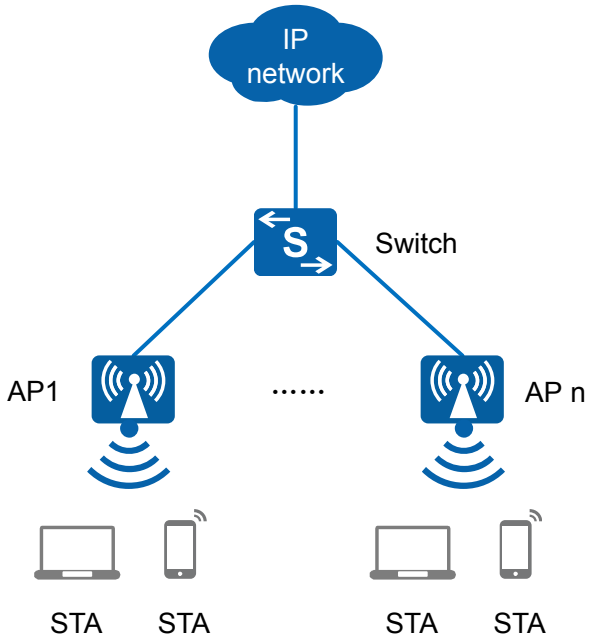
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-95 Fit AP mesh networking



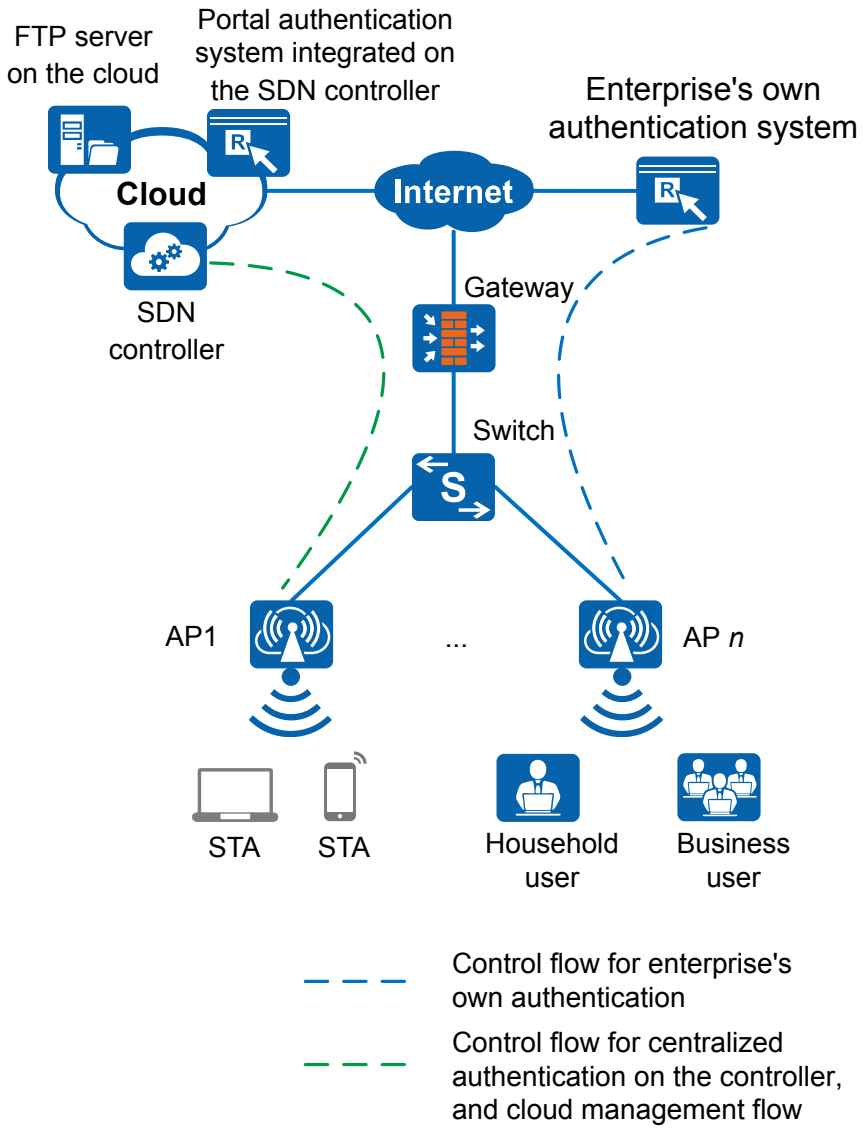
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-96 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-97 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.15.3 Hardware Information (AP4050DN)

Appearance

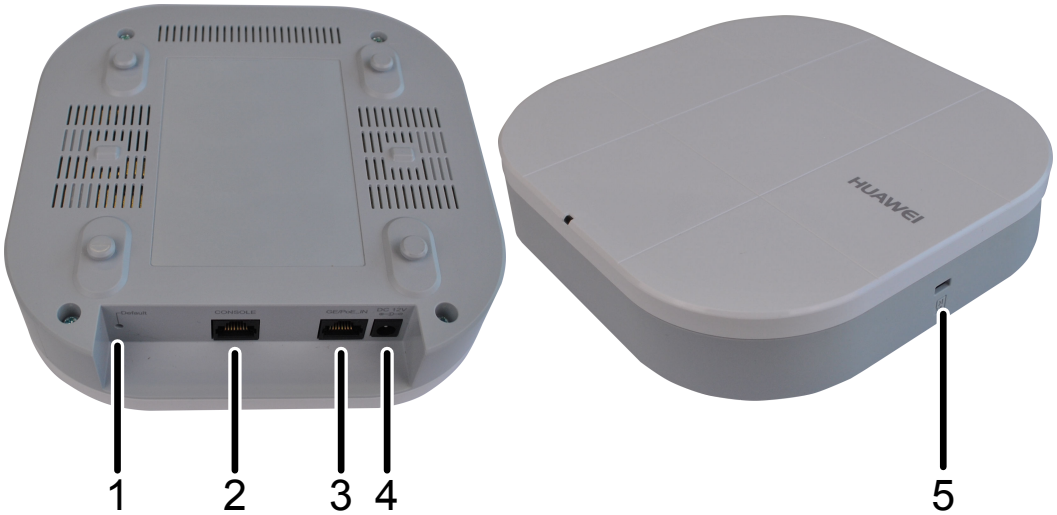
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-98 AP4050DN appearance

Ports

Figure 2-99 AP4050DN ports



As shown in **Figure 2-99**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

2. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
3. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4. DC 12V: Connects a 12 V power adapter to the AP.
5. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-56 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-57 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	35 mm × 170 mm × 170 mm
	Weight	0.41 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.1 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-58 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.15.4 Performance Specifications (AP4050DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.16 AP4050DN-S Product Description

2.16.1 Product Characteristics (AP4050DN-S)

Huawei AP4050DN-S is a wireless Access Point (AP) that complies with 802.11ac Wave 2 and supports 2 x 2 MIMO and two spatial streams. It has comprehensive service support capabilities including high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP4050DN-S supports 802.11n and 802.11ac, and provides gigabit access for STAs, which greatly improve user experience on wireless networks and apply to small- and medium-sized enterprises, airports and stations, sports mediums, cafes, and entertainment centers.

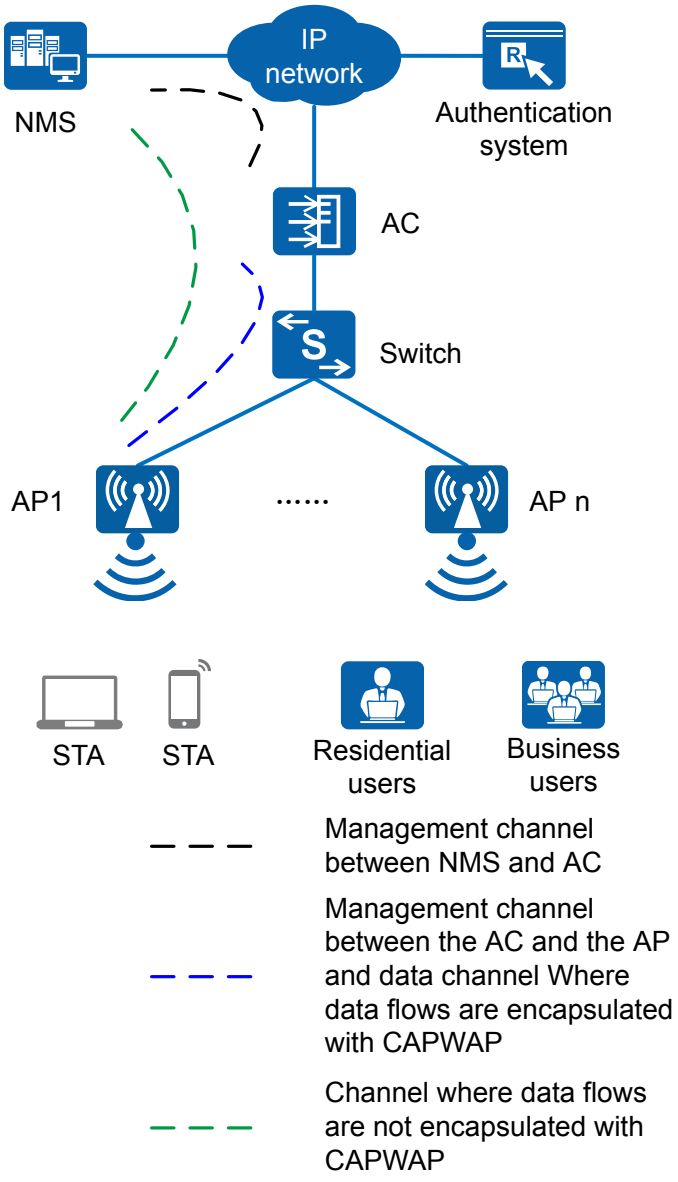
- Supports the 802.11ac Wave 2 standard and MU-MIMO, and provides services simultaneously on both 2.4 GHz and 5 GHz frequency bands. The maximum rates at the 2.4 GHz and 5 GHz frequency bands are 400 Mbit/s and 867 Mbit/s respectively, and the maximum rate of the device is 1.267 Gbit/s.
- Supports the Fat, Fit, and cloud modes.
- Enables Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

2.16.2 Usage Scenarios (AP4050DN-S)

The AP4050DN-S can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-100 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-101 Fit AP networking (WDS mode: point-to-point)

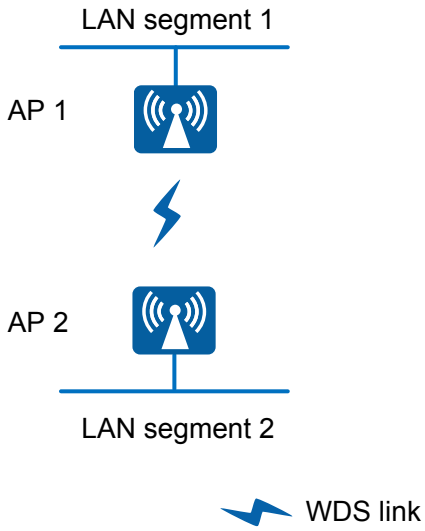
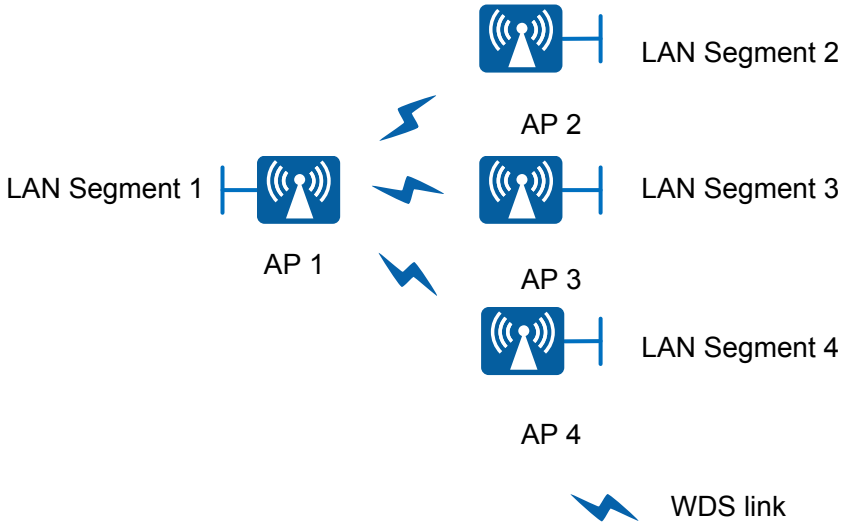
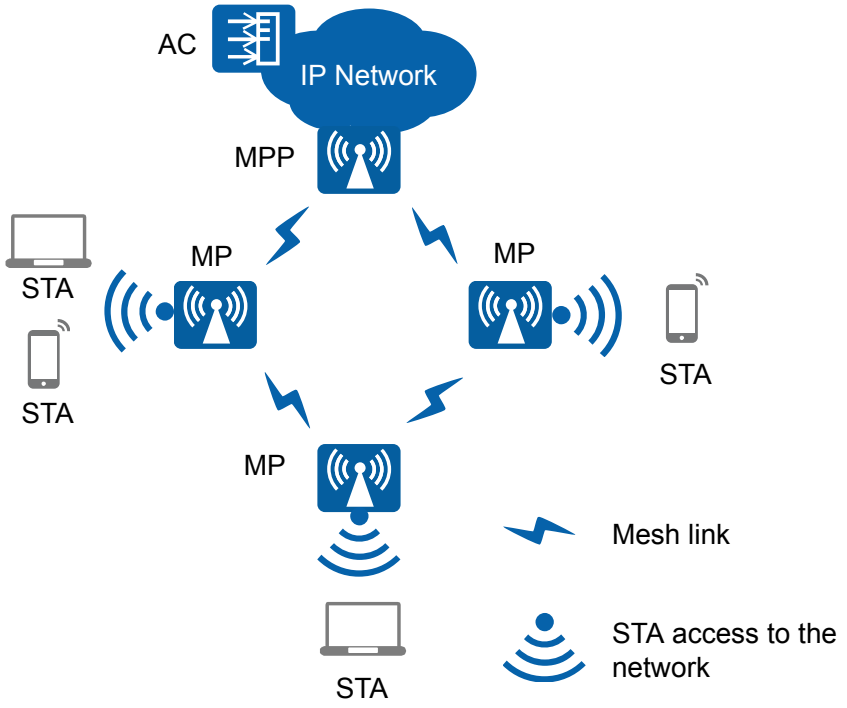


Figure 2-102 Fit AP networking (WDS mode: point-to-multipoint)



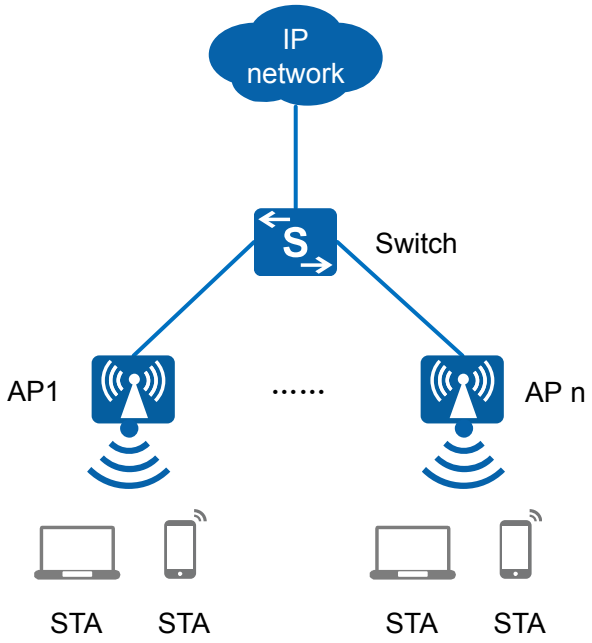
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-103 Fit AP mesh networking



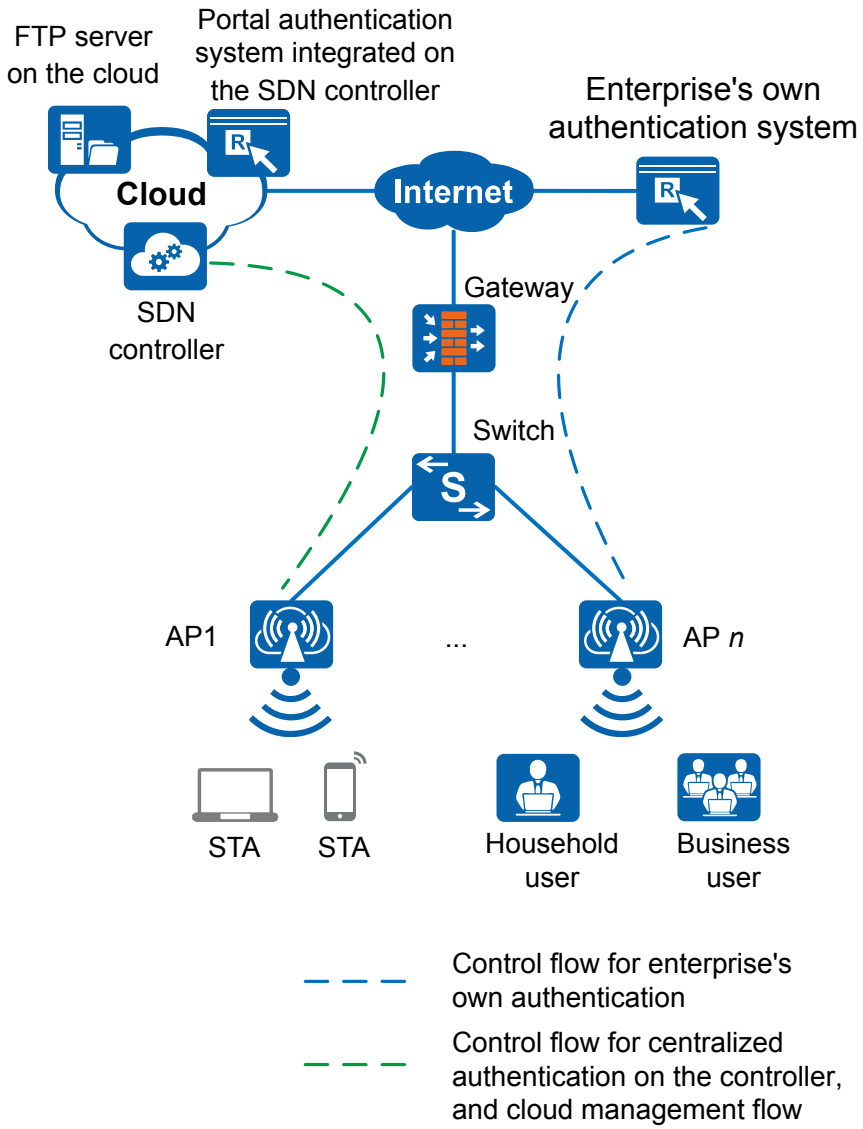
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-104 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-105 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.16.3 Hardware Information (AP4050DN-S)

Appearance

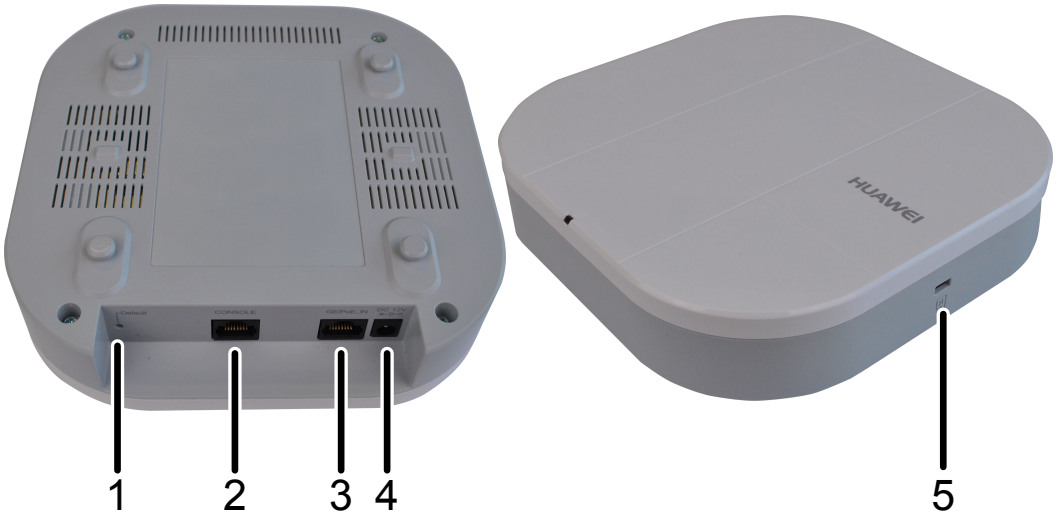
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-106 AP4050DN-S appearance

Ports

Figure 2-107 AP4050DN-S ports



As shown in **Figure 2-107**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

2. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
3. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4. DC 12V: Connects a 12 V power adapter to the AP.
5. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-59 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-60 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	35 mm x 170 mm x 170 mm (1.38 in. x 6.69 in. x 6.69 in.)
	Weight	0.41 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.1 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-61 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.16.4 Performance Specifications (AP4050DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.17 AP4050DN-E Product Description

2.17.1 Product Characteristics (AP4050DN-E)

Huawei AP4050DN-E is an IoT wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP complies with 802.11n and 802.11ac protocols and can provide gigabit STA access, which greatly improves user experience on wireless networks.

The AP4050DN-E has built-in Bluetooth and provides three module slots for function expansion, applicable to commercial chains, medical, warehousing, manufacturing, and logistics environments.

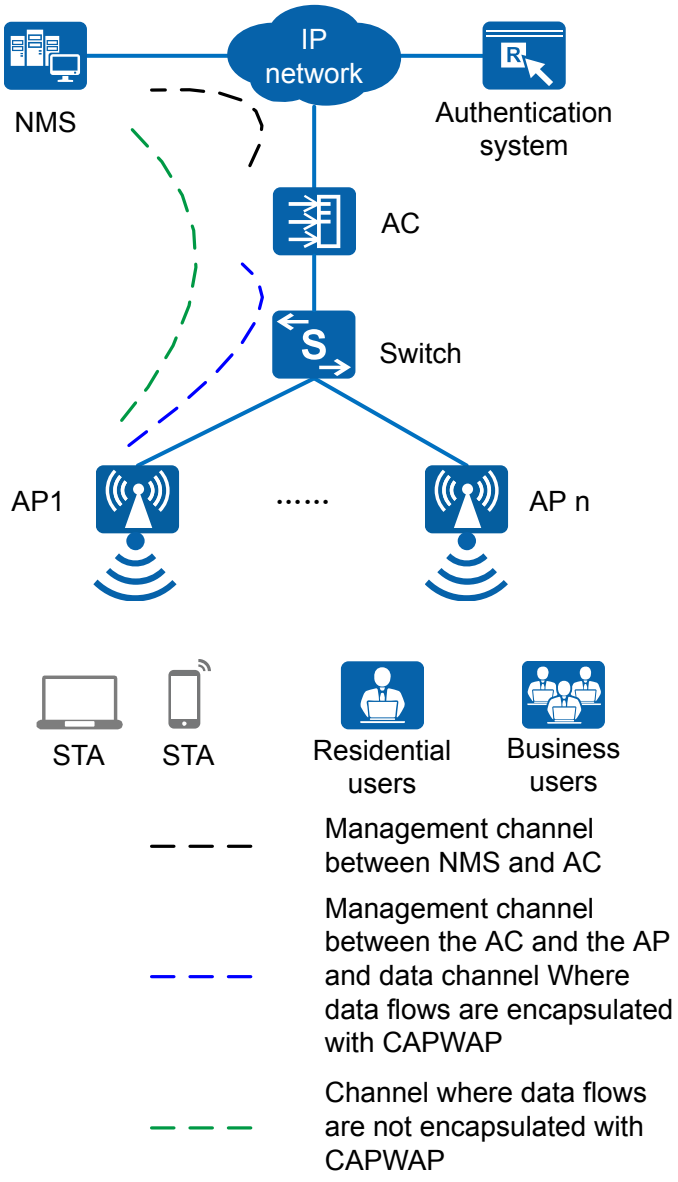
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Built-in Bluetooth to implement precise positioning with eSight
- IoT module to allow for flexible expansion of IoT applications
- Dual Ethernet interfaces support link aggregation and traffic load balancing while ensuring link reliability. The Ethernet interface GE0 supports the PoE in function, and the Ethernet interface GE1 supports the PoE out function.
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.17.2 Usage Scenarios (AP4050DN-E)

The AP4050DN-E can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-108 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-109 Fit AP networking (WDS mode: point-to-point)

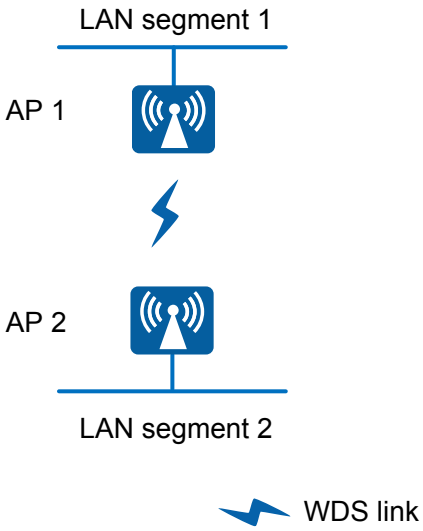
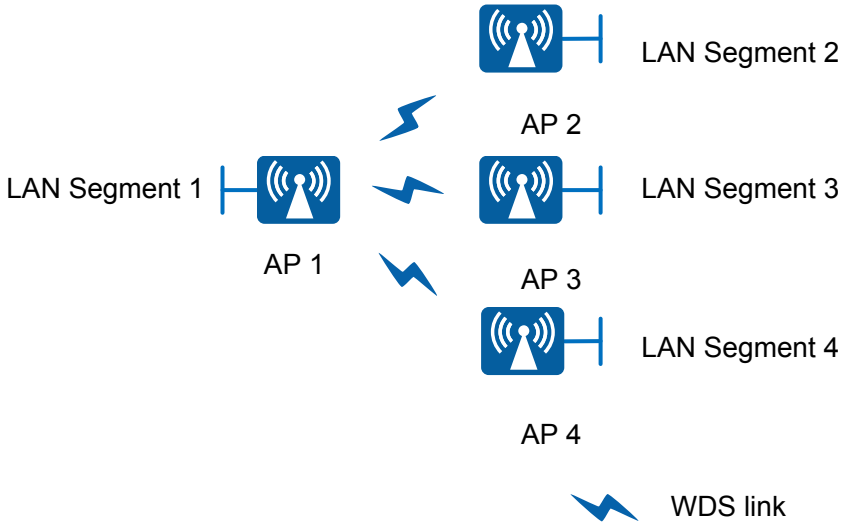
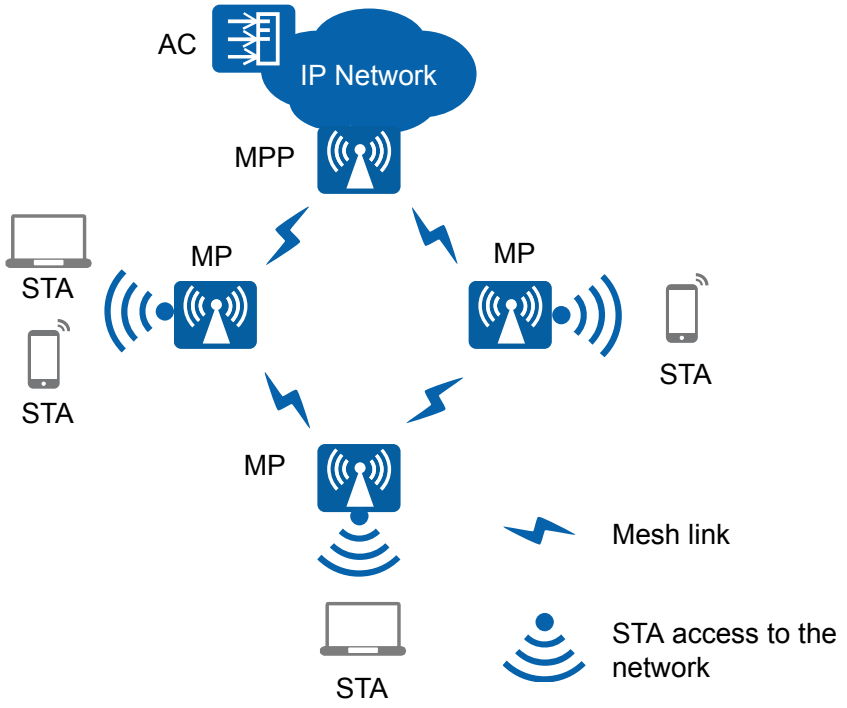


Figure 2-110 Fit AP networking (WDS mode: point-to-multipoint)



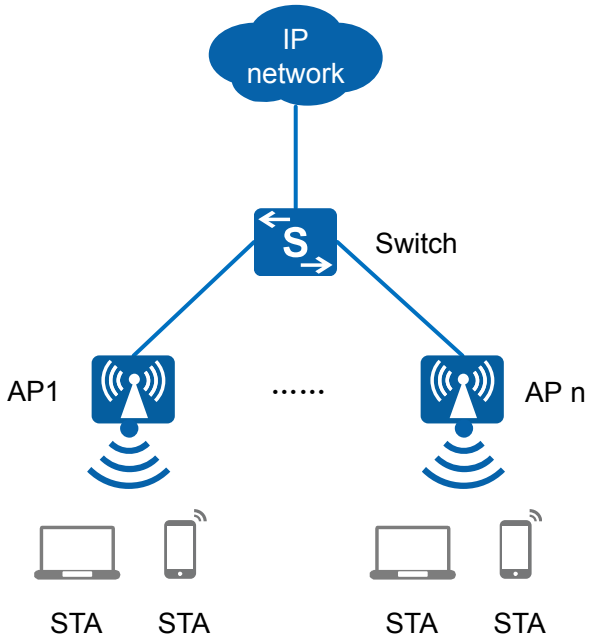
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-111 Fit AP mesh networking



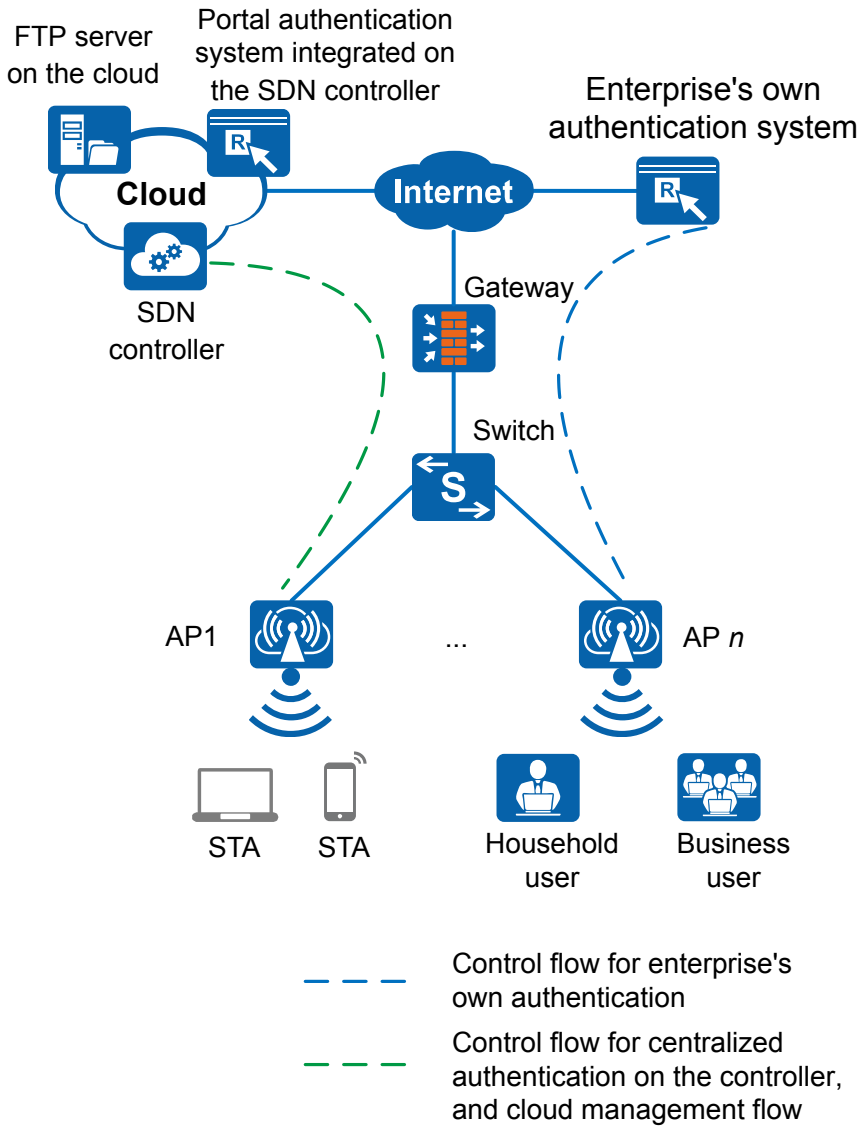
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-112 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-113 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.17.3 Hardware Information (AP4050DN-E)

Appearance

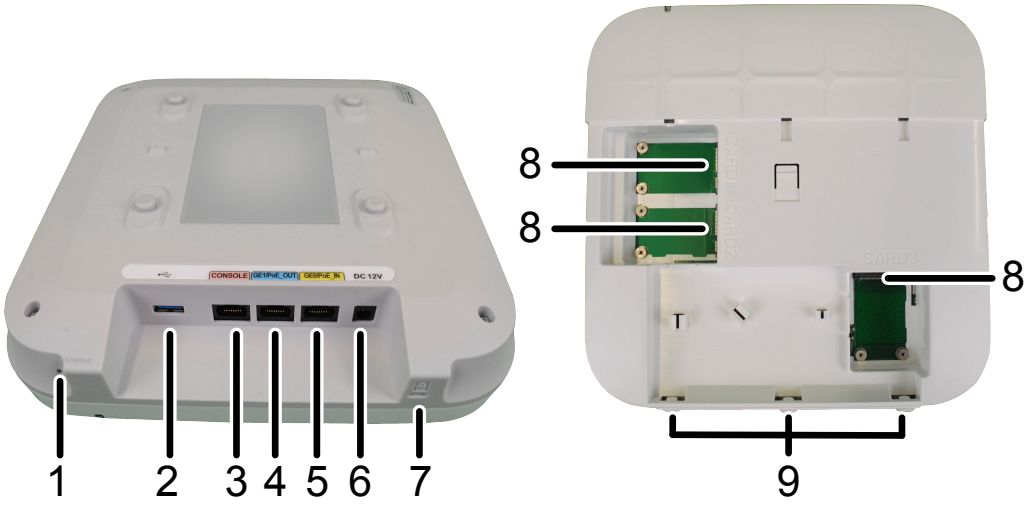
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-114 AP4050DN-E appearance

Ports

Figure 2-115 AP4050DN-E ports



As shown in **Figure 2-115**, each port can be described as follows:

1. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.
2. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
3. Console port: connects to the maintenance terminal for AP configuration and management.

4. GE1/PoE_OUT: 10/100/1000M port used to connect to the wired Ethernet and support PoE output.
5. GE0/PoE_IN: 10/100/1000M port used to connect to the wired Ethernet and support PoE input.
6. DC 12V: connects a 12 V power adapter to the AP.
7. Lock port: protects the AP against theft.
8. IoT slot: allows IoT cards to be inserted to provide extended functions such as RFID location.
9. Radio port: connects to an IoT card and an antenna.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-62 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-63 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	0.84 kg
	System memory	● 256 MB DDR3L ● 64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	16.0 W (excluding the output power of the USB port, IoT card, or PoE_OUT port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-64 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.17.4 Performance Specifications (AP4050DN-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.18 AP4050DN-HD Product Description

2.18.1 Product Characteristics (AP4050DN-HD)

Huawei AP4050DN-HD is a wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP complies with 802.11n and 802.11ac protocols and can provide gigabit STA access, which greatly improves user experience on wireless networks. It has built-in smart high-density antennas and therefore provides more precise wireless coverage, applicable to indoor high-density stadiums.

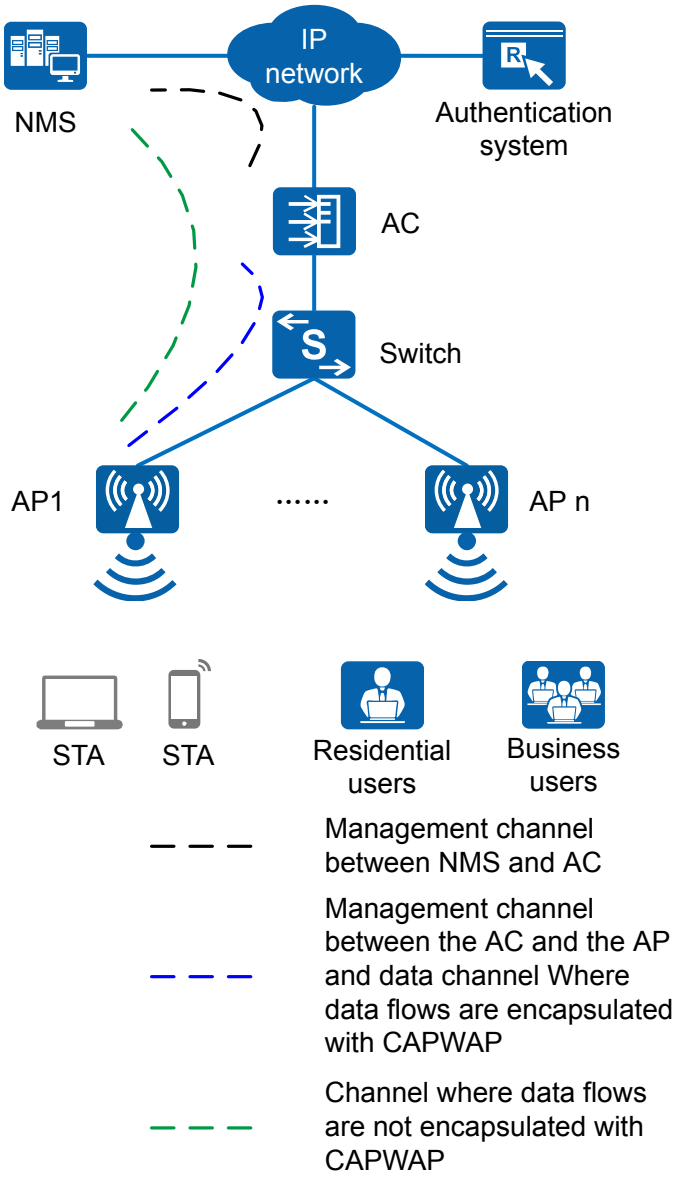
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Embedded with smart antennas purpose-built for high-density scenarios. These antennas can reduce construction costs and mitigate interference between APs.
- Dual Ethernet interfaces support link aggregation and traffic load balancing while ensuring link reliability. The Ethernet interface GE0 supports the PoE in function, and the Ethernet interface GE1 supports the PoE out function.
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.18.2 Usage Scenarios (AP4050DN-HD)

The AP4050DN-HD can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-116 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-117 Fit AP networking (WDS mode: point-to-point)

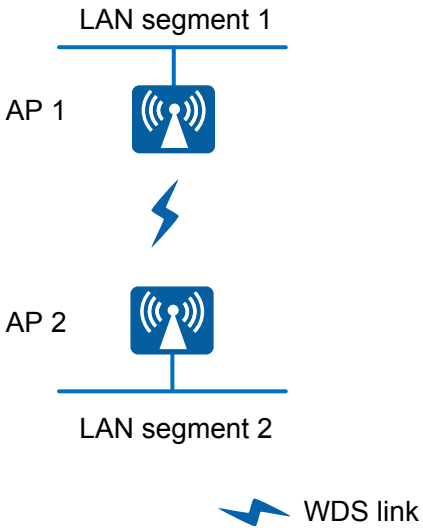
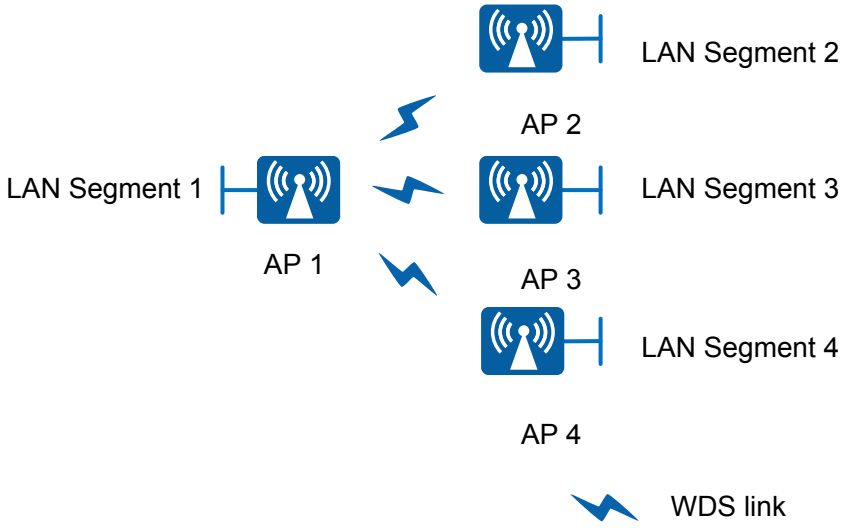
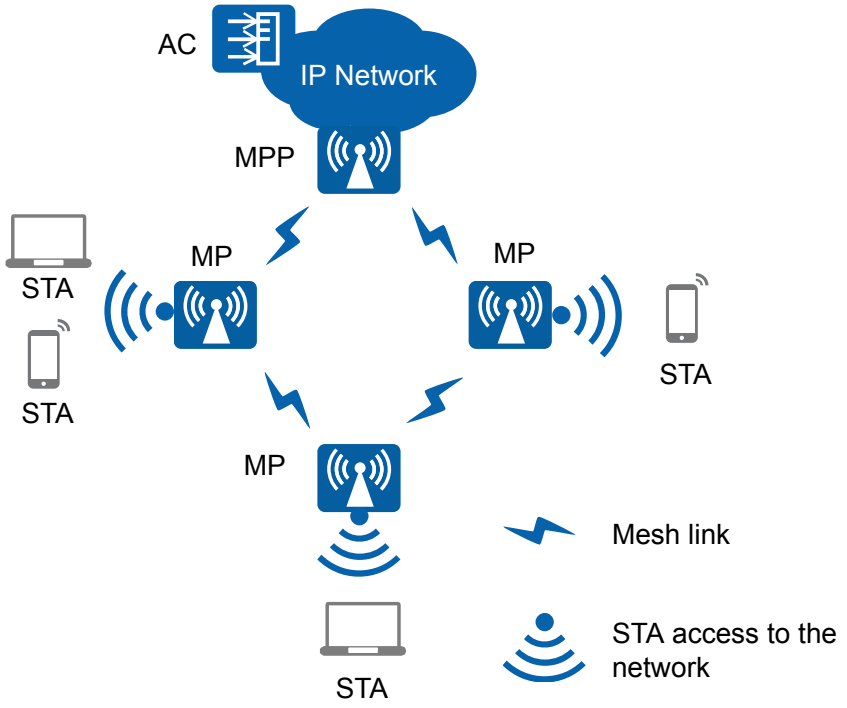


Figure 2-118 Fit AP networking (WDS mode: point-to-multipoint)



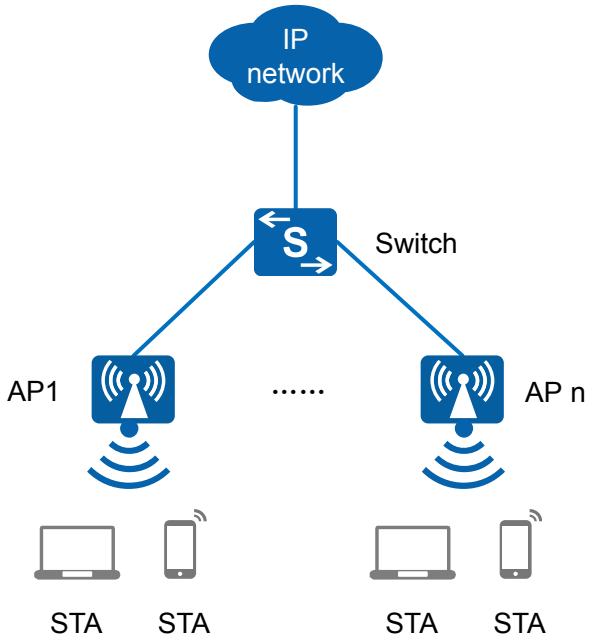
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-119 Fit AP mesh networking



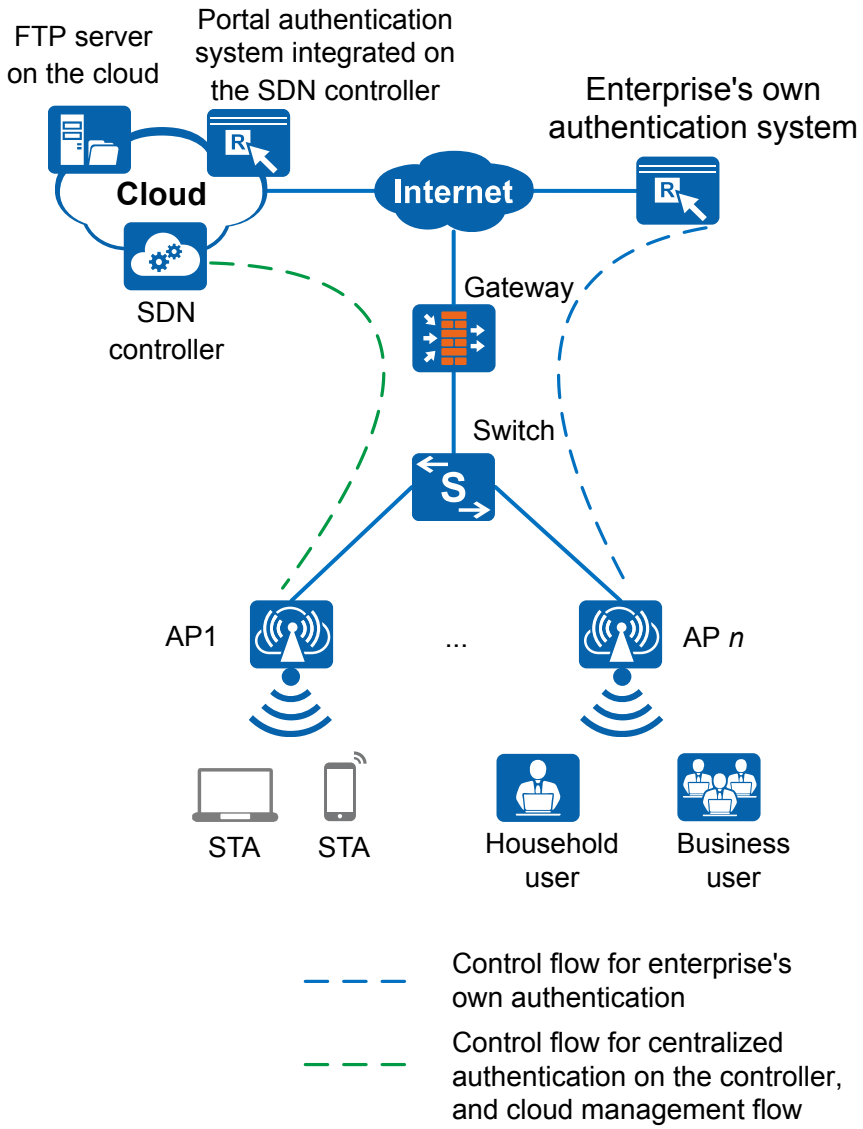
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-120 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-121 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.18.3 Hardware Information (AP4050DN-HD)

Appearance

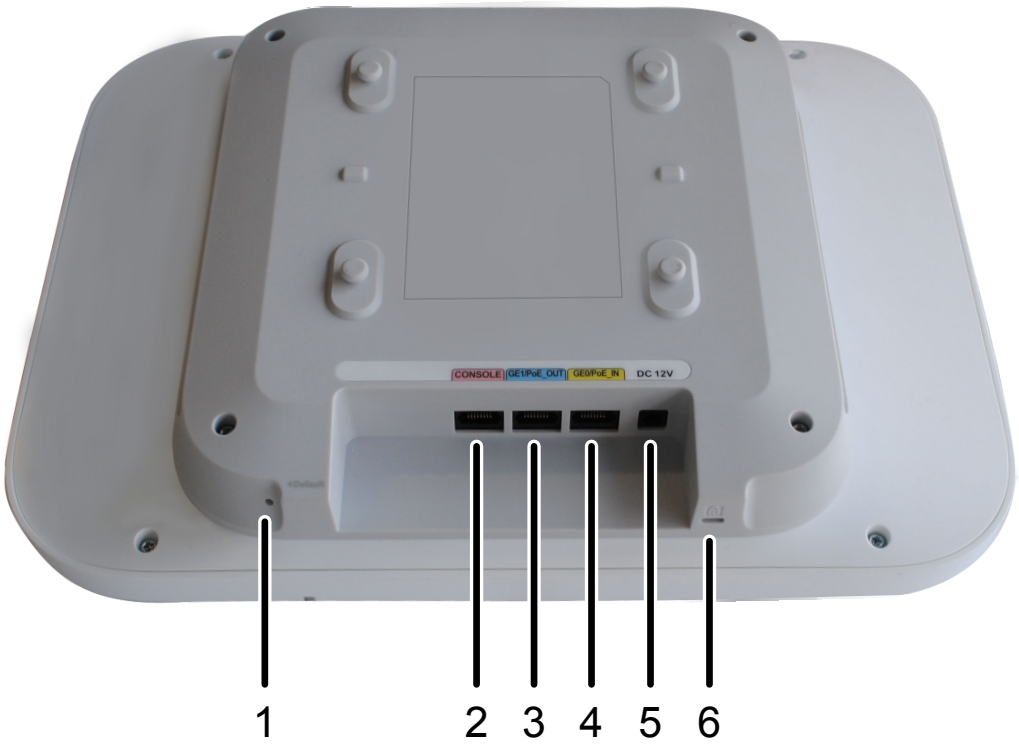
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-122 AP4050DN-HD appearance

Ports

Figure 2-123 AP4050DN-HD ports



As shown in **Figure 2-123**, each port can be described as follows:

1. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.
2. Console port: connects to the maintenance terminal for AP configuration and management.
3. GE1/PoE_OUT: 10/100/1000M port used to connect to the wired Ethernet. The port allows the AP to provide PoE power supply to downlink devices.
4. GE0/PoE_IN: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
5. Input port for 12 V DC power supply.
6. Security slot: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-65 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-66 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	65 mm x 334 mm x 240 mm
	Weight	1.5 kg
	System memory	• 256 MB DDR3L • 64 MB NOR FLASH
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	• 11.8 W (in 802.3af PoE or DC mode) • 13.9 W (in 802.3at PoE mode, excluding the output power of the PoE_OUT port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-67 Radio specifications

Item	Description
Antenna type	Built-in dual-band directional antenna (beamwidth: 30 degrees)
Antenna gain	• 2.4 GHz: 13 dBi • 5 GHz: 10 dBi

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="3">Fit AP: ≤ 512
Fat AP: ≤ 512
Cloud AP: ≤ 512
NOTE
The actual number of users varies according to the environment.</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 22 dBm (combined power)
• 5 GHz: 22 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 400 Mbit/s
• 802.11ac Wave 2: 6.5 to 867 Mbit/s</td></tr>
</table>

2.18.4 Performance Specifications (AP4050DN-HD)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.19 AP4050DE-B-S Product Description

2.19.1 Product Characteristics (AP4050DE-B-S)

Huawei AP4050DE-B-S is a wireless access point (AP) tailored to SMB that supports 802.11ac Wave 2, 2 x 2 MU-MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP has built-in smart antennas, complies with 802.11n and 802.11ac protocols, and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

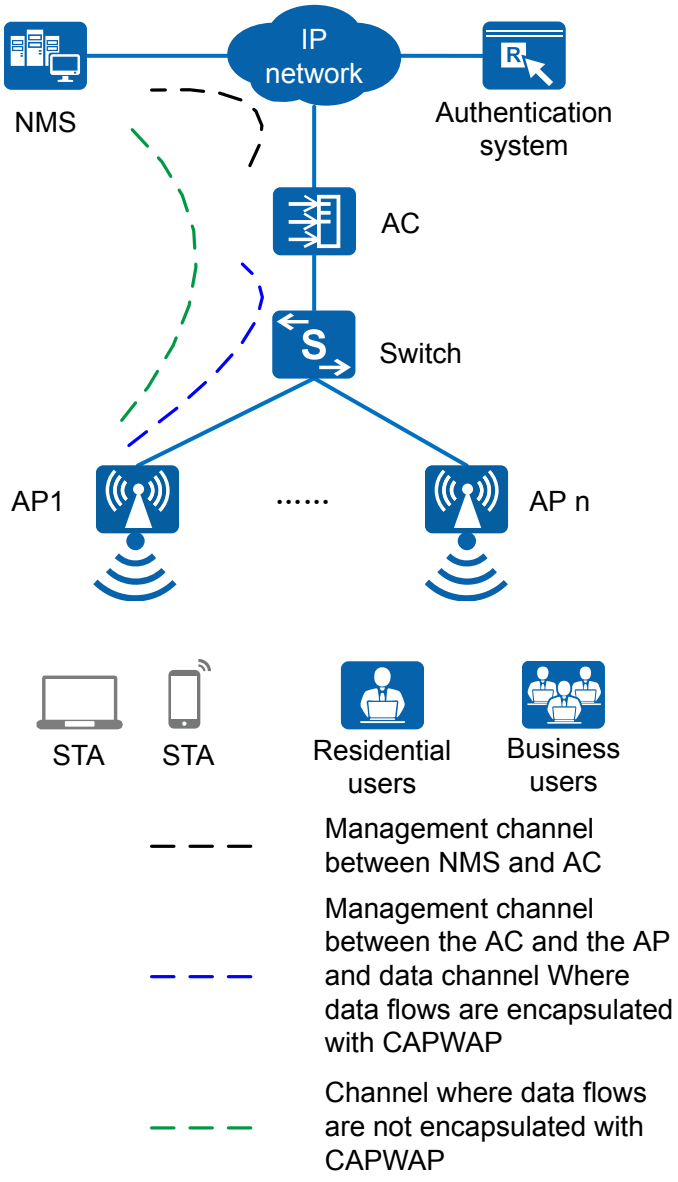
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Built-in Bluetooth to implement precise positioning with eSight
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.19.2 Usage Scenarios (AP4050DE-B-S)

The AP4050DE-B-S can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-124 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-125 Fit AP networking (WDS mode: point-to-point)

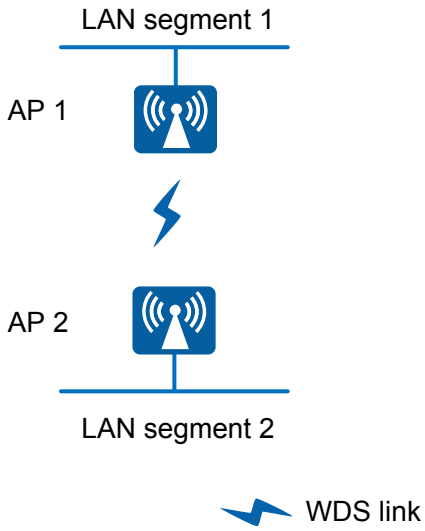
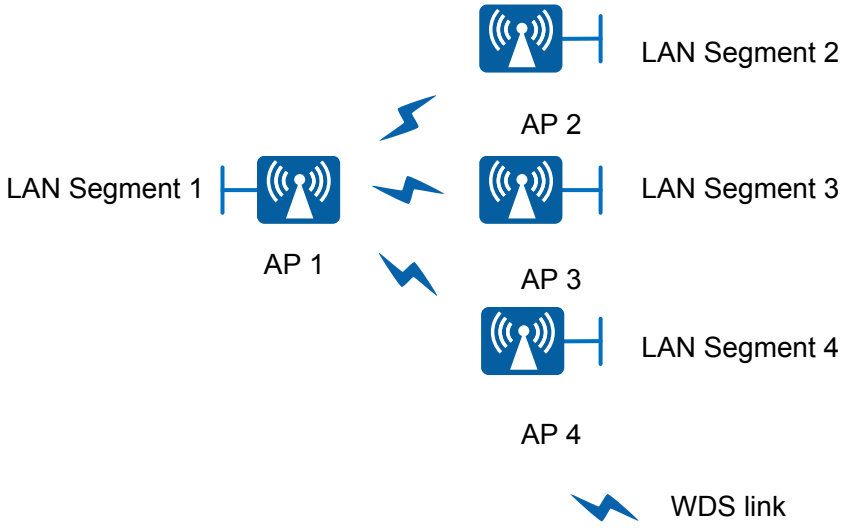
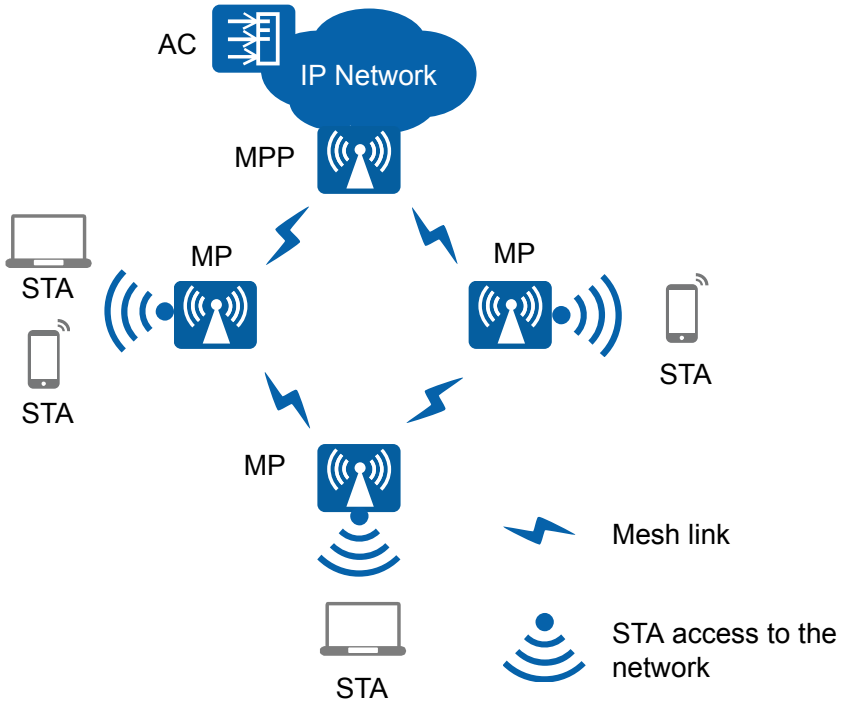


Figure 2-126 Fit AP networking (WDS mode: point-to-multipoint)



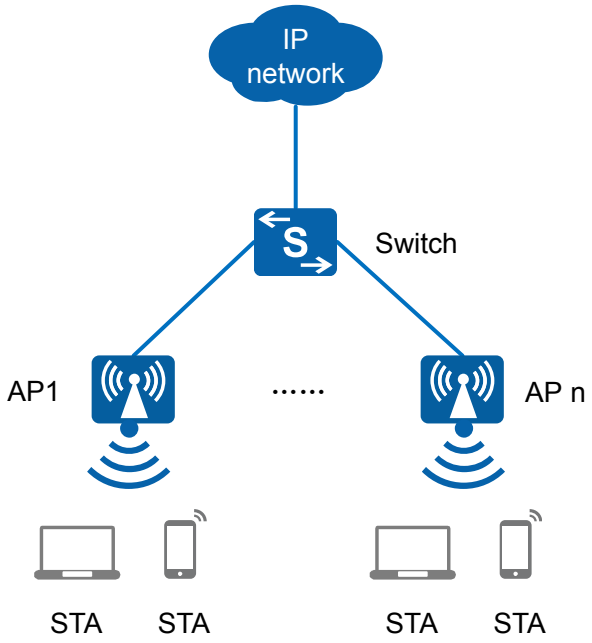
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-127 Fit AP mesh networking



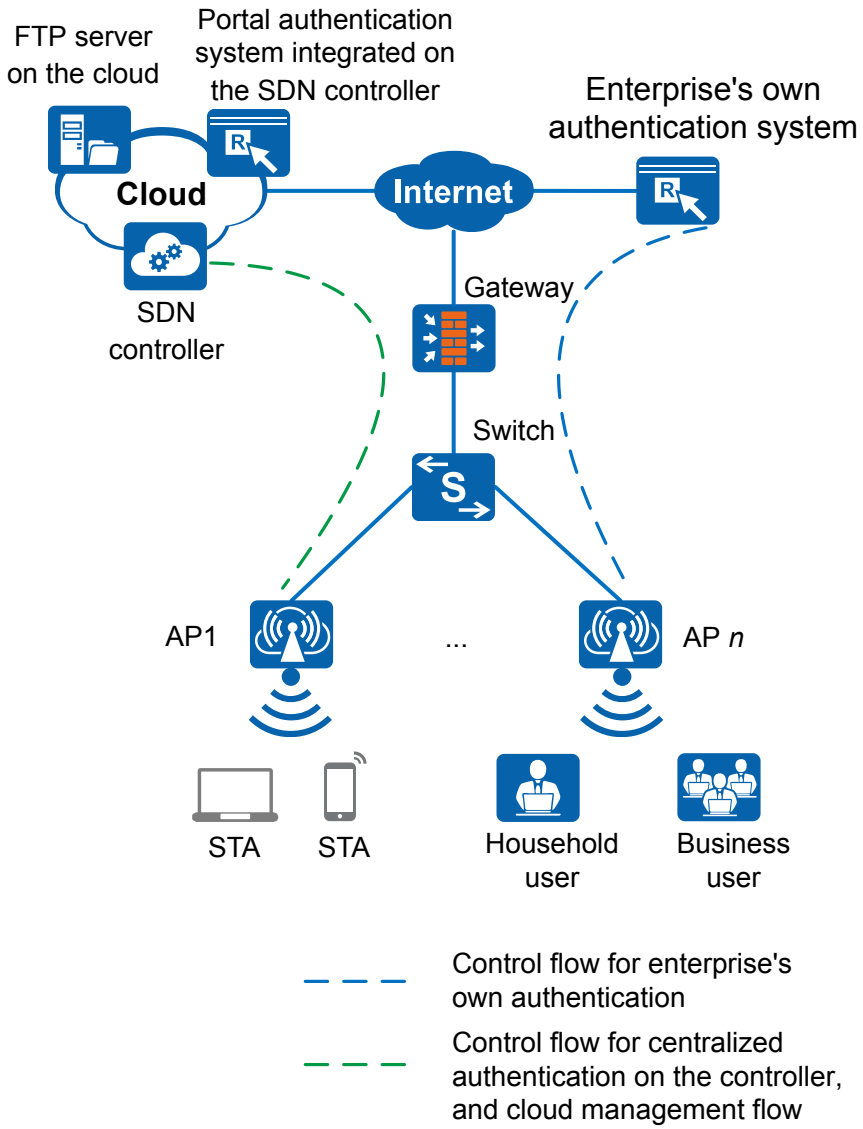
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-128 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-129 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.19.3 Hardware Information (AP4050DE-B-S)

Appearance

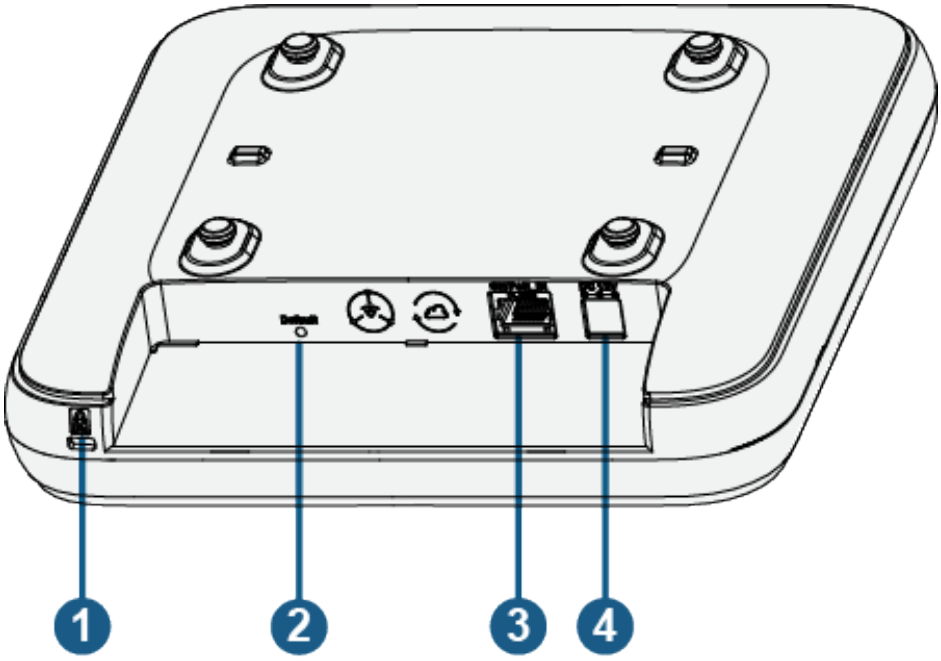
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-130 Appearance

Ports

Figure 2-131 Ports



As shown in **Figure 2-131**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
3. GE/PoE_IN: GE/PoE_IN
4. DC 12V: Connects a 12 V power adapter to the AP.

LED Indicators

The AP4050DE-B-S provides only a single indicator, as shown in **Figure 2-132**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-132 Indicator

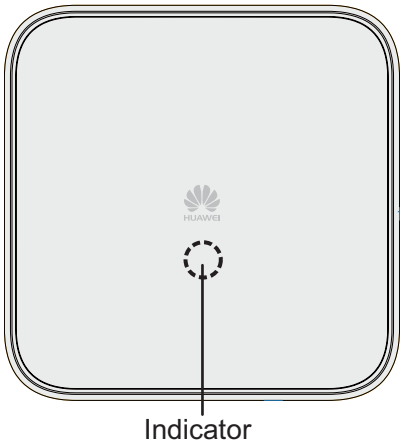


Table 2-68 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-69 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm x 200 mm x 200 mm
	Weight	0.7 kg
	System memory	● 256 MB DDR3L ● 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	14.05 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-70 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart omnidirectional antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 3 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.19.4 Performance Specifications (AP4050DE-B-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.20 AP4050DE-M Product Description

2.20.1 Product Characteristics (AP4050DE-M)

Huawei AP4050DE-M is a wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP has built-in smart antennas, complies with 802.11n and 802.11ac protocols, and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

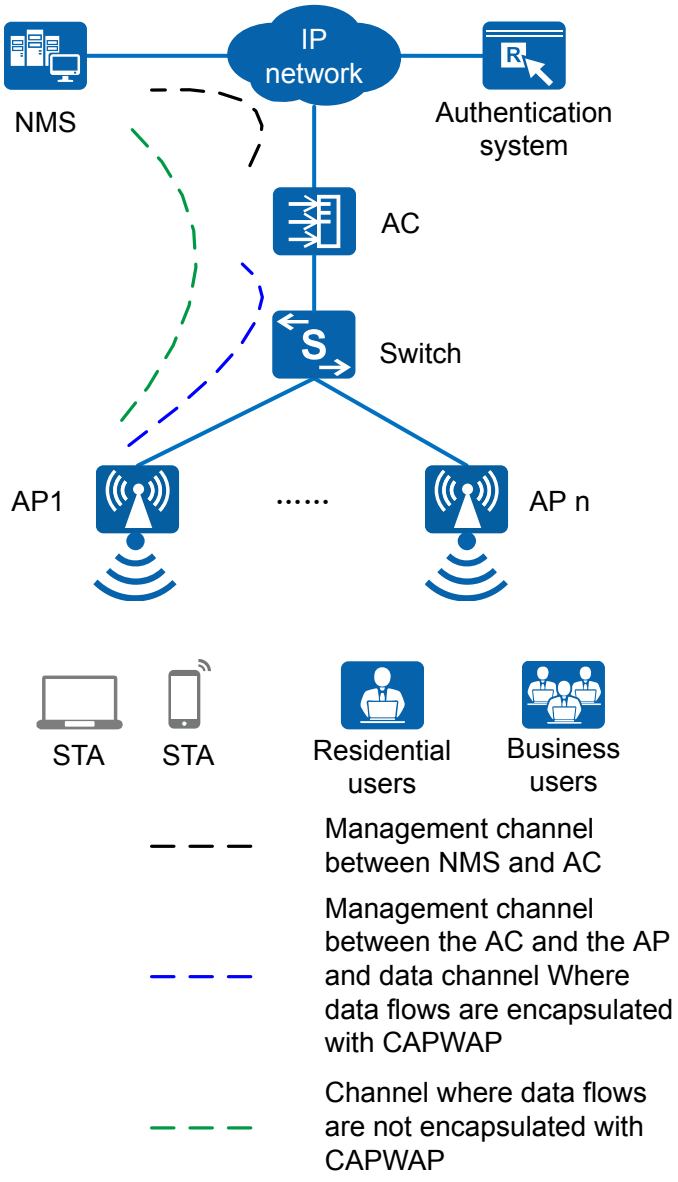
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Built-in Bluetooth to implement precise positioning with eSight
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.20.2 Usage Scenarios (AP4050DE-M)

The AP4050DE-M can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-133 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-134 Fit AP networking (WDS mode: point-to-point)

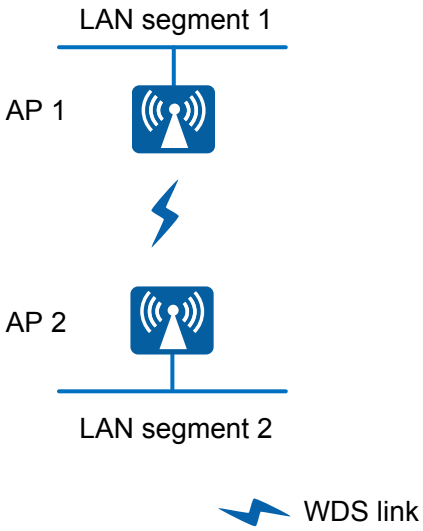
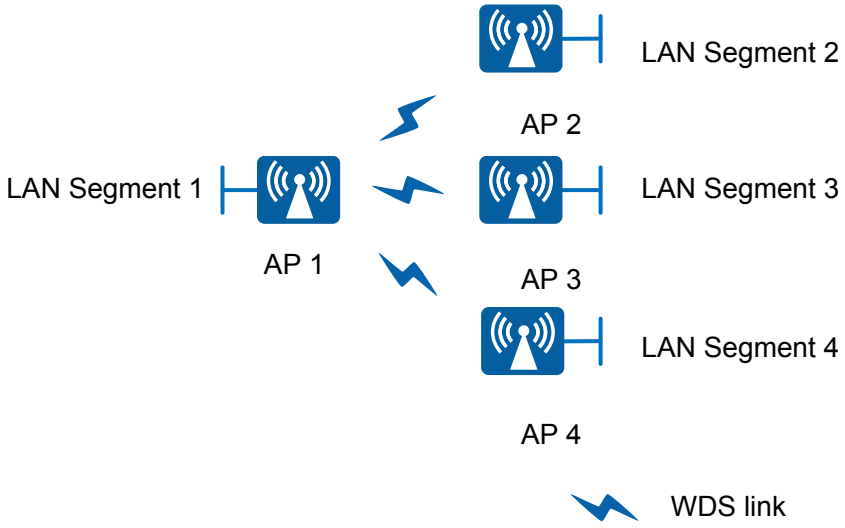
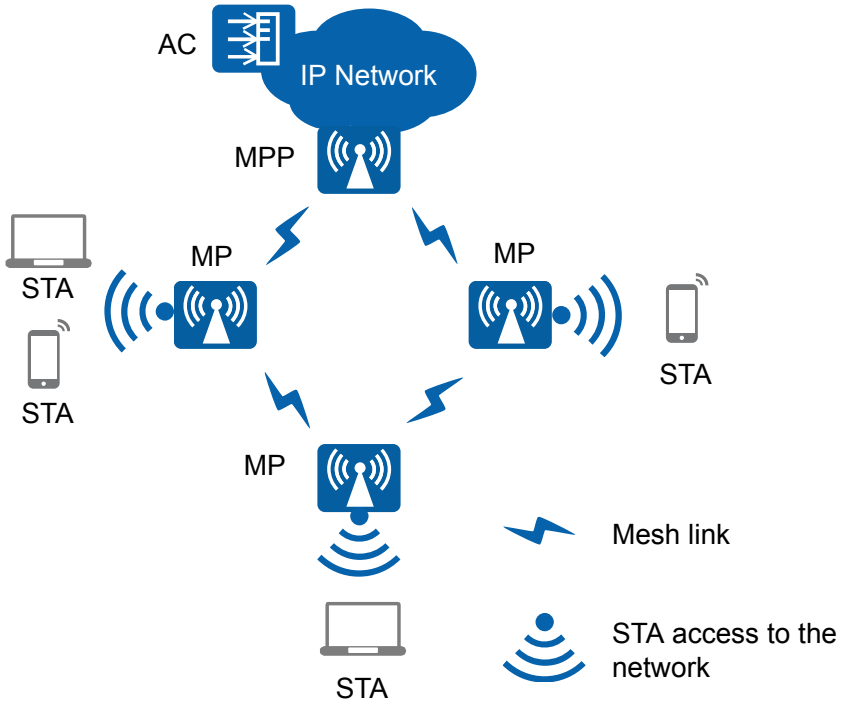


Figure 2-135 Fit AP networking (WDS mode: point-to-multipoint)



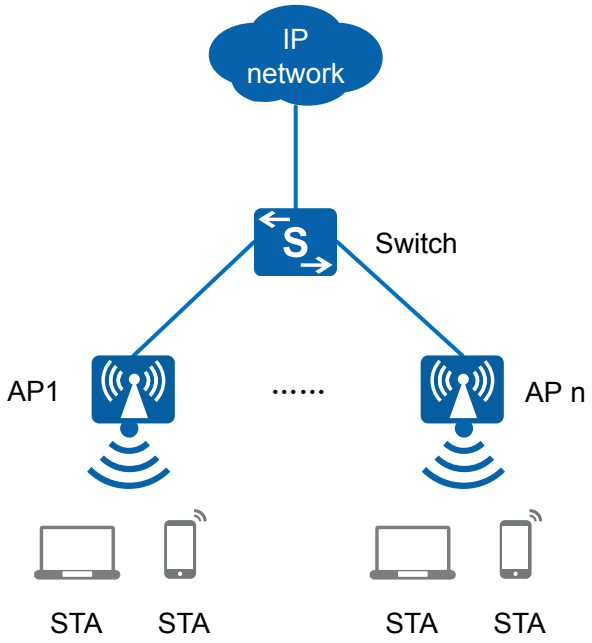
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-136 Fit AP mesh networking



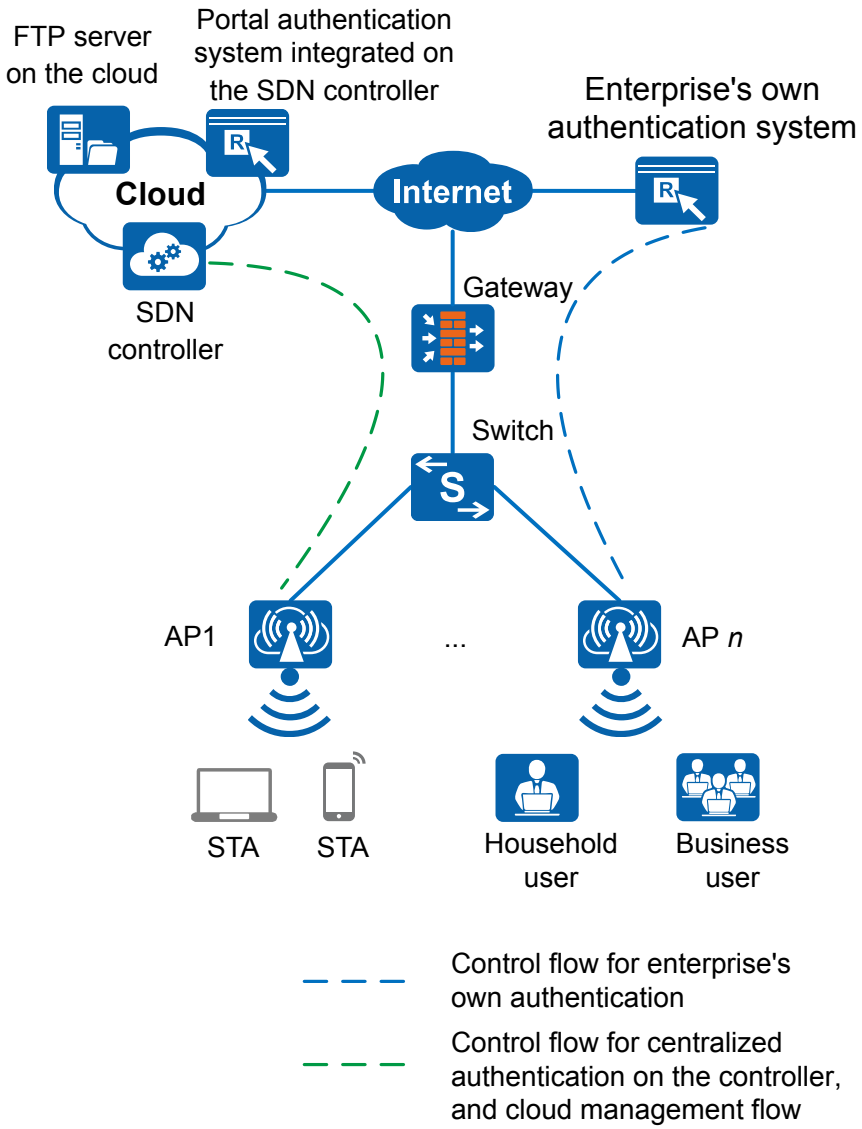
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-137 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-138 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.20.3 Hardware Information (AP4050DE-M)

Appearance

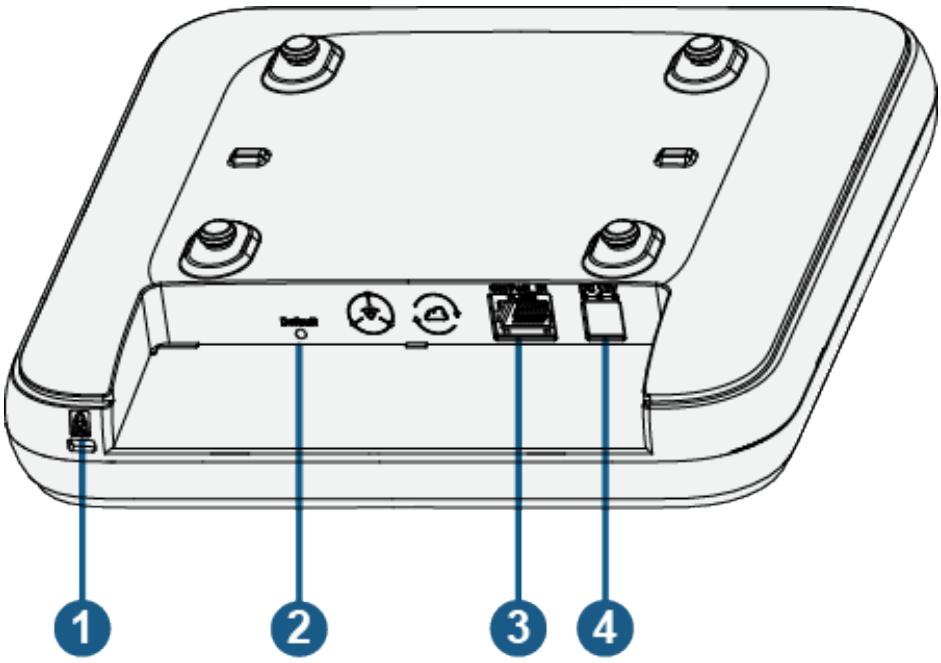
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-139 Appearance

Ports

Figure 2-140 Ports



As shown in **Figure 2-140**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
3. GE/PoE_IN: GE/PoE_IN
4. DC 12V: DC 12V

LED Indicators

The AP4050DE-M provides only a single indicator, as shown in **Figure 2-141**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-141 Indicator

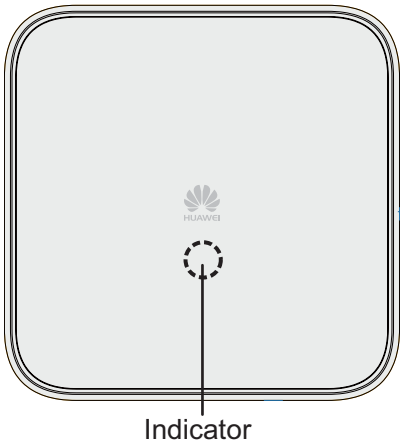


Table 2-71 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-72 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm x 200 mm x 200 mm
	Weight	0.7 kg
	System memory	● 256 MB DDR3L ● 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	16.40 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-73 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart omnidirectional antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 3 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 27 dBm (combined power) • 5 GHz: 27 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.20.4 Performance Specifications (AP4050DE-M)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.21 AP4050DE-M-S Product Description

2.21.1 Product Characteristics (AP4050DE-M-S)

Huawei AP4050DE-M-S is a wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. It provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP has built-in smart antennas, complies with 802.11n and 802.11ac protocols, and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

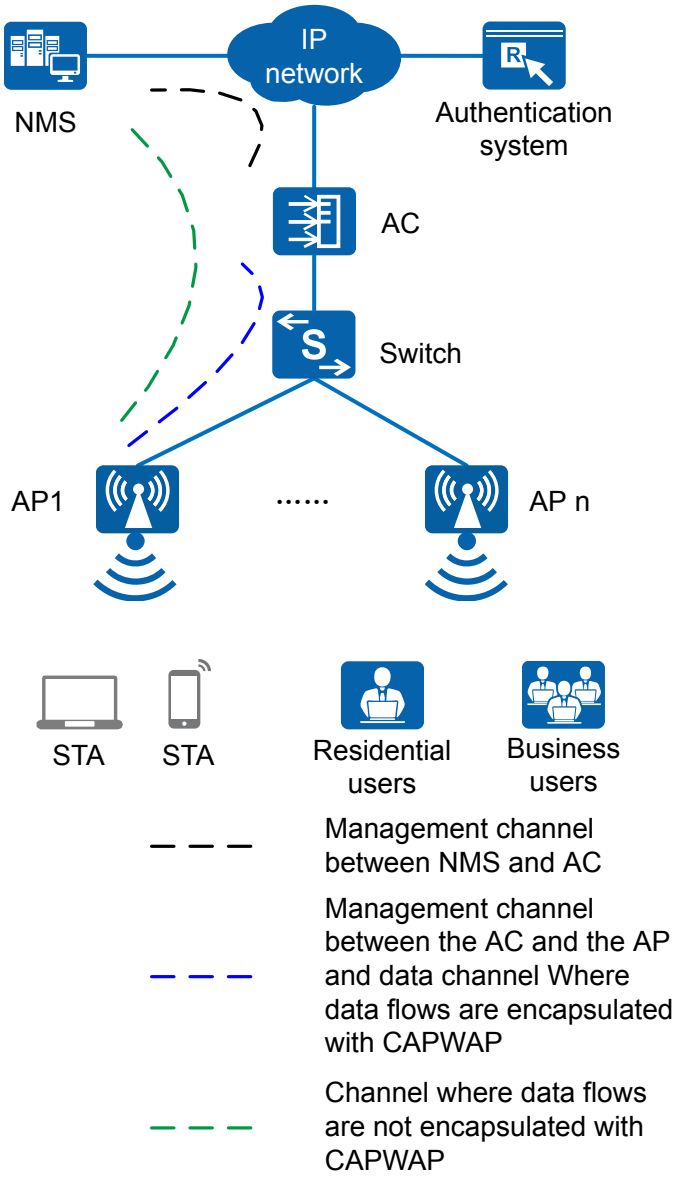
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Built-in Bluetooth to implement precise positioning with eSight
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.21.2 Usage Scenarios (AP4050DE-M-S)

The AP4050DE-M-S can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-142 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-143 Fit AP networking (WDS mode: point-to-point)

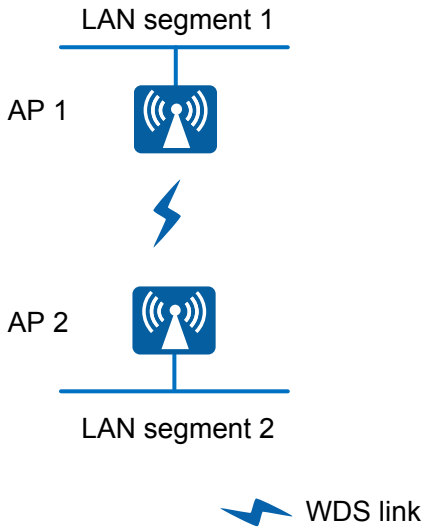
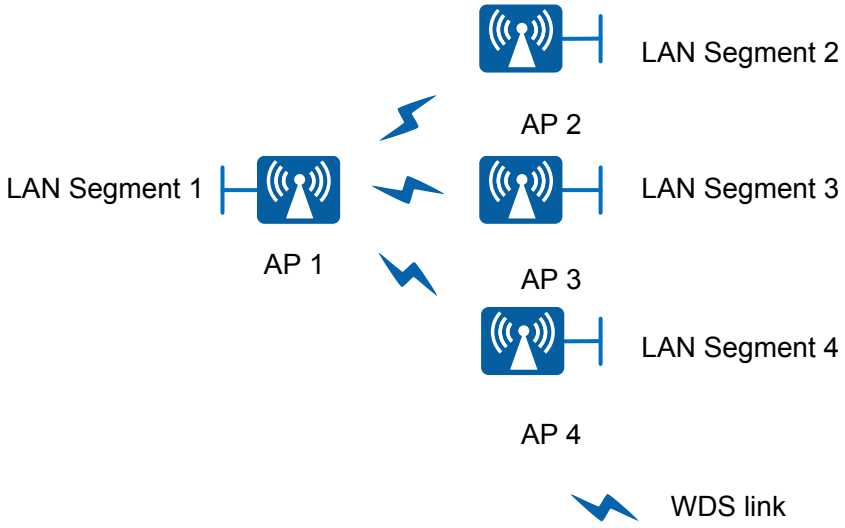
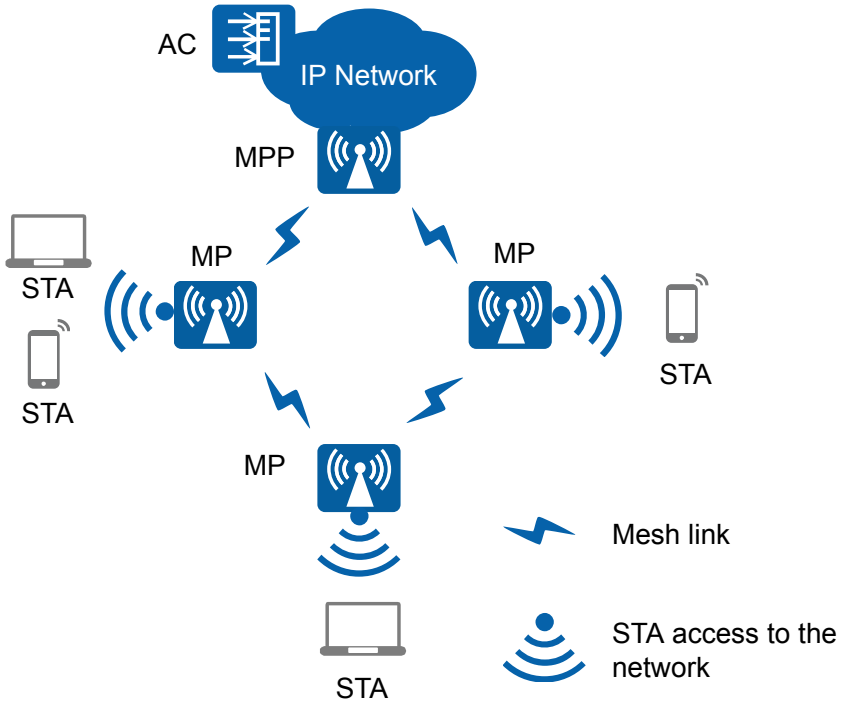


Figure 2-144 Fit AP networking (WDS mode: point-to-multipoint)



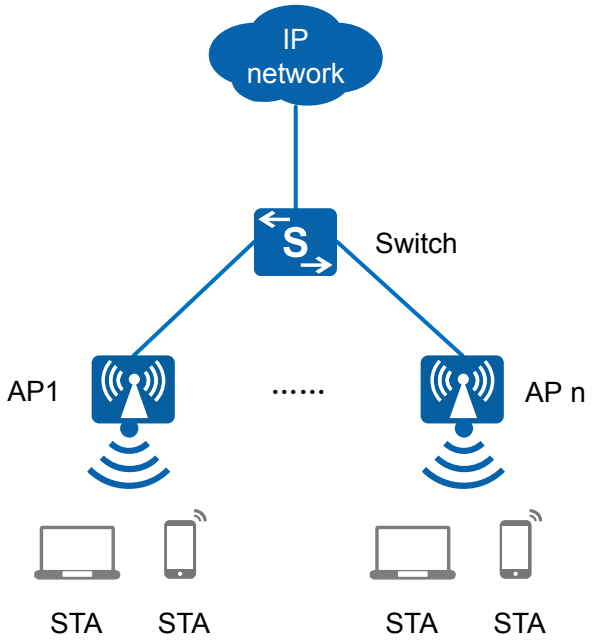
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-145 Fit AP mesh networking



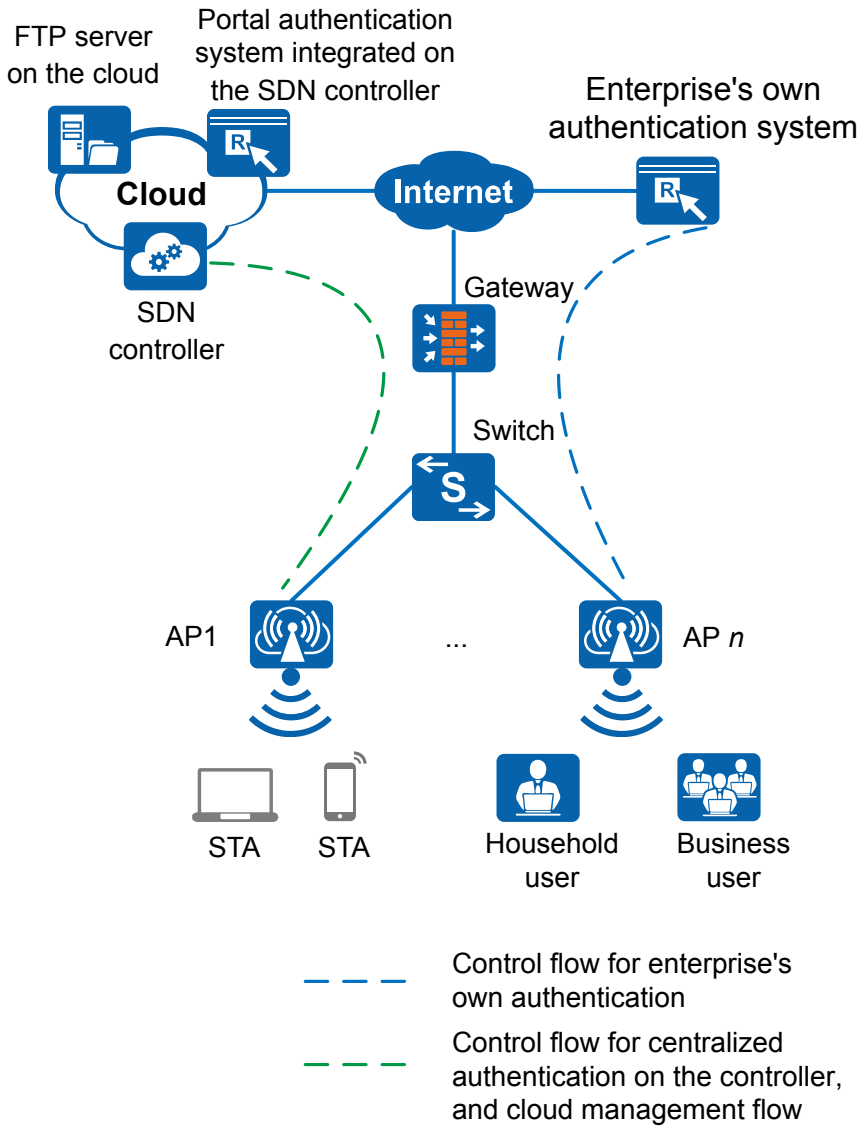
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-146 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-147 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.21.3 Hardware Information (AP4050DE-M-S)

Appearance

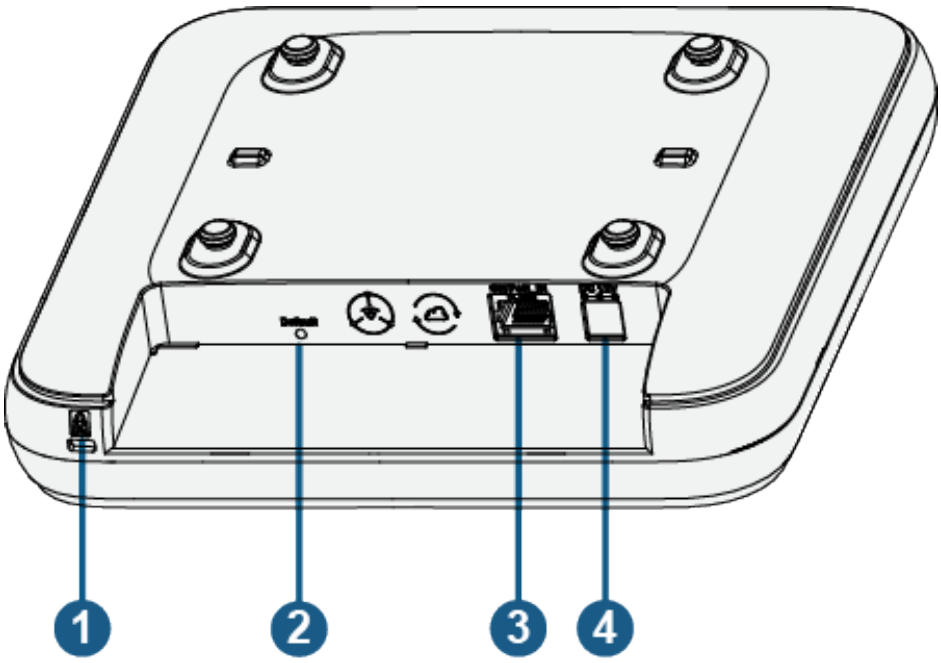
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-148 Appearance

Ports

Figure 2-149 Ports



As shown in **Figure 2-149**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
3. GE/PoE_IN: GE/PoE_IN
4. DC 12V: Connects a 12 V power adapter to the AP.

LED Indicators

The AP4050DE-M-S provides only a single indicator, as shown in **Figure 2-150**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-150 Indicator

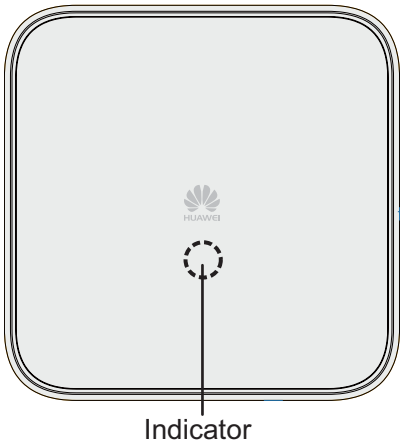


Table 2-74 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-75 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm x 200 mm x 200 mm
	Weight	0.7 kg
	System memory	● 256 MB DDR3L ● 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	16.4 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-76 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart omnidirectional antenna
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 3 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 27 dBm (combined power) • 5 GHz: 27 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.21.4 Performance Specifications (AP4050DE-M-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.22 AP4051DN and AP4151DN Product Description

2.22.1 Product Characteristics (AP4051DN and AP4151DN)

Huawei AP4051DN and AP4151DN are wireless access points (APs) that support 802.11ac Wave 2, 2 x 2 MIMO, and two spatial streams. They provide comprehensive service support capabilities and feature high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meets network deployment requirements. The AP complies with 802.11n and 802.11ac protocols and can provide gigabit STA access, which greatly improves user experience on wireless networks and applies to small- and medium-sized enterprises, airports and stations, stadiums, cafes, and recreation centers.

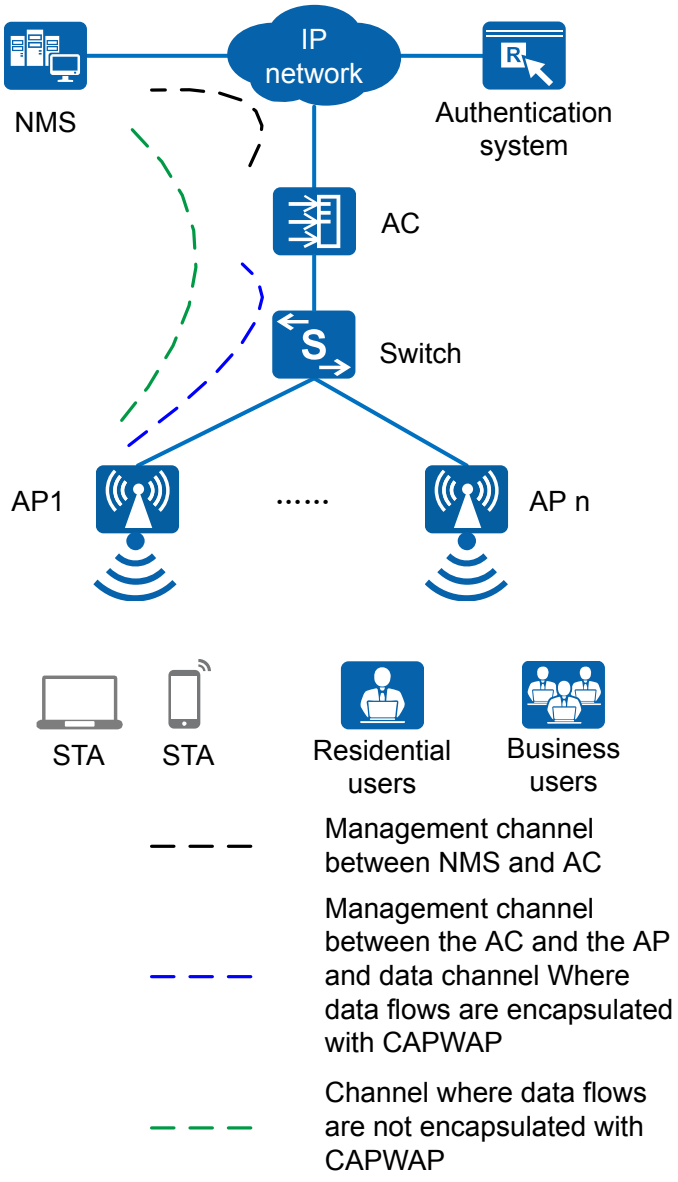
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- Dual gigabit Ethernet uplink interfaces supporting PoE for power backup
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.22.2 Usage Scenarios (AP4051DN and AP4151DN)

The AP4051DN and AP4151DN can work in Fat AP, Fit AP, or cloud AP mode. They can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-151 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-152 Fit AP networking (WDS mode: point-to-point)

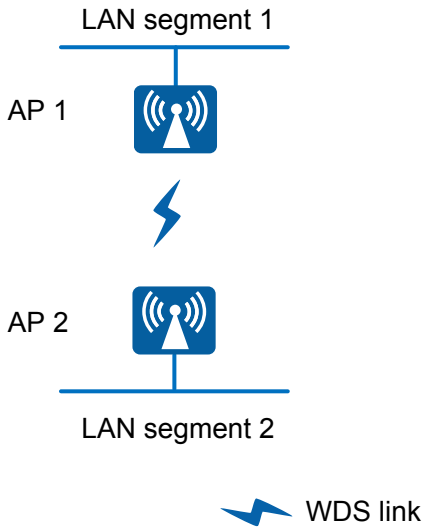
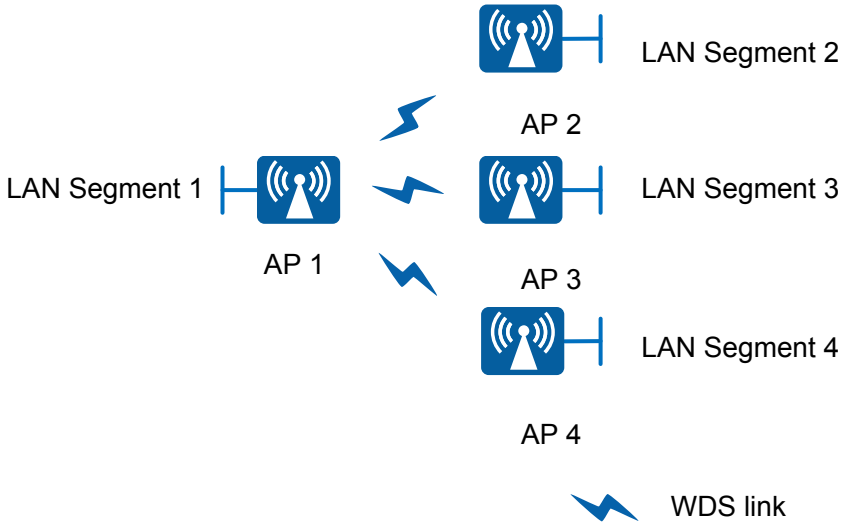
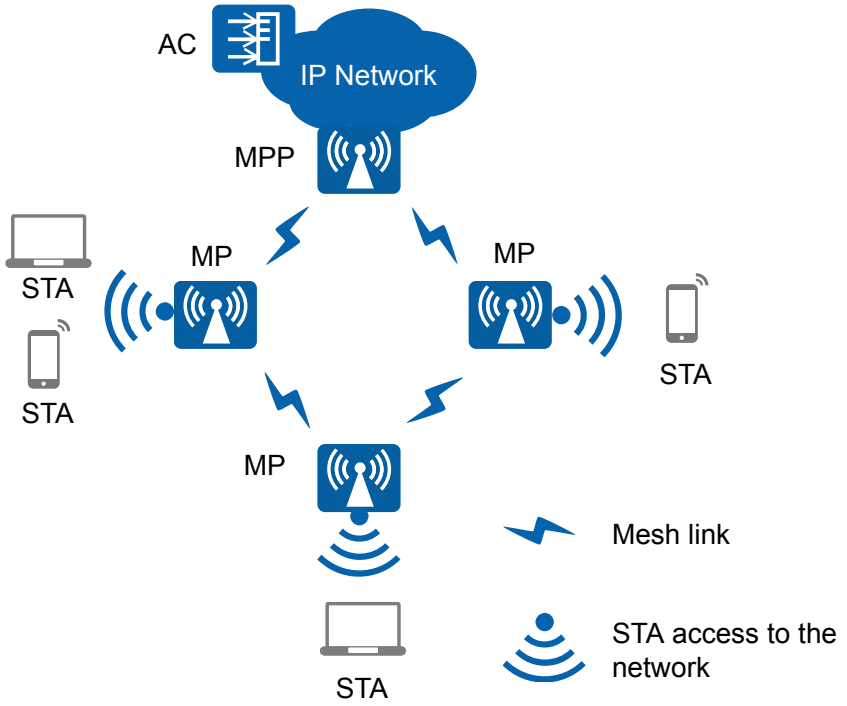


Figure 2-153 Fit AP networking (WDS mode: point-to-multipoint)



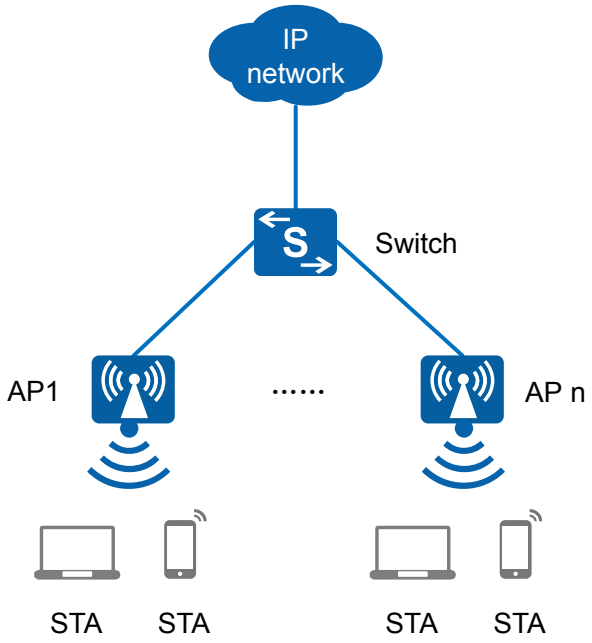
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-154 Fit AP mesh networking



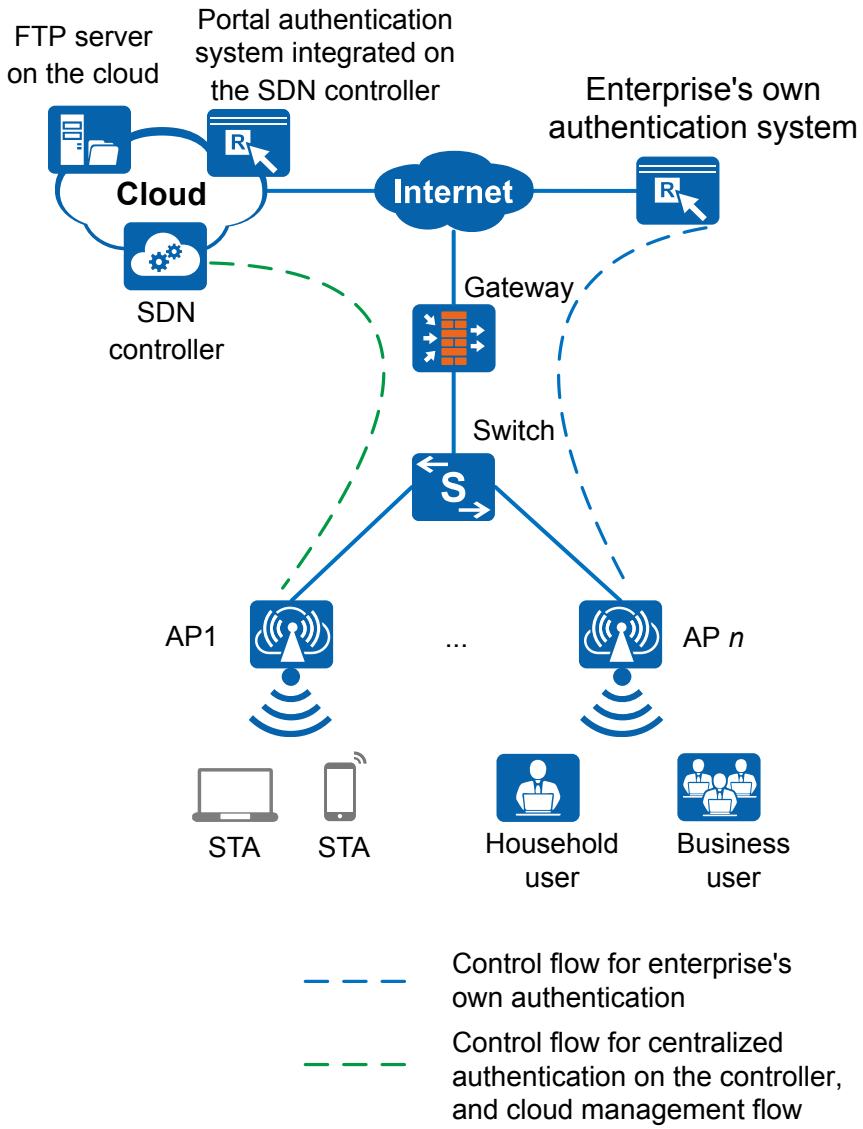
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-155 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-156 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.22.3 Hardware Information (AP4051DN)

Appearance

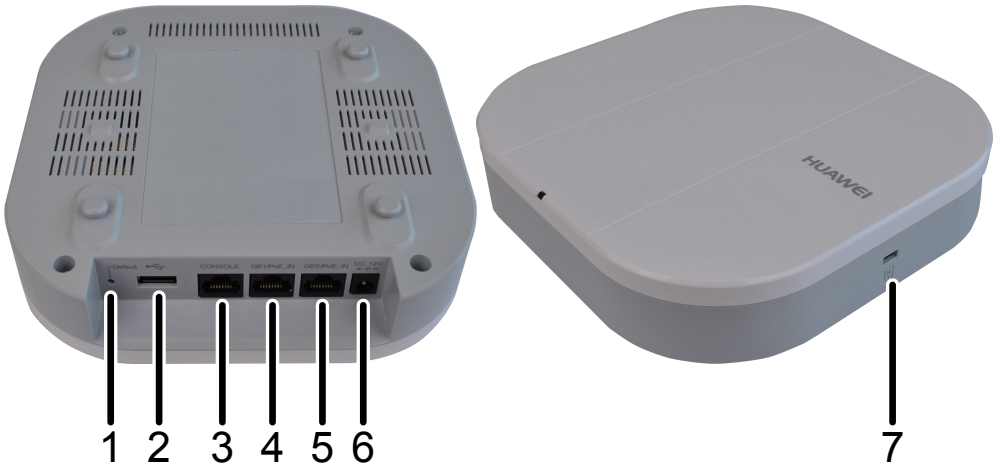
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-157 AP4051DN appearance

Ports

Figure 2-158 AP4051DN ports



As shown in **Figure 2-158**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.

3. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
4. GE1/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
5. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
6. DC 12V: Connects a 12 V power adapter to the AP.
7. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-77 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-78 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	35 mm x 170 mm x 170 mm (1.38 in. x 6.69 in. x 6.69 in.)
	Weight	0.43 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.3 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-79 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.22.4 Hardware Information (AP4151DN)

Appearance

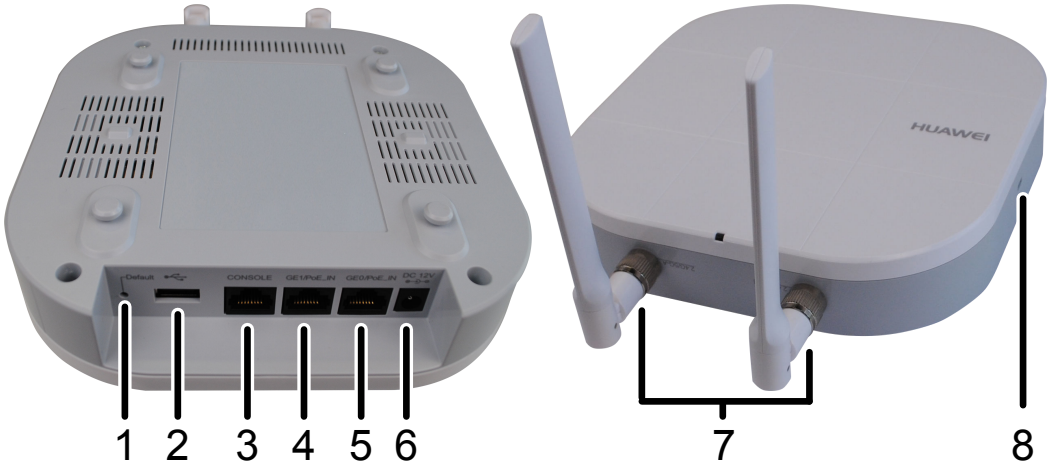
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-159 AP4151DN appearance

Ports

Figure 2-160 AP4151DN ports



As shown in **Figure 2-160**, each port can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
4. GE1/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
5. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
6. DC 12V: Connects a 12 V power adapter to the AP.
7. Antenna port: Connects an antenna to the AP to send and receive wireless signals. The port type is RP-SMA-K.
8. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-80 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.

Indicator	Name	Color	Status	Description
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-81 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	35 mm x 170 mm x 170 mm (1.38 in. x 6.69 in. x 6.69 in.)
	Weight	0.45 kg
	System memory	256 MB DDR3L
	FLASH	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at

Item		Description
	Maximum power consumption	12.3 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-82 Radio specifications

Item	Description
Antenna type	External dual-band combined antenna
Antenna gain	• 2.4 GHz: 3.5 dBi • 5 GHz: 4 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.22.5 Performance Specifications (AP4051DN and AP4151DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.23 AP4051DN-S Product Description

2.23.1 Product Characteristics (AP4051DN-S)

Huawei AP4051DN-S is a wireless Access Point (AP) that complies with 802.11ac Wave 2 and supports 2 x 2 MIMO and two spatial streams. It has comprehensive service support capabilities including high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP4051DN-S supports 802.11n and 802.11ac, and provides gigabit access for STAs, which greatly improve user experience on wireless networks and apply to small- and medium-sized enterprises, airports and stations, sports mediums, cafes, and entertainment centers.

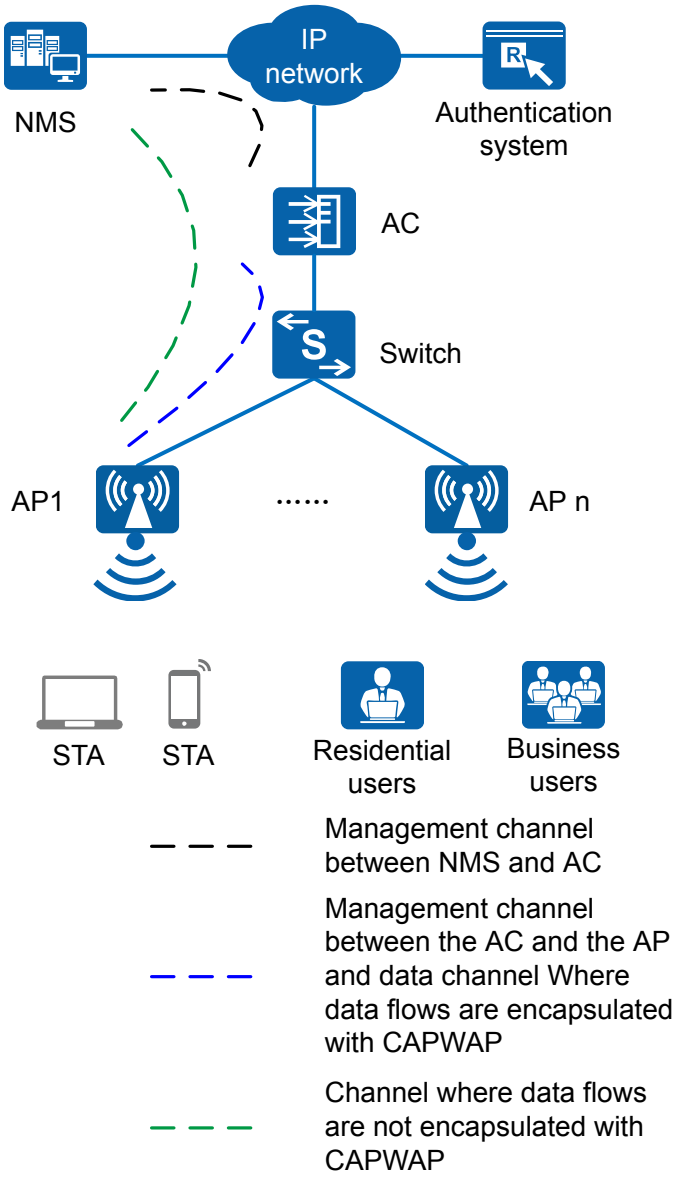
- Supports the 802.11ac Wave 2 standard and MU-MIMO, and provides services simultaneously on both 2.4 GHz and 5 GHz frequency bands. The maximum rates at the 2.4 GHz and 5 GHz frequency bands are 400 Mbit/s and 867 Mbit/s respectively, and the maximum rate of the device is 1.267 Gbit/s.
- Provides dual GE Ethernet uplink ports that both support the PoE in function, achieving PoE power supply backup.
- Provides a USB port for external power supply and storage.
- Supports the Fat, Fit, and cloud modes.
- Enables Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

2.23.2 Usage Scenarios (AP4051DN-S)

The AP4051DN-S can work as a Fat, Fit, or cloud AP, and switch its working mode based on network planning requirements.

Typical networking modes are as follows:

Figure 2-161 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-162 Fit AP networking (WDS mode: point-to-point)

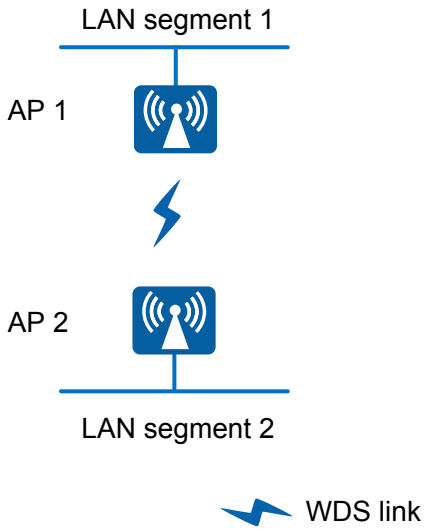
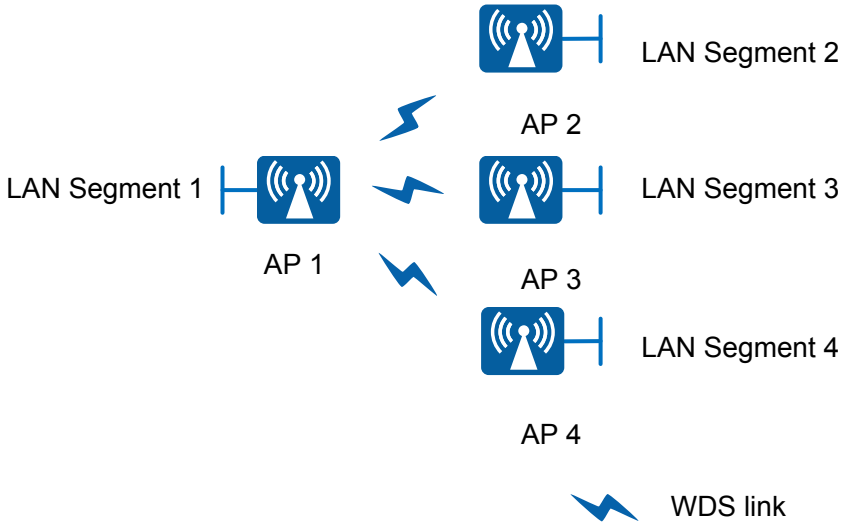
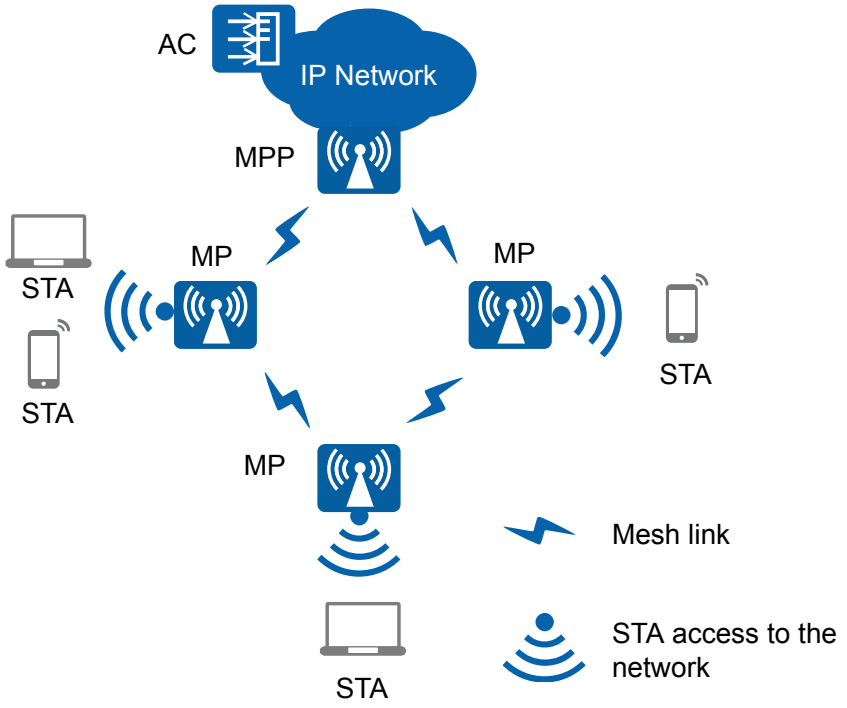


Figure 2-163 Fit AP networking (WDS mode: point-to-multipoint)



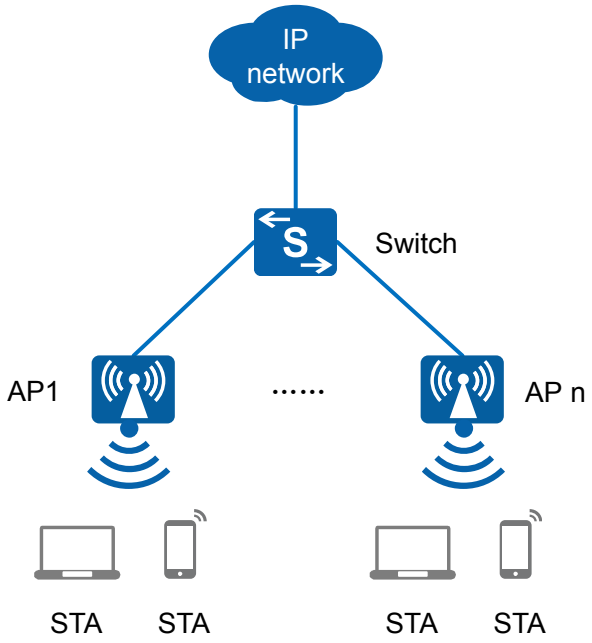
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-164 Fit AP mesh networking



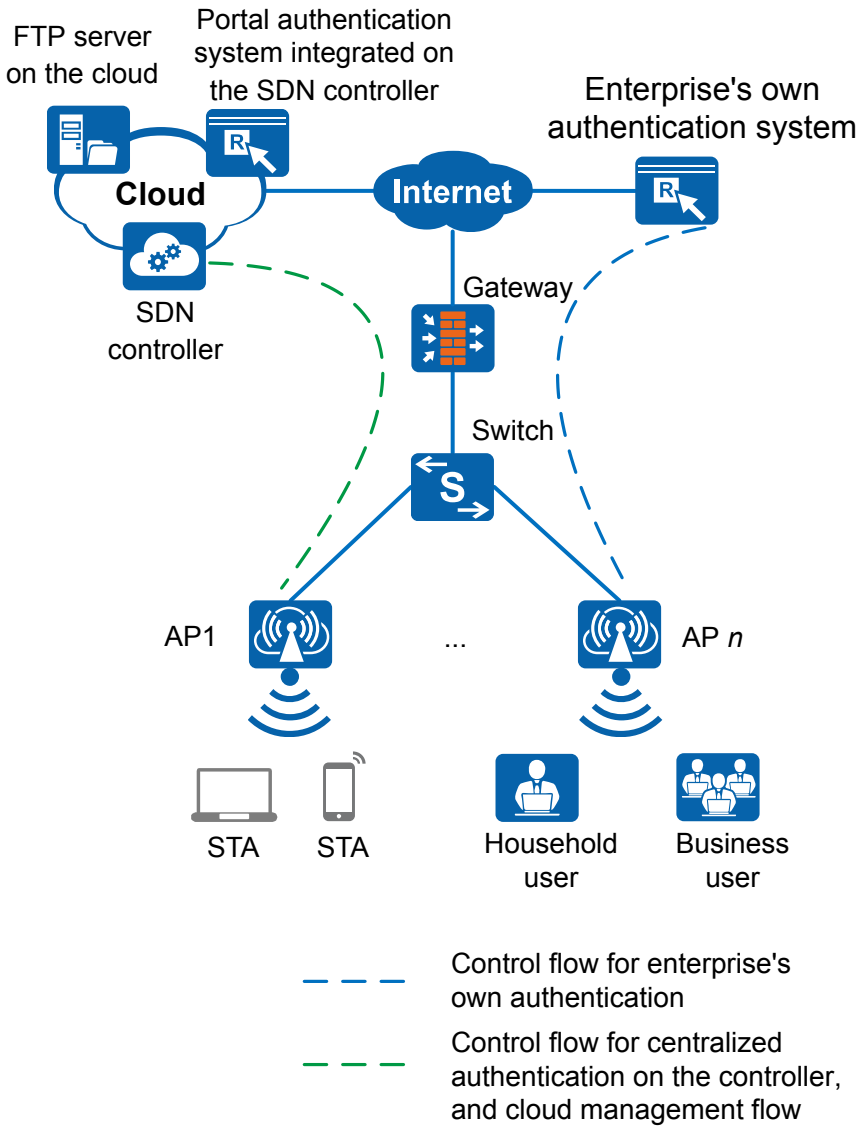
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-165 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-166 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.23.3 Hardware Information (AP4051DN-S)

Appearance

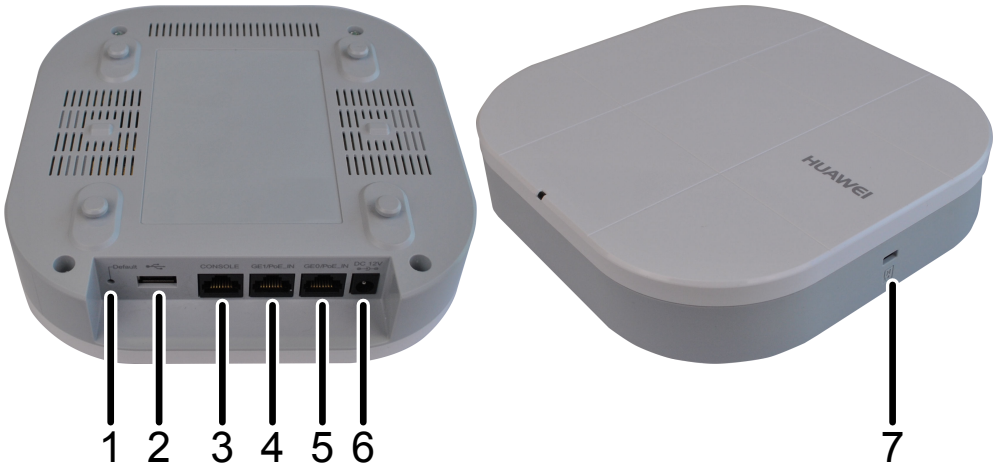
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-167 AP4051DN-S appearance

Ports

Figure 2-168 AP4051DN-S ports



As shown in **Figure 2-168**, each interface can be described as follows:

1. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.

3. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
4. GE1/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
5. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input. PoE power supplies on two Ethernet ports are supported.
6. DC 12V: Connects a 12 V power adapter to the AP.
7. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-83 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-84 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	35 mm x 170 mm x 170 mm (1.38 in. x 6.69 in. x 6.69 in.)
	Weight	0.43 kg
	System memory	256 MB DDR3L
	Flash	64 MB NOR FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.3 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment parameters	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-85 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual maximum transmit power varies depending on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.23.4 Performance Specifications (AP4051DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.24 AP4051TN Product Description

2.24.1 Product Characteristics (AP4051TN)

Huawei AP4051TN is an 802.11ac Wave 2 wireless access point (AP). It has three radios: one 2.4 GHz radio and two 5 GHz radios. The 2.4 GHz radio supports 2x2 MIMO and two spatial streams; one 5 GHz radio supports 2x2 MIMO and two spatial streams; and the other 5 GHz radio supports 4x4 MIMO and four spatial streams. The AP4051TN provides comprehensive service support capabilities, and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meet network deployment requirements. The AP supports 802.11n and 802.11ac and can provide gigabit access for wireless users, greatly improving wireless

network experience. The AP is applicable to e-classrooms, shopping malls, and supermarkets.

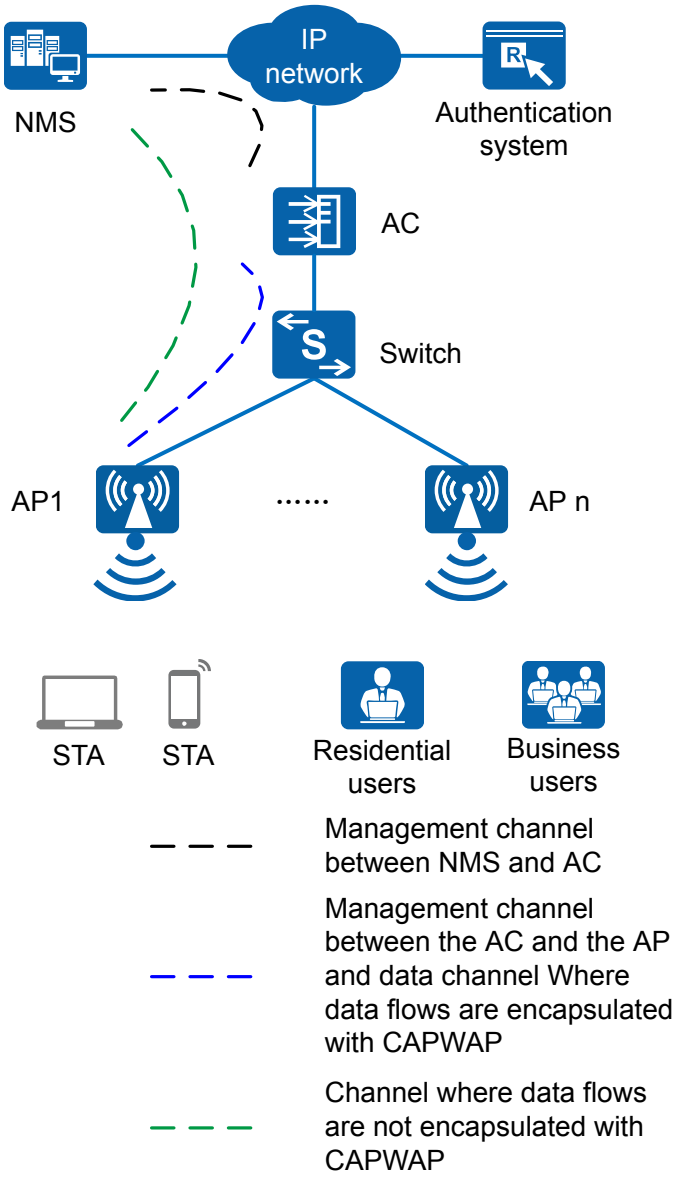
- 802.11ac Wave 2 compliance, delivering services simultaneously on one 2.4G radio and two 5G radios (one 5G radio supporting 2x2 MU-MIMO and the other 5G radio supporting 4x4 MU-MIMO); 400 Mbit/s at 2.4 GHz, 867 Mbit/s + 1733 Mbit/s at 5 GHz, and 3 Gbit/s for the device.
- Provides dual GE Ethernet uplink ports that both support the PoE in function, achieving PoE power supply backup.
- Provides USB ports for storage and external power supply, and supports IoT application extension.
- Provides built-in Bluetooth to implement precise location with eSight.
- Supports the Fat, Fit, and cloud modes.
- Enables Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

2.24.2 Usage Scenarios (AP4051TN)

The AP4051TN can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-169 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-170 Fit AP networking (WDS mode: point-to-point)

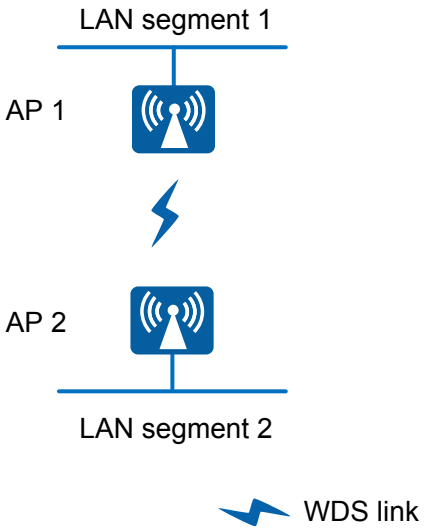
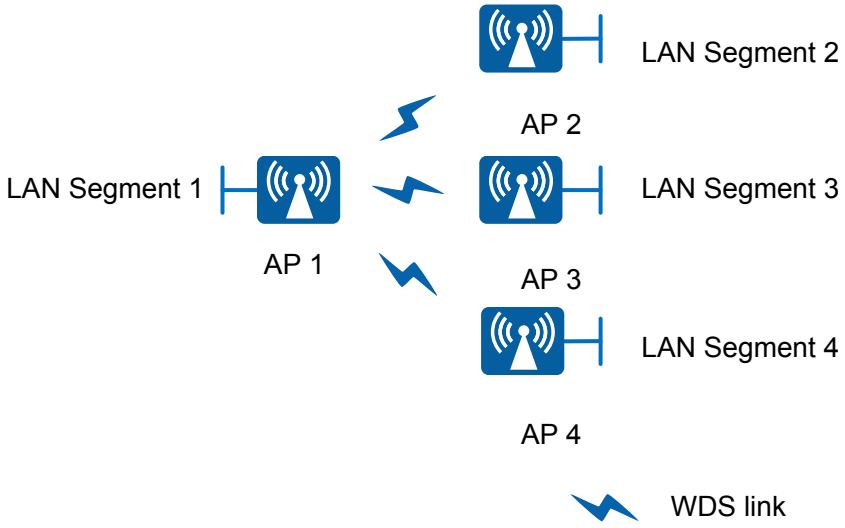
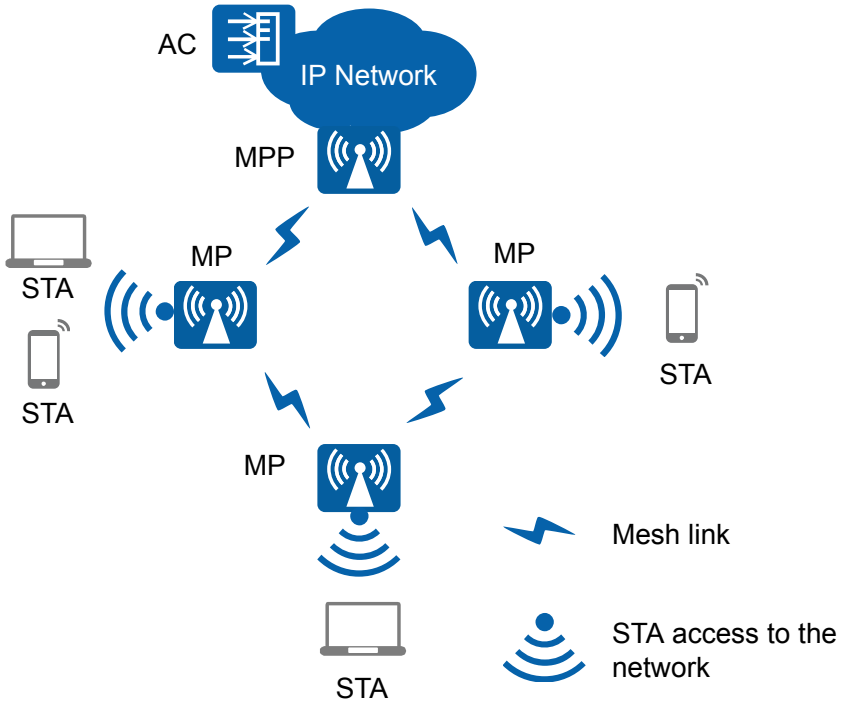


Figure 2-171 Fit AP networking (WDS mode: point-to-multipoint)



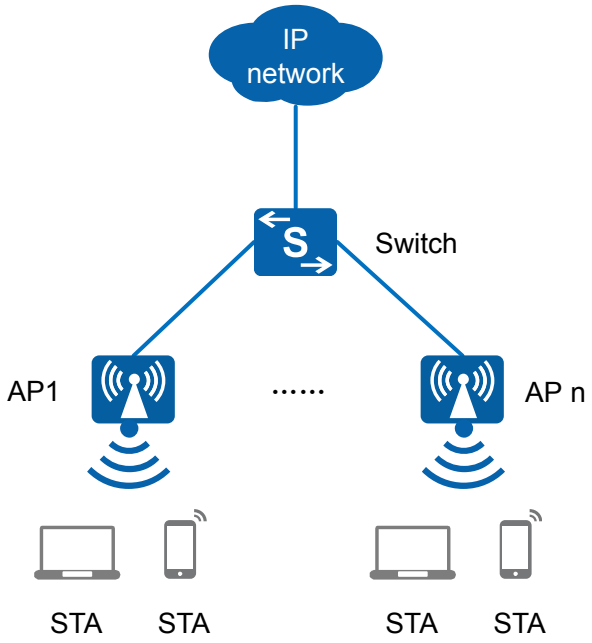
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. The AP can implement wireless bridging and access functions.

Figure 2-172 Fit AP mesh networking



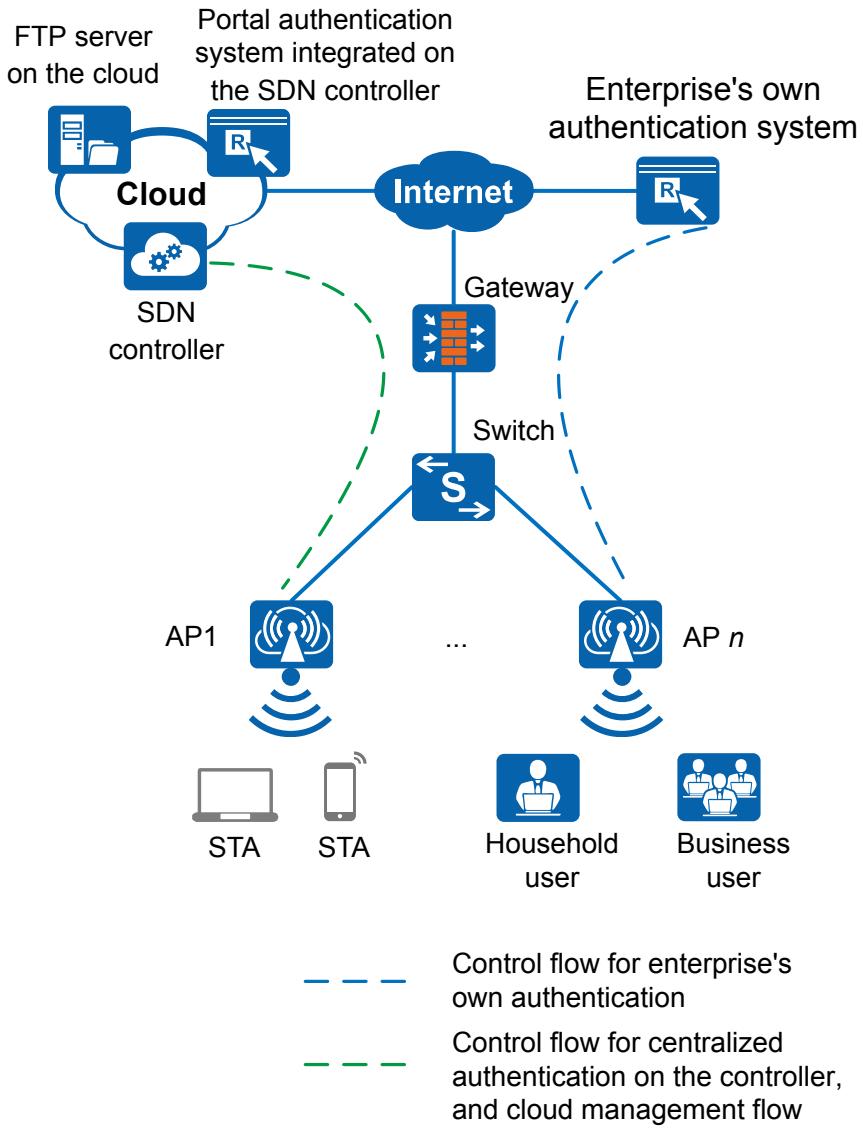
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-173 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-174 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.24.3 Hardware Information (AP4051TN)

Appearance

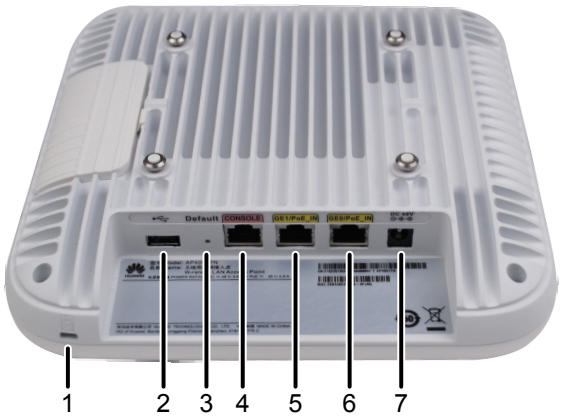
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-175 AP4051TN appearance

Ports

Figure 2-176 AP4051TN ports



As shown in **Figure 2-176**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
5. GE1/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
6. GE0/PoE_IN: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
7. DC 48V: Connects a power adapter to the AP.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-177 Indicator

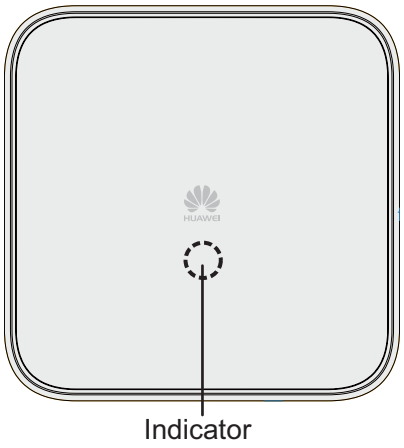


Table 2-86 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-87 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	52 mm × 220 mm × 220 mm (2.05 in. x 8.66 in. x 8.66 in.)
	Weight	1.35 kg
	System memory	512 MB DDR3L

Item		Description
	Flash	4 MB NOR FLASH + 128 MB Nand FLASH
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	• DC/802.3at power supply: 22 W (excluding the output power of the USB port) • 802.3af power supply: 12.95 W (The USB function is unavailable.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3af power supply mode, a radio uses a single spatial stream to send signals.
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-88 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 2.2 dBi • 5 GHz (Radio 1): 2.7 dBi • 5 GHz (Radio 2): 2.7 dBi

<table>
<tr><th>Item</th><th colspan="4">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="4">• Fit AP: ≤ 768
• Fat AP: ≤ 768
• Cloud AP: ≤ 768
NOTE
The actual number of users varies according to the environment.</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="4">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="4">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz (Radio 1): 22 dBm (combined power)
• 5 GHz (Radio 2): 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (Radio 1) (5.5 GHz to 5.825 GHz)
• 802.11a
– 20MHz: 5
• 802.11n
– 20 MHz: 5
– 40 MHz: 2
• 802.11ac
– 20 MHz: 5
– 40 MHz: 2
– 80 MHz: 1</td><td>5 GHz (Radio 2) (5.18 GHz to 5.32 GHz)
• 802.11a
– 20 MHz: 8
• 802.11n
– 20 MHz: 8
– 40 MHz: 4
• 802.11ac
– 20 MHz: 8
– 40 MHz: 4
– 80 MHz: 2
– 160 MHz: 1</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
</table>

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: – Radio 0: 6.5 to 400 Mbit/s – Radio 1: 6.5 to 400 Mbit/s – Radio 2: 6.5 to 800 Mbit/s • 802.11ac: – Radio 1: 6.5 to 867 Mbit/s – Radio 2: 6.5 to 1733 Mbit/s

2.24.4 Performance Specifications (AP4051TN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.25 AP4130DN Product Description

2.25.1 Product Characteristics (AP4130DN)

Table 2-89 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP4130DN	Dual bands: • 2.4 GHz • 5 GHz The AP4130DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP4130DN supports 2 x 2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP4130DN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP4130DN provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP4130DN can be flexibly deployed and work in hybrid mode (Fit AP+bridge).

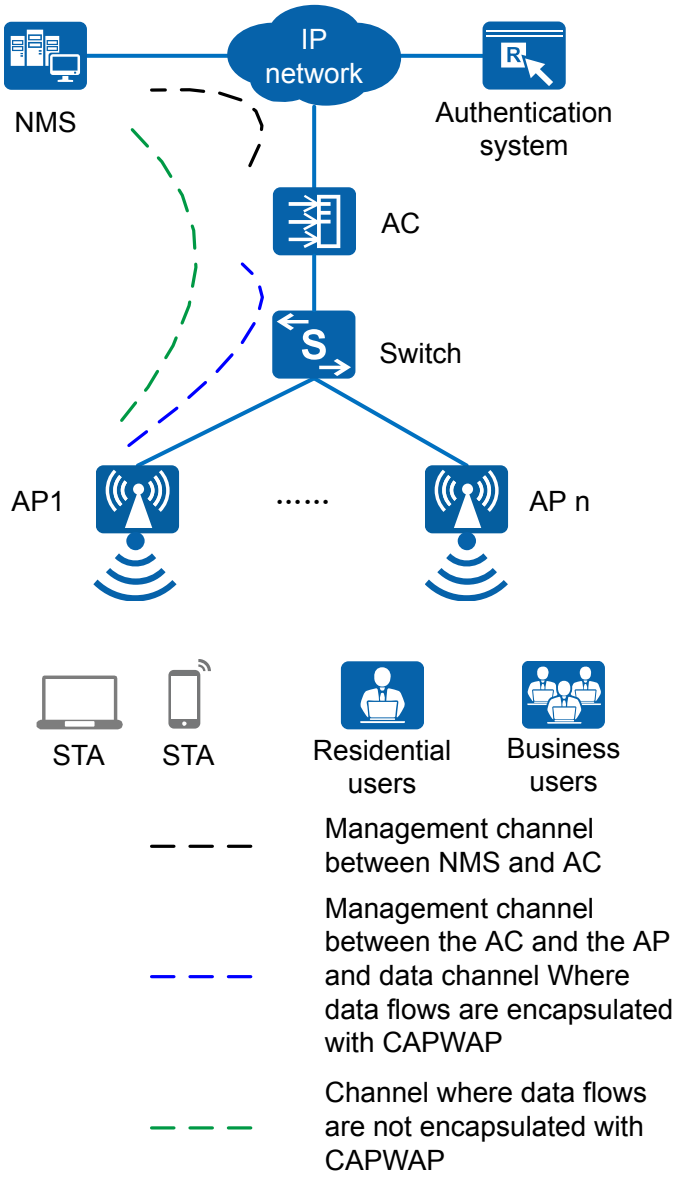
2.25.2 Usage Scenarios (AP4130DN)

The AP4130DN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-178 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-179 Fit AP networking (WDS mode: point-to-point)

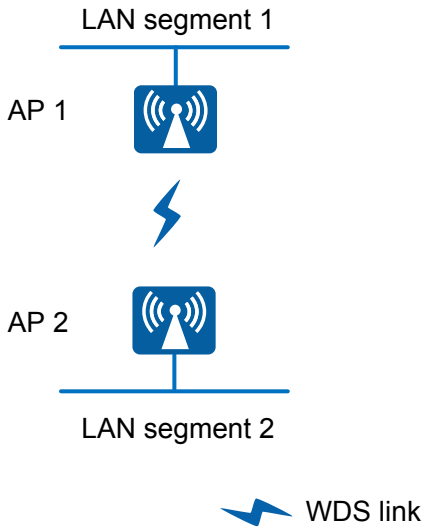
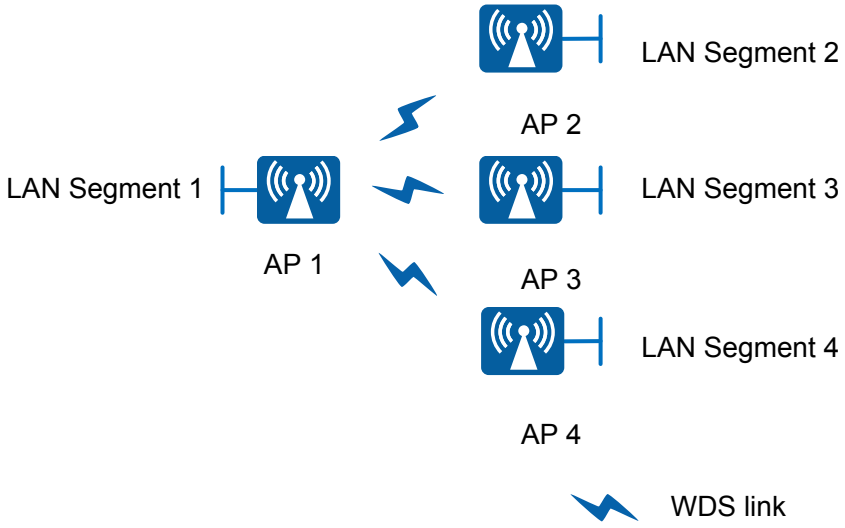
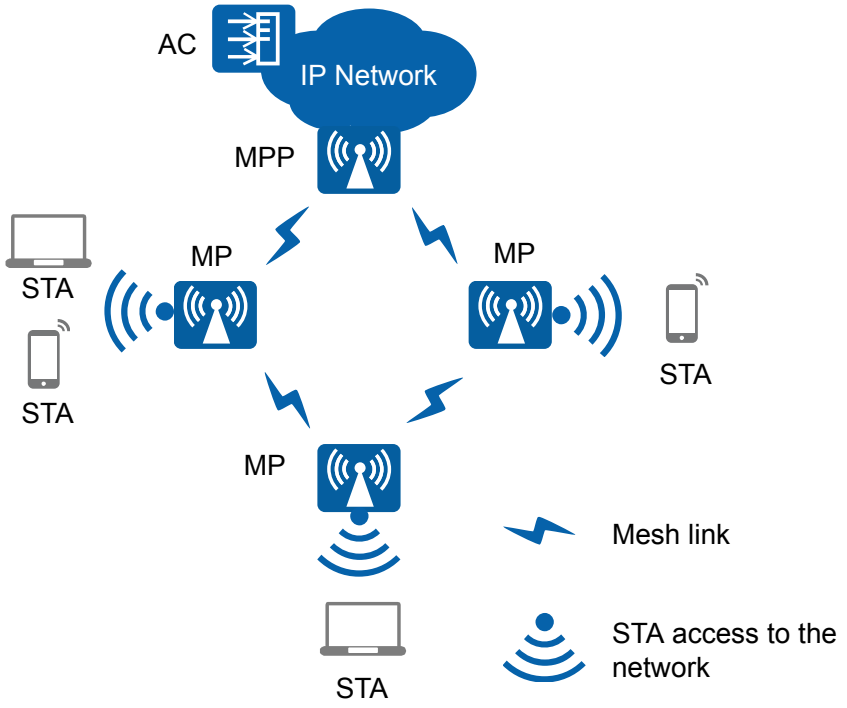


Figure 2-180 Fit AP networking (WDS mode: point-to-multipoint)



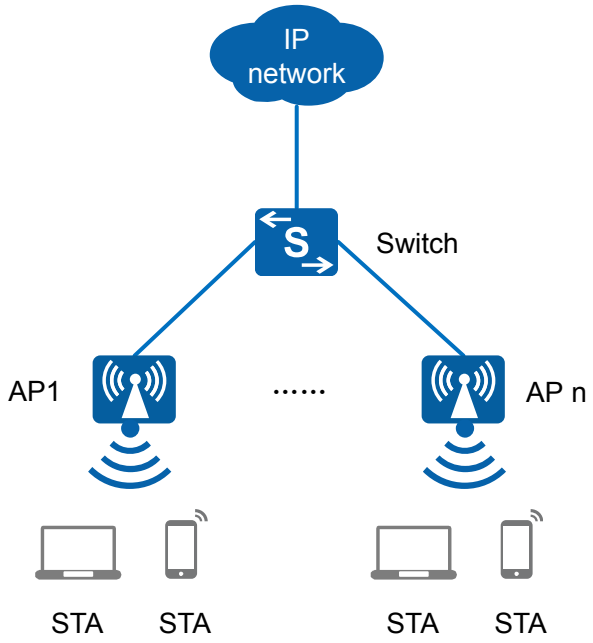
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-181 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-182 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.25.3 Hardware Information (AP4130DN)

Appearance

Figure 2-183 shows the appearance of the AP.

NOTE

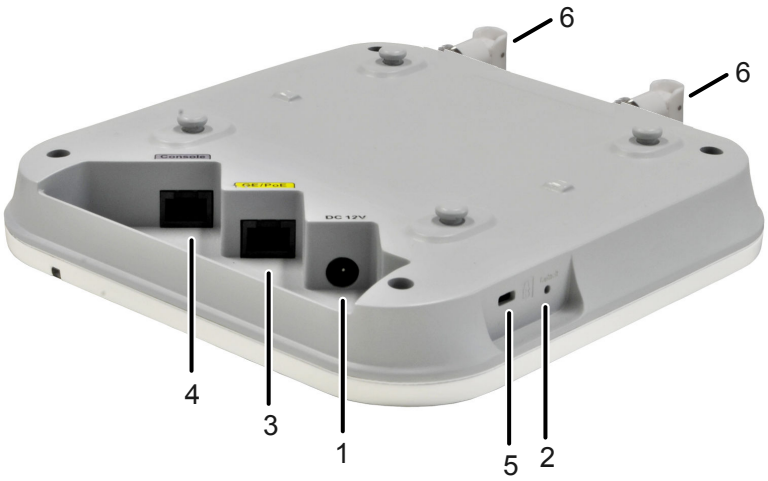
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-183 AP4130DN appearance

Port

The following figure shows ports on the AP4130DN.

Figure 2-184 AP4130DN ports



As shown in **Figure 2-184**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.

- 4. Console port: connects to the maintenance terminal for AP configuration and management.
- 5. Lock port: protects the AP against theft.
- 2.4G/5G: Connects a 2.4GHz/5GHz dual-band antenna to the AP to send and receive wireless signals. The port type is RP-SMA-K.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-90 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-91 Basic specifications of the AP4130DN

Item		Description
Technical specifications	Dimensions (H x W x D)	39.5 mm x 180 mm x 180 mm
	Weight	0.4 kg
	System memory	• 256 MB DDR2 • 32 MB Flash
Power specifications	Power input	• DC: 12 V ± 10% • PoE power: in compliance with IEEE 802.3af/at
	Maximum power consumption	10.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-92 Radio specifications

Item	Description
Antenna type	External dual-band antenna (2.4 GHz and 5 GHz)
Antenna gain	Antennas delivered with the APs: • 2.4 GHz: 2.5 dBi • 5 GHz: 4 dBi
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 300 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.25.4 Performance Specifications (AP4130DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.26 AP430-E Product Description

2.26.1 Product Characteristics (AP430-E)

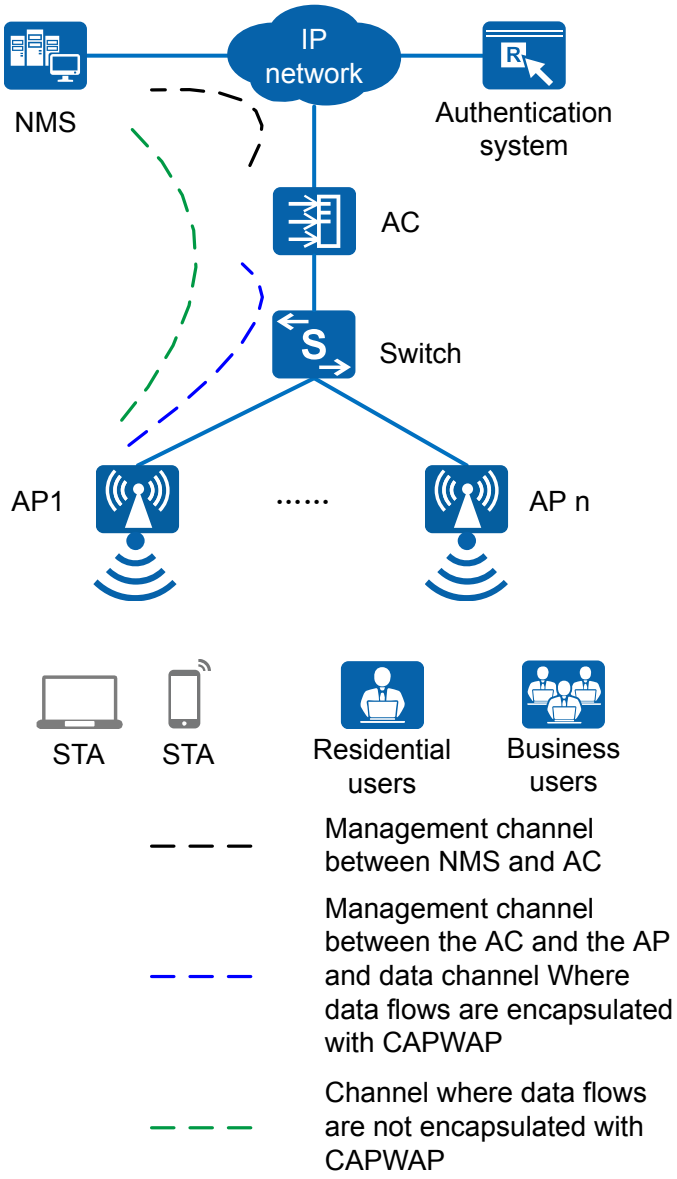
Table 2-93 Product positioning

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP430-E	Dual bands: • 2.4 GHz • 5 GHz The AP430-E can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP430-E supports 2x2 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP430-E complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP430-E provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP430-E can work in hybrid mode (Fit AP and bridge).

2.26.2 Usage Scenarios (AP430-E)

Typical networking modes are as follows:

Figure 2-185 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-186 Fit AP networking (WDS mode: point-to-point)

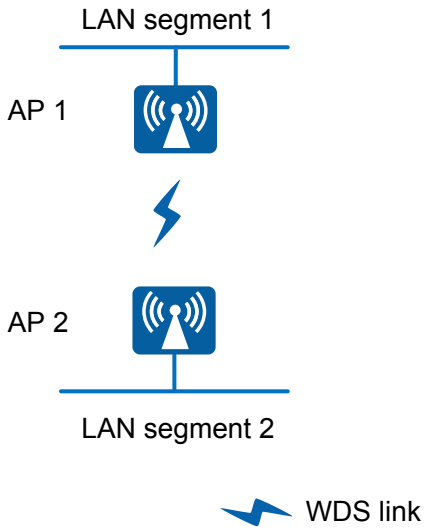
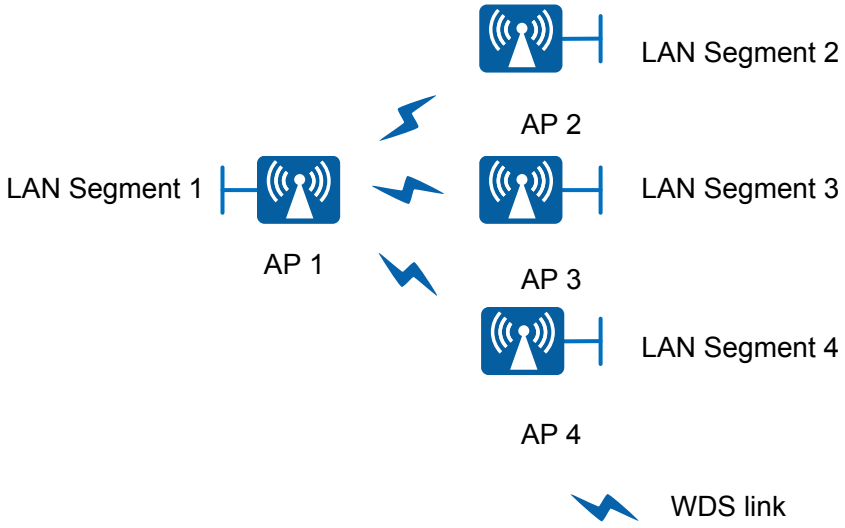
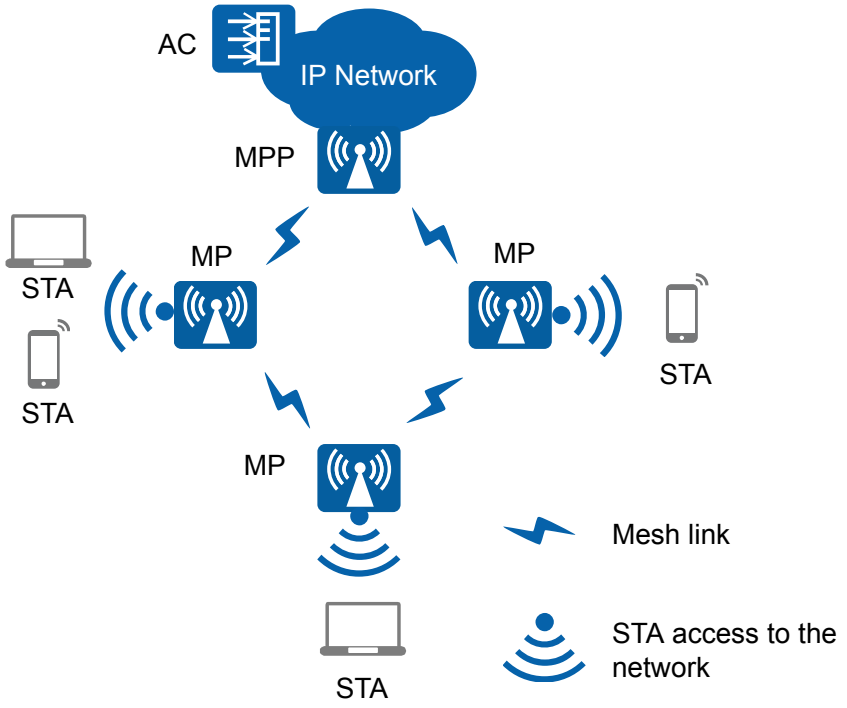


Figure 2-187 Fit AP networking (WDS mode: point-to-multipoint)



In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-188 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

2.26.3 Hardware Information (AP430-E)

Appearance

Figure 2-189 shows the appearance of the AP.

NOTE

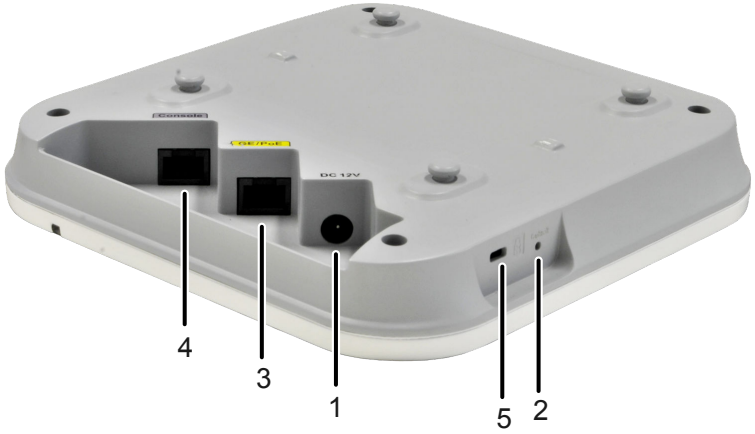
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-189 AP430-E appearance

Port

Figure 2-190 shows ports on the AP430-E.

Figure 2-190 AP430-E ports



As shown in **Figure 2-190**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 4. Console port: connects to the maintenance terminal for AP configuration and management.
- 5. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-94 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). ● The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-95 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	39.5 mm x 180 mm x 180 mm
	Weight	0.4kg
	System memory	• 256 MB DDR2 • 32 MB Flash
Power specifications	Power input	• DC 12 V ± 10% • PoE power: in compliance with IEEE 802.3af/at
	Maximum power consumption	10.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-96 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 6 dBi

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="3">≤ 256</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 23 dBm (combined power)
• 5 GHz: 23 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 300 Mbit/s
• 802.11ac: 6.5 to 867 Mbit/s</td></tr>
</table>

2.26.4 Performance Specifications (AP430-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.27 AP5030DN Product Description

2.27.1 Product Characteristics (AP5030DN)

Table 2-97 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP5030DN	Dual bands: • 2.4 GHz • 5 GHz The AP5030DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP5030DN supports 3x3 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP5030DN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP5030DN provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP5030DN can be flexibly deployed and work in hybrid mode (Fit AP +bridge).

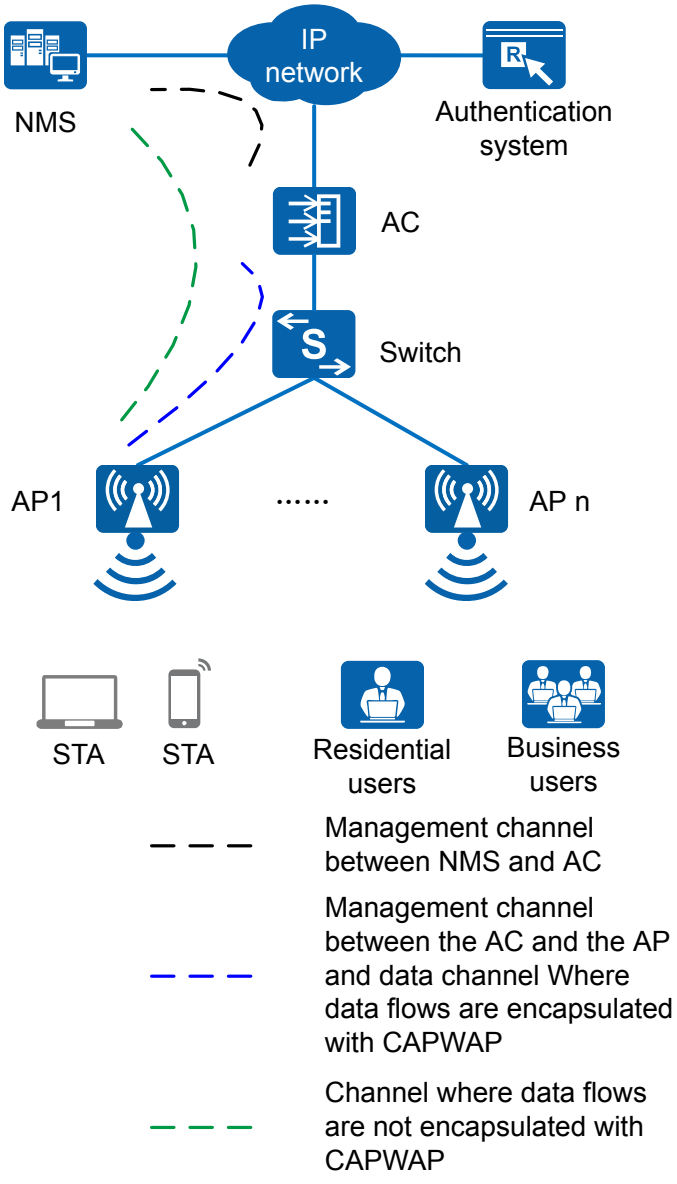
2.27.2 Usage Scenarios (AP5030DN)

The AP5030DN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-191 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-192 Fit AP networking (WDS mode: point-to-point)

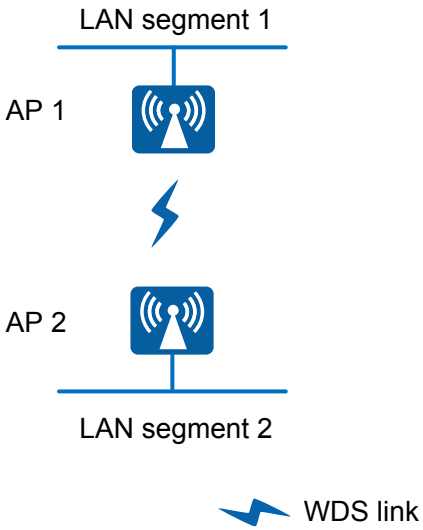
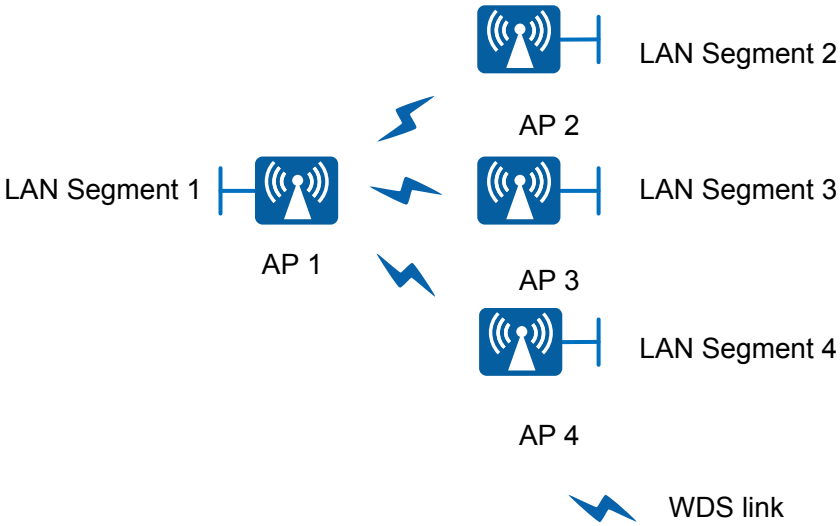
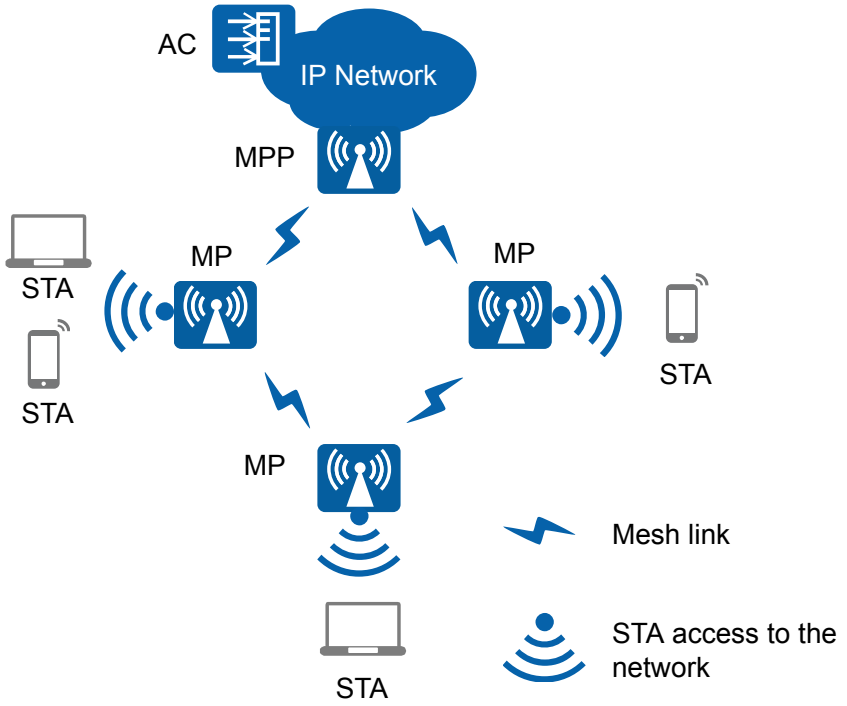


Figure 2-193 Fit AP networking (WDS mode: point-to-multipoint)



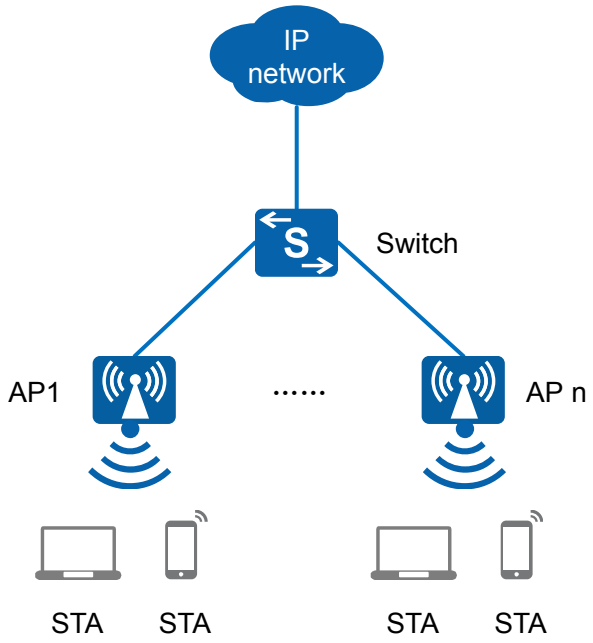
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-194 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-195 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.27.3 Hardware Information (AP5030DN)

Appearance

Figure 2-196 shows the appearance of the AP.

NOTE

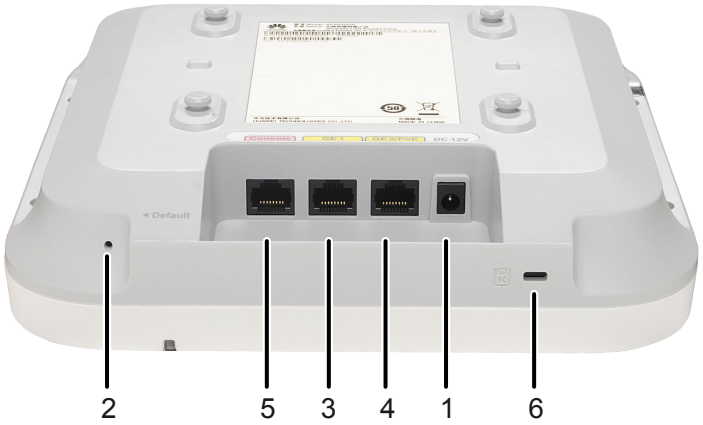
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-196 AP appearance

Port

The following figure shows ports on the AP.

Figure 2-197 AP ports



As shown in **Figure 2-197**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE1: 10/100/1000M port used to connect to the wired Ethernet.
- 4. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 5. Console port: connects to the maintenance terminal for AP configuration and management.
- 6. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-98 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-99 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm × 220 mm × 220 mm (2.09 in. x 8.66 in. x 8.66 in.)
	Weight	0.8 kg
	System memory	256 MB DDR2

Item		Description
	FLASH	32 MB NOR FLASHH
Power specifications	Power input	• DC 12 V±10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.95 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-100 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 25 dBm (combined power)
• 5 GHz: 25 dBm (combined power)
NOTE
The 2.4 GHz radio does not support the 40M bandwidth in FCC regions (including the US).
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 450 Mbit/s
• 802.11ac: 6.5 to 1300 Mbit/s</td></tr>
</table>

2.27.4 Performance Specifications (AP5030DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.28 AP5030DN-C Product Description

2.28.1 Product Characteristics (AP5030DN-C)

Table 2-101 Product characteristics

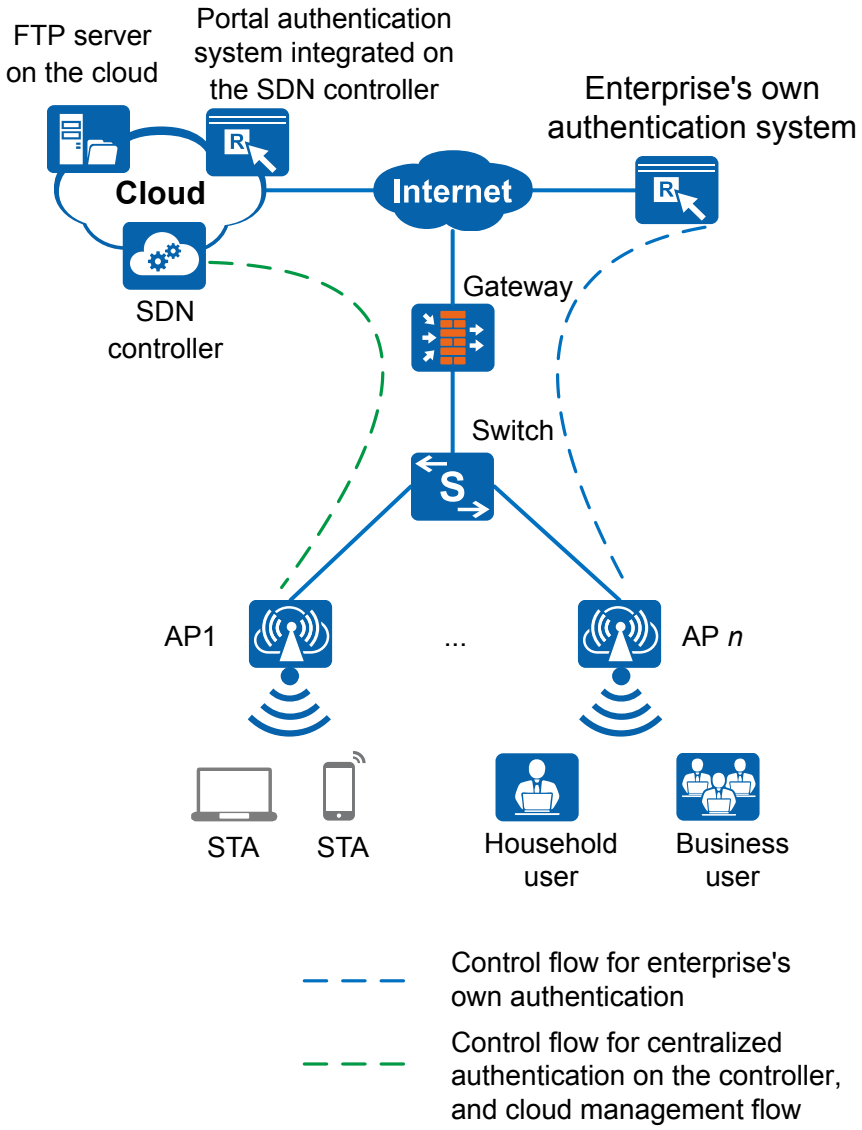
Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP5030DN-C	Dual bands: • 2.4 GHz • 5 GHz The AP5030DN-C can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP5030DN-C supports 3x3 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP5030DN-C complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP5030DN-C provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments.

2.28.2 Usage Scenarios (AP5030DN-C)

The AP5030DN-C can work only in cloud AP mode. In this mode, the AP needs to work with the server on the cloud.

Typical networking modes are as follows:

Figure 2-198 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.28.3 Hardware Information (AP5030DN-C)

Appearance

Figure 2-199 shows the appearance of the AP.

NOTE

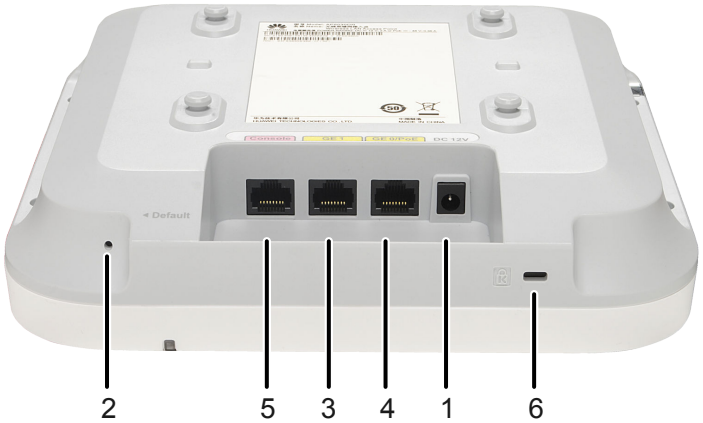
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-199 AP appearance

Port

The following figure shows ports on the AP.

Figure 2-200 AP ports



As shown in Figure 2-200, each port can be described as follows:

1. Input port for 12 V DC power supply
2. Default button: restores factory settings if you hold down the button more than 3 seconds.
3. GE1: 10/100/1000M port used to connect to the wired Ethernet.

4. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
5. Console port: connects to the maintenance terminal for AP configuration and management.
6. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-102 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-103 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	0.8 kg
	System memory	● 256 MB DDR2 ● 64 MB flash memory
Power specifications	Power input	● DC 12 V ± 10% ● PoE power: -48 V DC (in compliance with IEEE 802.3af/at)
	Maximum power consumption	12.95 W **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature and altitude	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-104 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 25 dBm (combined power) **NOTE** The 2.4 GHz radio does not support the 40M bandwidth in FCC regions (including America). The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 450 Mbit/s • 802.11ac: 6.5 to 1300 Mbit/s		

2.28.4 Performance Specifications (AP5030DN-C)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.29 AP5030DN-S Product Description

2.29.1 Product Characteristics (AP5030DN-S)

Table 2-105 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP5030DN-S	Dual bands: • 2.4 GHz • 5 GHz The AP5030DN-S can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP5030DN-S supports 3x3 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP5030DN-S complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP5030DN-S provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. The AP5030DN-S can be flexibly deployed and work in hybrid mode (Fit AP +bridge).

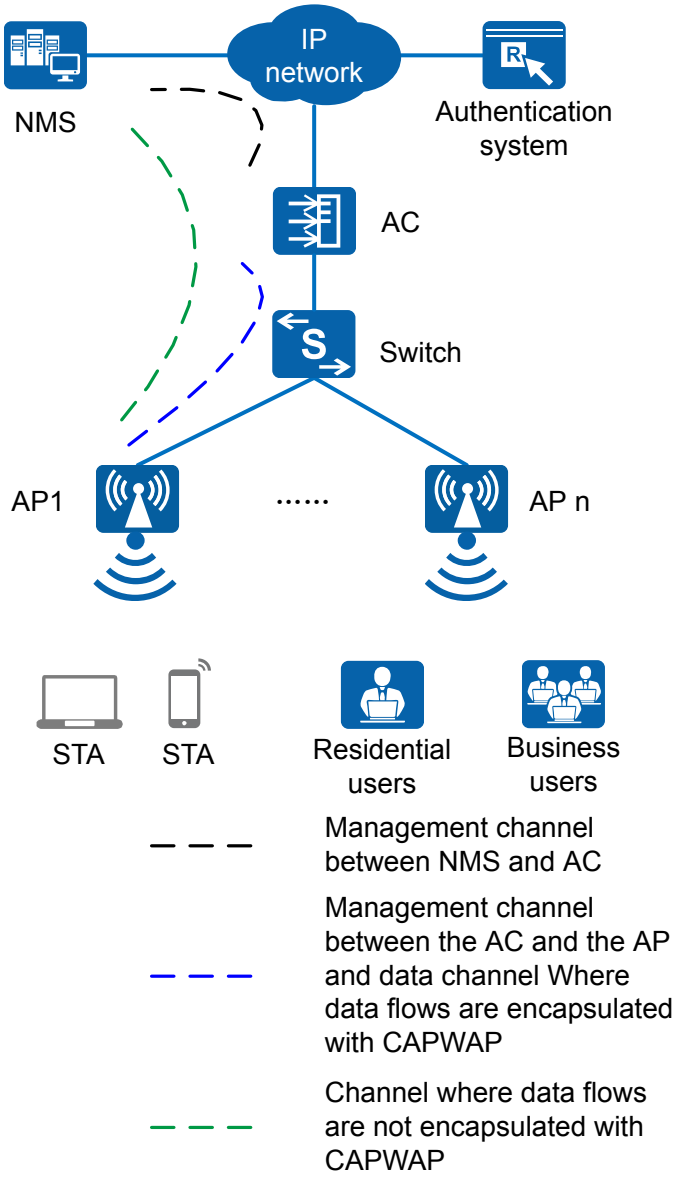
2.29.2 Usage Scenarios (AP5030DN-S)

The AP5030DN-S can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-201 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-202 Fit AP networking (WDS mode: point-to-point)

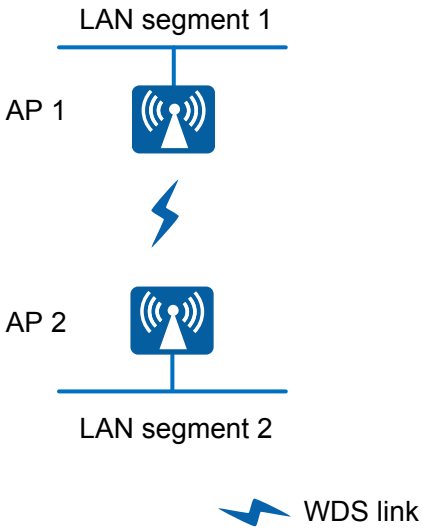
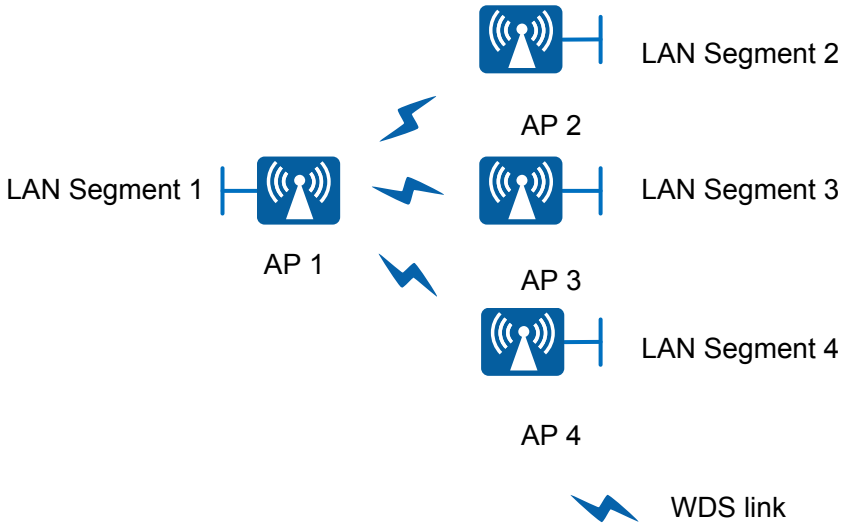
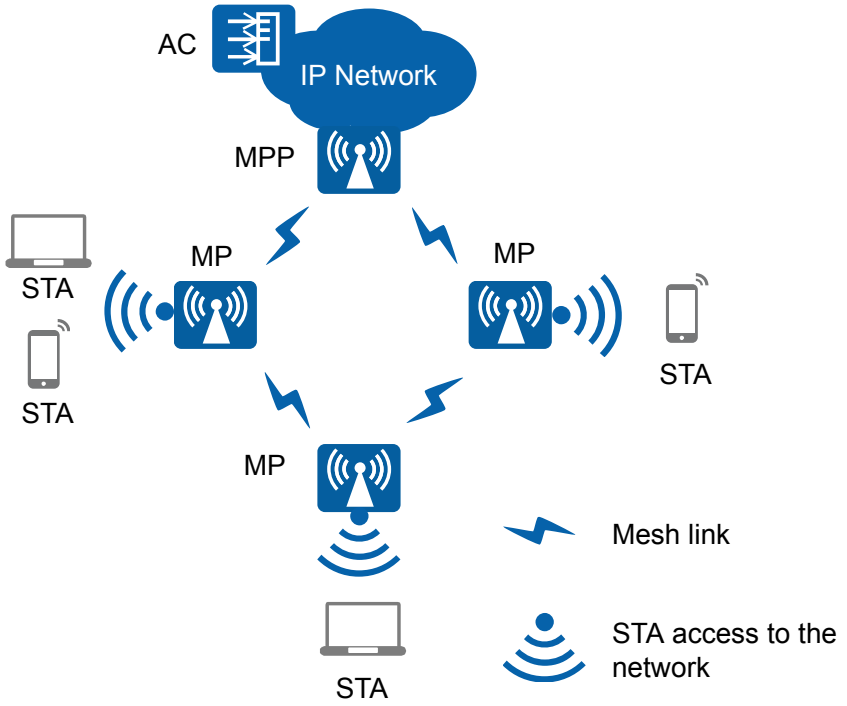


Figure 2-203 Fit AP networking (WDS mode: point-to-multipoint)



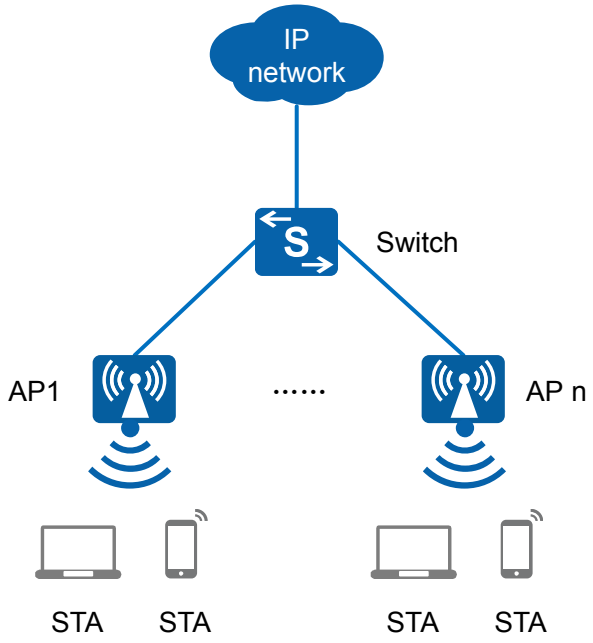
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-204 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-205 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.29.3 Hardware Information (AP5030DN-S)

Appearance

Figure 2-206 shows the appearance of the AP.

NOTE

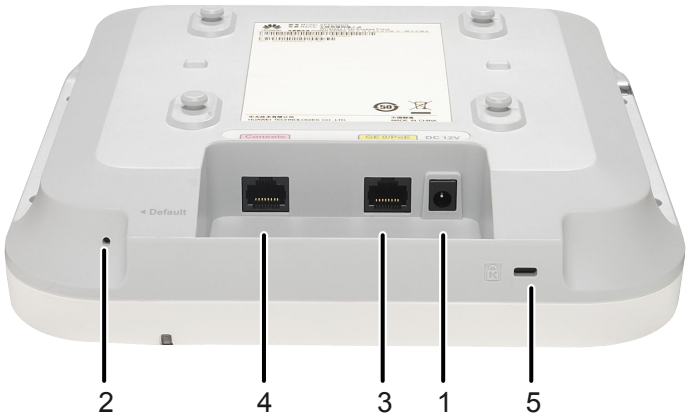
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-206 AP5030DN-S appearance

Port

The following figure shows ports on the AP5030DN-S.

Figure 2-207 AP5030DN-S ports



As shown in **Figure 2-207**, each port can be described as follows:

- 1. Input port for 12 V DC power supply
- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 4. Console port: connects to the maintenance terminal for AP configuration and management.
- 5. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-106 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-107 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm × 220 mm × 220 mm (2.09 in. x 8.66 in. x 8.66 in.)
	Weight	0.8 kg
	System memory	256 MB DDR2

Item		Description
	FLASH	32 MB NOR FLASHH
Power specifications	Power input	• DC 12 V±10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.95 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-108 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 5 dBi
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64
Maximum number of VAPs for each radio	16

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 25 dBm (combined power)
• 5 GHz: 25 dBm (combined power)
NOTE
The 2.4 GHz radio does not support the 40M bandwidth in FCC regions (including the US).
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 450 Mbit/s
• 802.11ac: 6.5 to 1300 Mbit/s</td></tr>
</table>

2.29.4 Performance Specifications (AP5030DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.30 AP5050DN-S Product Description

2.30.1 Product Characteristics (AP5050DN-S)

Huawei AP5050DN-S is a wireless access point (AP) targeted at the SMB distribution market in compliance with 802.11ac Wave 2, providing gigabit STA

access for concurrent users. The AP supports 3 x 3 MU-MIMO and three spatial streams at 2.4 GHz, 4 x 4 MU-MIMO and four spatial streams at 5 GHz, reaching up to 2.33 Gbit/s for the device. It supports smooth evolution from 802.11n to 802.11ac and meets the bandwidth requirements of high-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

The AP5050DN-S applies to high-density scenarios of medium or large size, such as mobile offices, general education, and higher education.

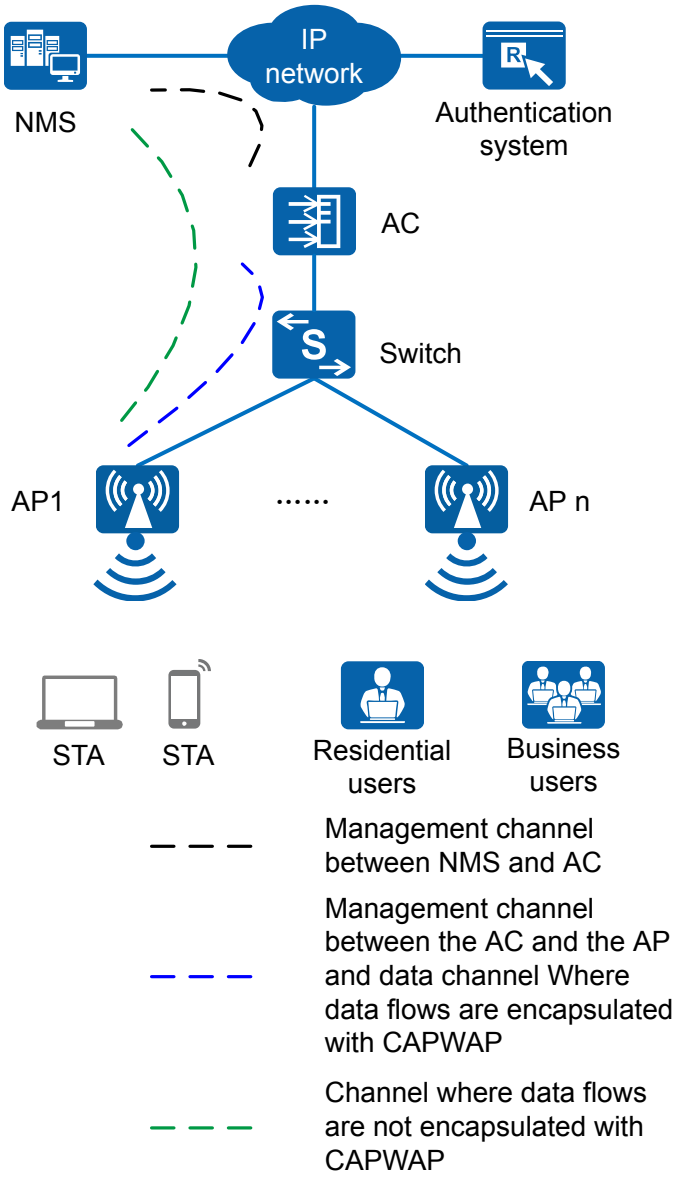
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 600 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.33 Gbit/s for the device
- Dual Ethernet interfaces supporting link aggregation and traffic load balancing while ensuring link reliability
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.30.2 Usage Scenarios (AP5050DN-S)

The AP5050DN-S can work as a Fat, Fit, or cloud AP, and switch its working mode based on network planning requirements.

Typical networking modes are as follows:

Figure 2-208 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-209 Fit AP networking (WDS mode: point-to-point)

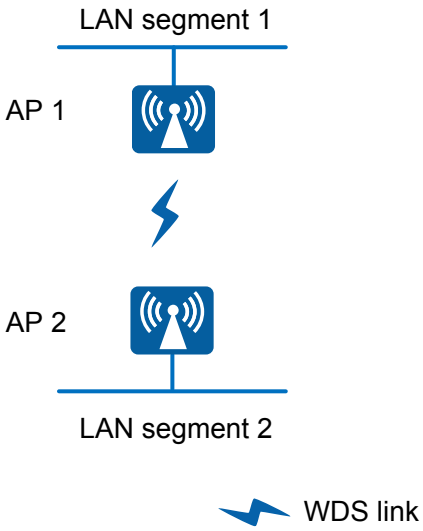
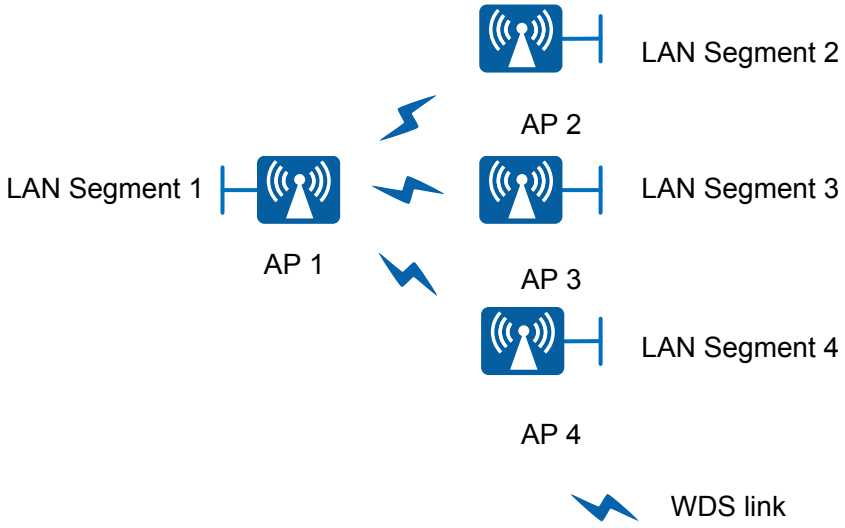
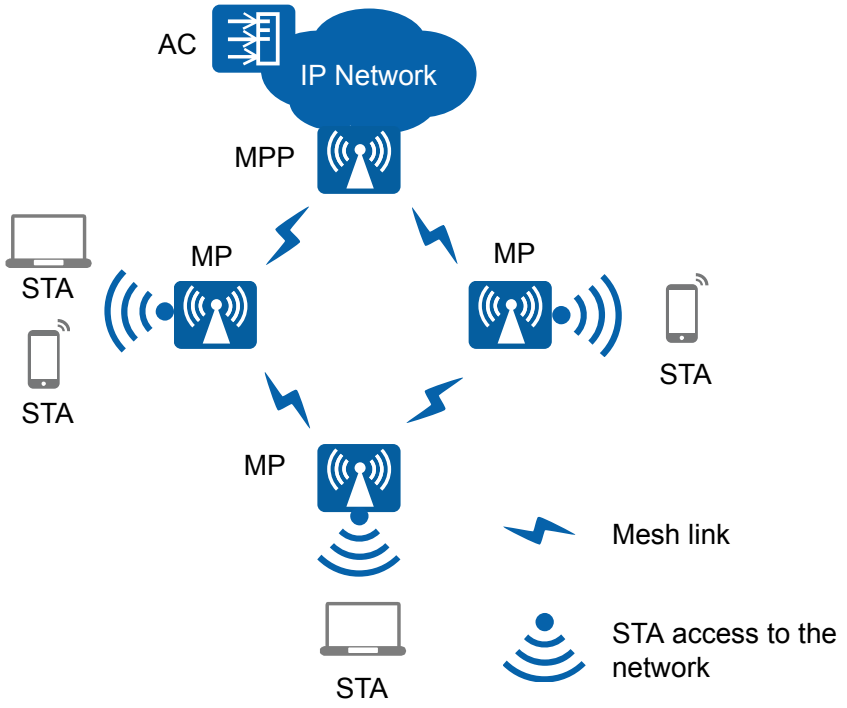


Figure 2-210 Fit AP networking (WDS mode: point-to-multipoint)



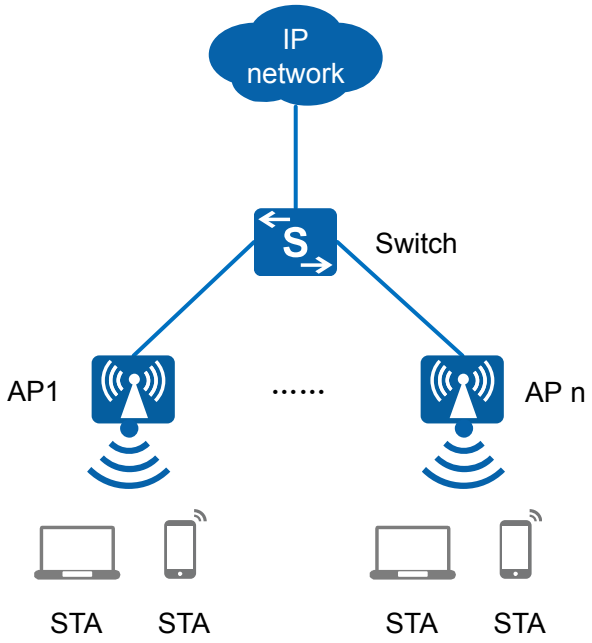
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-211 Fit AP mesh networking



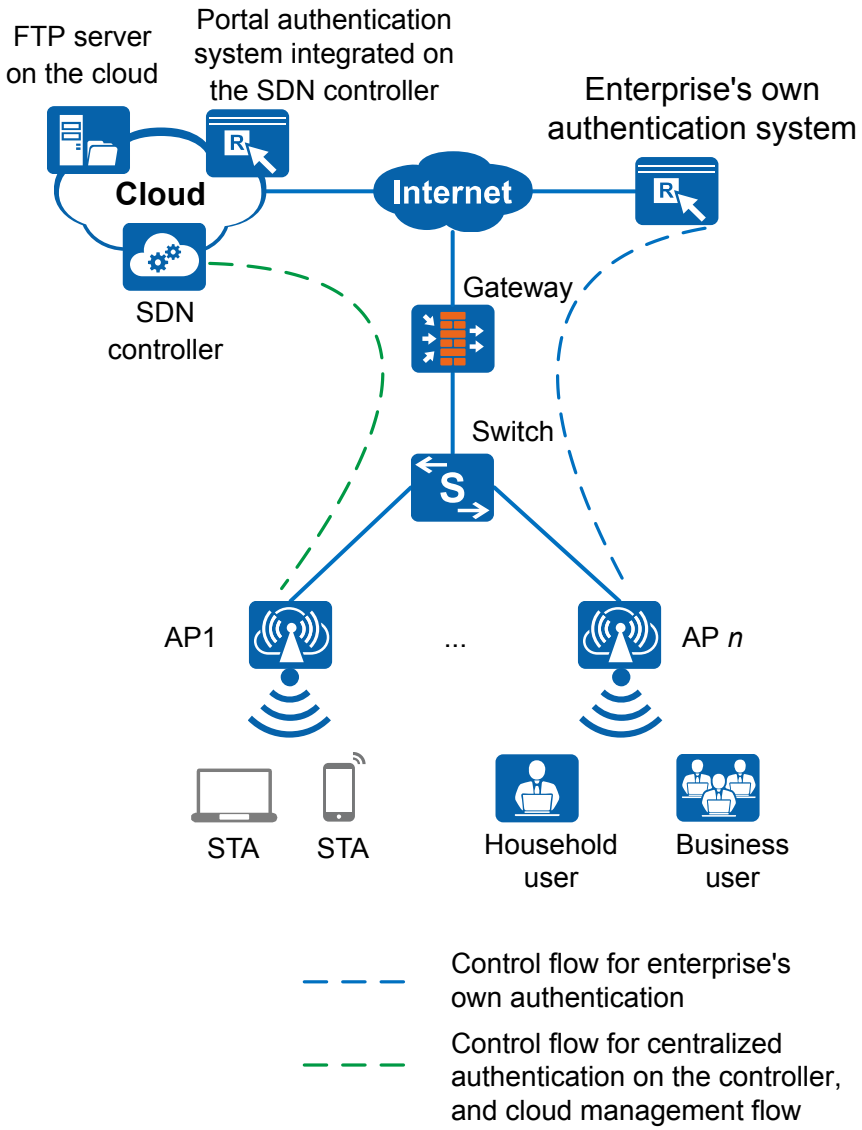
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-212 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-213 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.30.3 Hardware Information (AP5050DN-S)

Appearance

Figure 2-214 shows the AP5050DN-S appearance.

NOTE

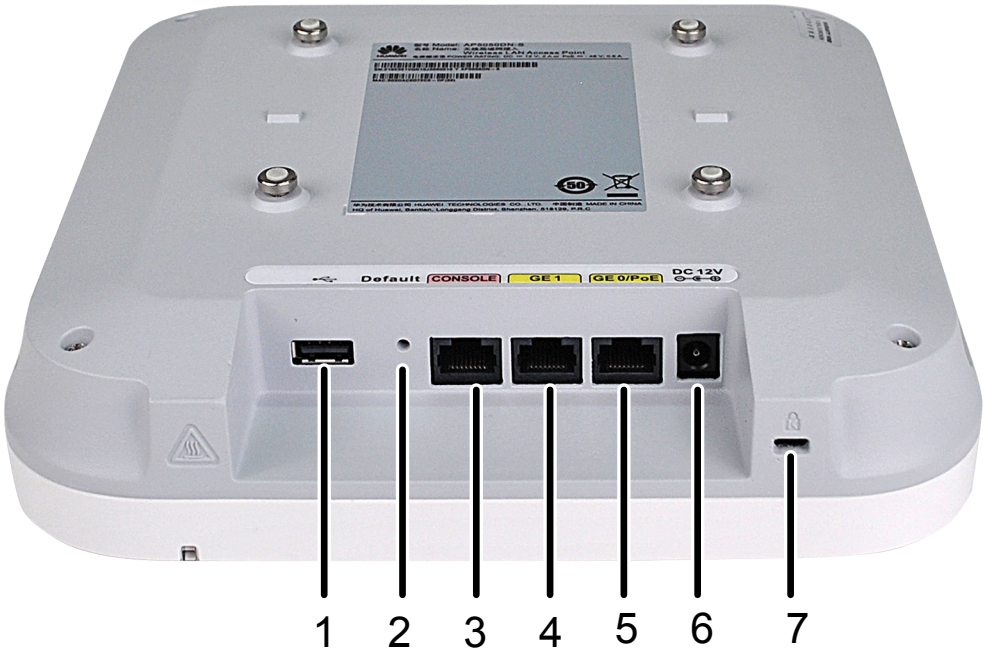
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-214 AP5050DN-S appearance

Ports

The following figure shows ports on the AP5050DN-S.

Figure 2-215 AP5050DN-S ports



As shown in **Figure 2-215**, each interface can be described as follows:

1. USB port: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
2. Default button: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.

3. Console port: Connects to a maintenance terminal for AP configuration and management.
4. GE1: 10/100/1000M port that connects to the wired Ethernet.
5. GE0/PoE: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.
6. DC 12V: Connects a 12 V power adapter to the AP.
7. Security slot: Connects to a security lock.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-109 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-110 Basic specifications of the AP5050DN-S

Item		Description
Physical specifications	Dimensions (H x W x D)	56 mm x 220 mm x 220 mm (2.20 in. x 8.66 in. x 8.66 in.)
	Weight	1.3 kg
	System memory	512 MB DDR3L
	Flash	16 MB NOR flash + 128 MB NAND flash
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	19.7 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment parameters	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-111 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 4 dBi
Maximum number of users	≤ 256 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 26 dBm (combined power) **NOTE** The actual maximum transmit power varies depending on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 600 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s		

2.30.4 Performance Specifications (AP5050DN-S)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.31 AP5130DN Product Description

2.31.1 Product Characteristics (AP5130DN)

Table 2-112 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP5130DN	Dual bands: • 2.4 GHz • 5 GHz The AP5130DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The cost-effective AP5130DN supports 3 x 3 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP5130DN complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP5130DN provides 802.11n/ac wireless access networks for places with simple building structure, small size, dense users, and high capacity demands, such as small and medium enterprises and branches. It can be flexibly deployed in different environments. The AP5130DN can be flexibly deployed and work in hybrid mode (Fit AP +bridge).

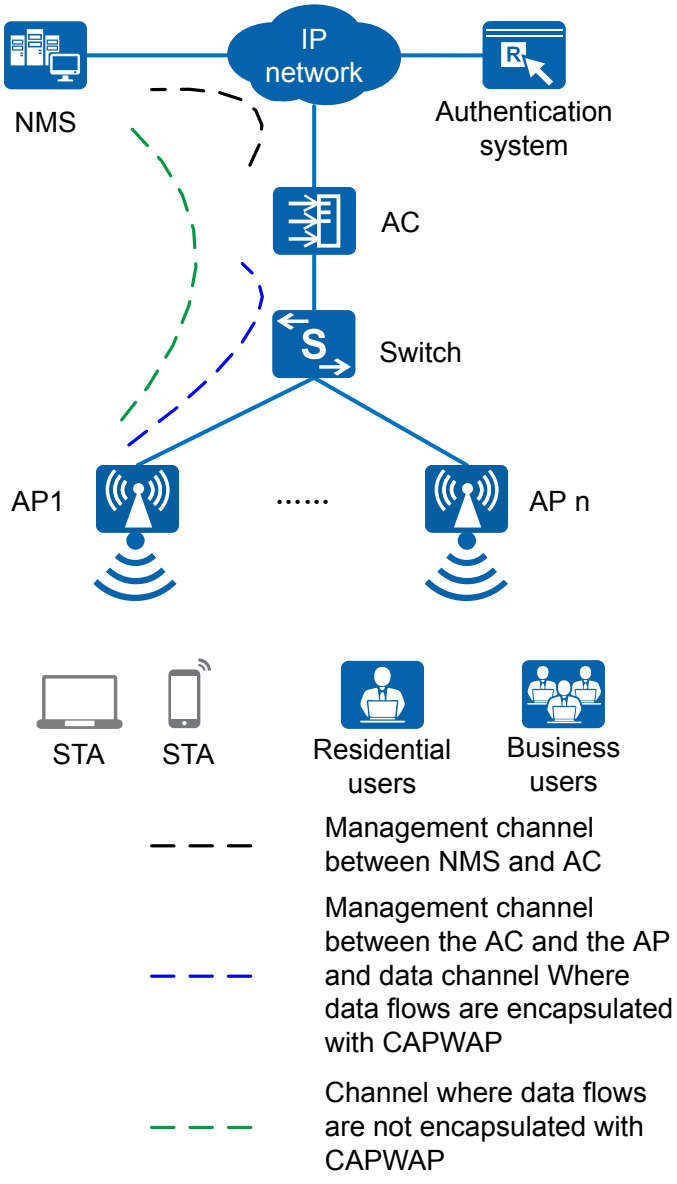
2.31.2 Usage Scenarios (AP5130DN)

The AP5130DN can work as a Fat AP or Fit AP and switch flexibly between the two working modes based on the network plan.

When the wireless network scale is small, customers need to purchase only AP products and configure the APs to work as Fat APs. As the network scale expands, tens of or hundreds of APs exist on the network. To simplify network management, customers are advised to purchase ACs to perform centralized management on the APs and set the APs to work as Fit APs.

Typical networking modes are as follows:

Figure 2-216 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-217 Fit AP networking (WDS mode: point-to-point)

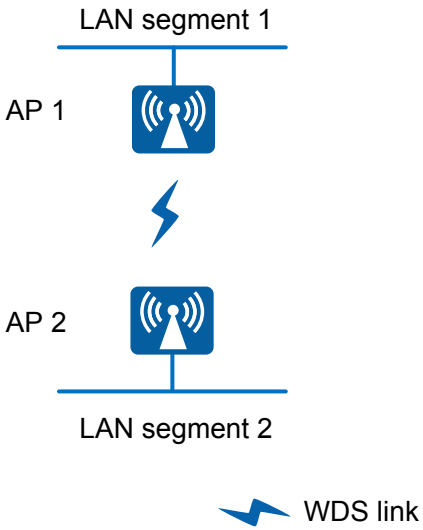
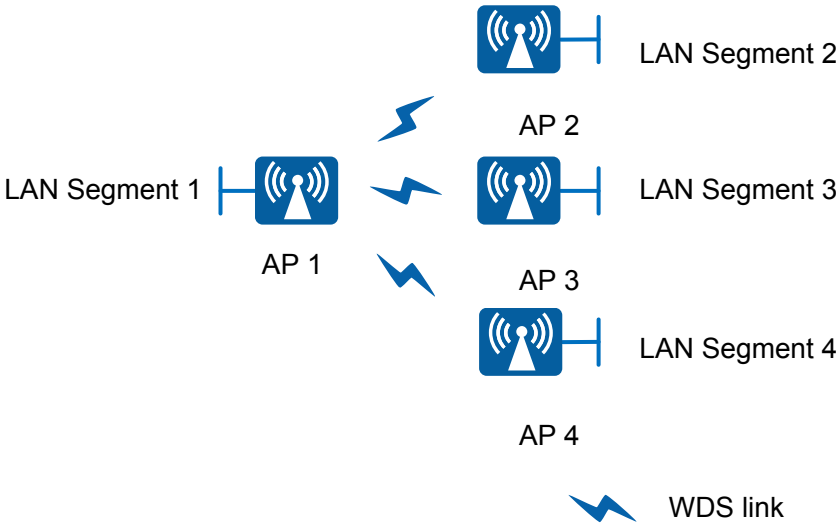
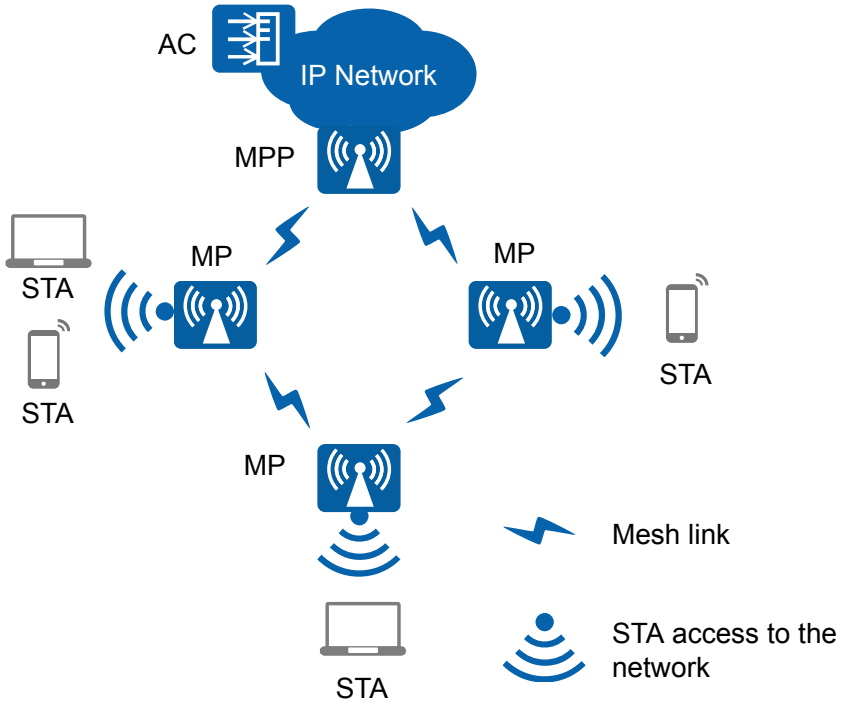


Figure 2-218 Fit AP networking (WDS mode: point-to-multipoint)



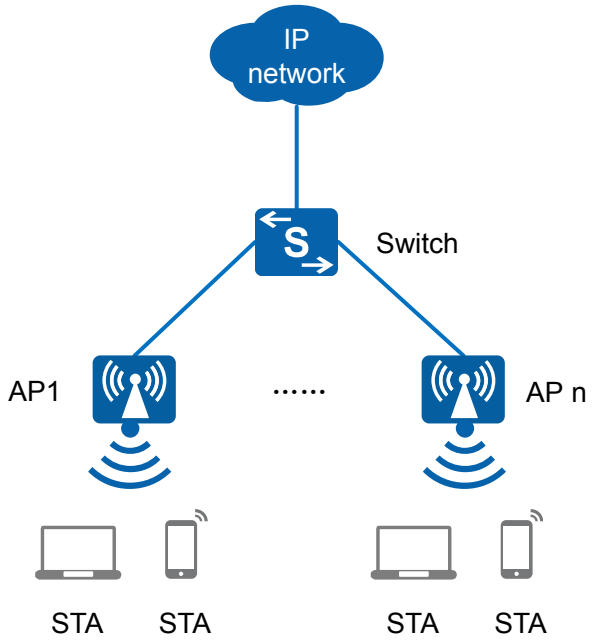
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-219 Fit AP mesh networking



In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-220 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

2.31.3 Hardware Information (AP5130DN)

Appearance

Figure 2-221 shows the appearance of the AP.

NOTE

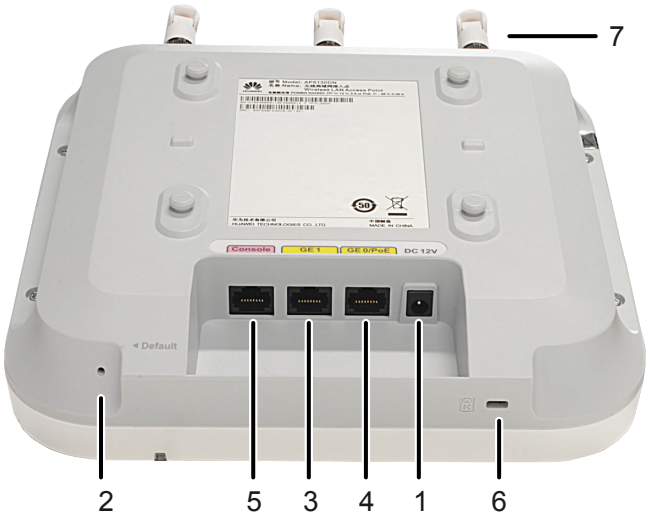
The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-221 AP5130DN appearance

Port

The following figure shows ports on the AP5130DN.

Figure 2-222 AP5130DN ports



As shown in **Figure 2-222**, each port can be described as follows:

1. Input port for 12 V DC power supply
2. Default button: restores factory settings if you hold down the button more than 3 seconds.
3. GE1: 10/100/1000M port used to connect to the wired Ethernet.
4. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
5. Console port: connects to the maintenance terminal for AP configuration and management.
6. Lock port: protects the AP against theft.

7. 2.4G/5G: Connects a 2.4GHz/5GHz dual-band antenna to the AP to send and receive wireless signals. The port type is RP-SMA-K.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-113 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).

Type	Name	Color	Status	Description
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-114 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	53 mm × 220 mm × 220 mm (2.09 in. x 8.66 in. x 8.66 in.)
	Weight	0.8 kg
	System memory	256 MB DDR2
	FLASH	32 MB NOR FLASHH
Power specifications	Power input	• DC 12 V±10% • PoE power supply: in compliance with IEEE 802.3af/at
	Maximum power consumption	12.95 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-115 Radio specifications

Item	Description		
Antenna type	External dual-band antenna (2.4 GHz and 5 GHz)		
Antenna gain	Antennas delivered with the APs: • 2.4G: 3.5 dBi • 5G: 4 dBi		
Maximum number of users	• Fit AP: ≤ 256 • Fat AP: ≤ 64		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 25 dBm (combined power) **NOTE** The 2.4 GHz radio does not support the 40M bandwidth in FCC regions (including America). The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 450 Mbit/s • 802.11ac: 6.5 to 1300 Mbit/s

2.31.4 Performance Specifications (AP5130DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.32 AP5510-W-GP Product Description

2.32.1 Product Characteristics (AP5510-W-GP)

Huawei AP5510-W-GP is a gigabit wall plate access point (AP) in compliance with 802.11ac Wave 2. With mounting brackets, the AP can be easily adapted to junction boxes (86/118/120 mm) and wall-mounting scenarios. The AP boasts built-in smart antennas, a hidden indicator, and a brand-new "morning dew" style. It supports GPON uplink transmission. These highlights make the AP suitable for environments with densely distributed small rooms, such as student dormitories. The AP provides enhanced service support capabilities and features high security, easy network deployment, automatic AC discovery and configuration, and real-time management and maintenance. The AP can connect to wireless terminals through wireless connections or to wired terminals using wired cables. This makes it the ideal choice of customers to construct indoor distributed networks.

- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 400 Mbit/s at 2.4 GHz and 867 Mbit/s at 5 GHz, and 1.267 Gbit/s for the device
- One GPON uplink interface and four GE downlink interfaces
- Various installation modes for easy deployment, including wall-mounting, plate-mounting, and desk-mounting
- Built-in smart antennas, increasing the coverage area
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.32.2 Usage Scenarios (AP5510-W-GP)

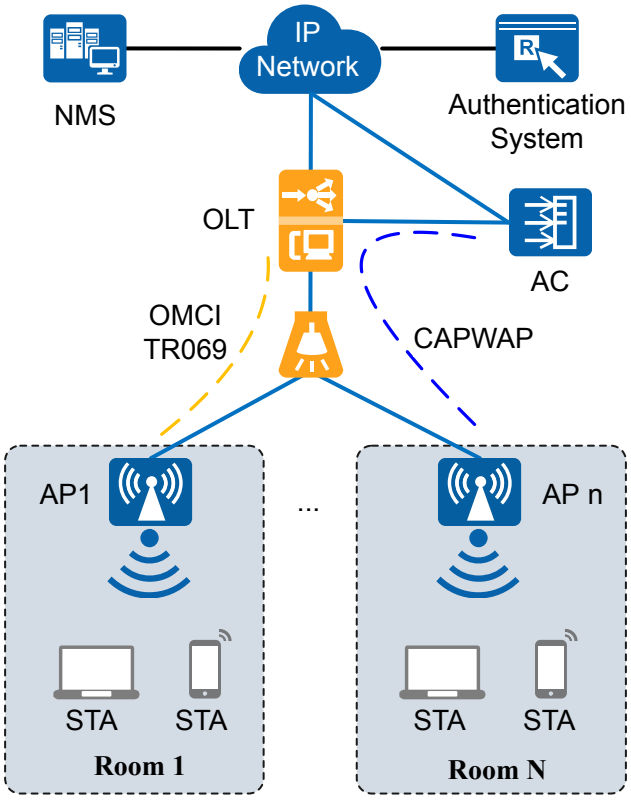
The AP5510-W-GP can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

The AP5510-W-GP supports the ONT capabilities and can connect to an OLT through the uplink GPON port. The AP can work with the following Huawei OLT

products: EA5800-X17, EA5800-X15, EA5800-X7, EA5800-X2 (V100R018C10 or V100R019C00), and EA5801 (V100R019C00).

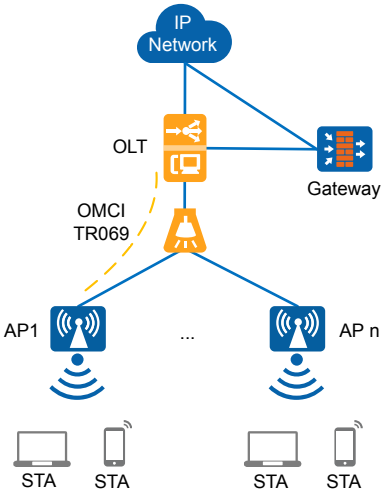
The following figure shows typical AP5510-W-GP networking.

Figure 2-223 Fit AP networking



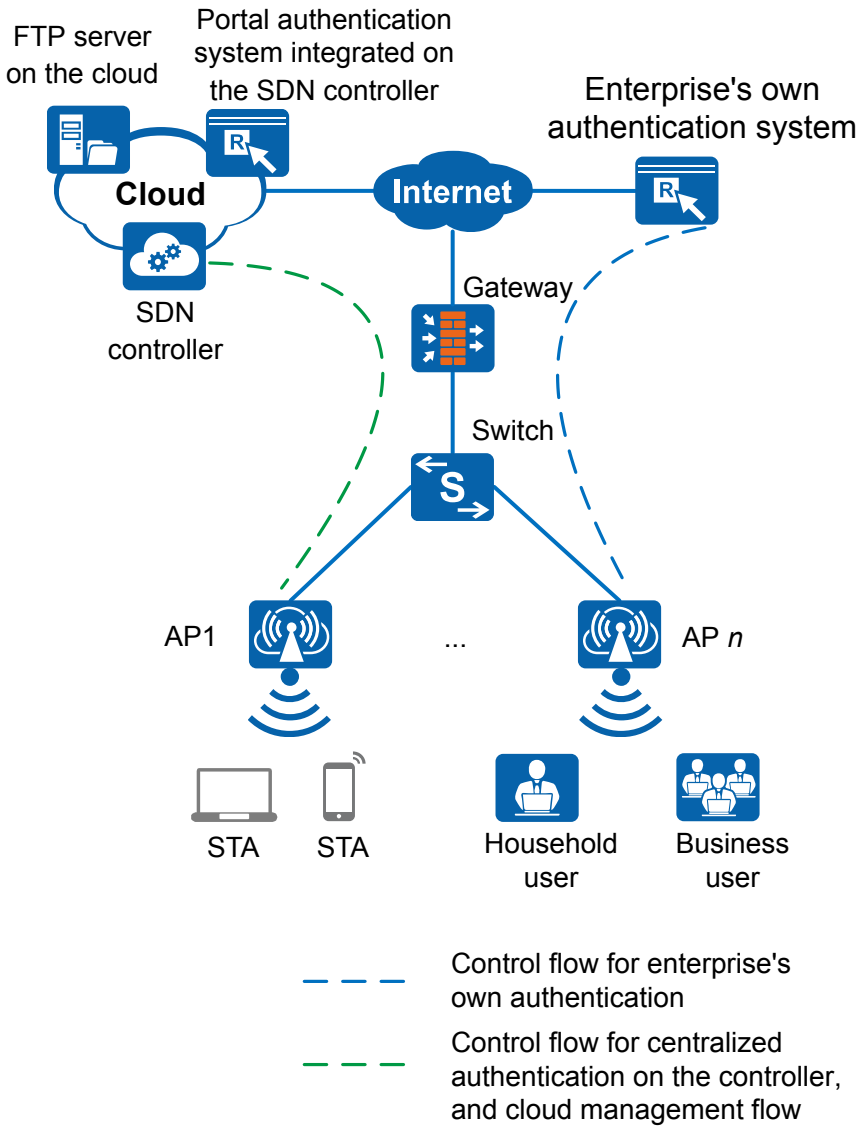
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-224 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-225 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.32.3 Hardware Information (AP5510-W-GP)

Appearance

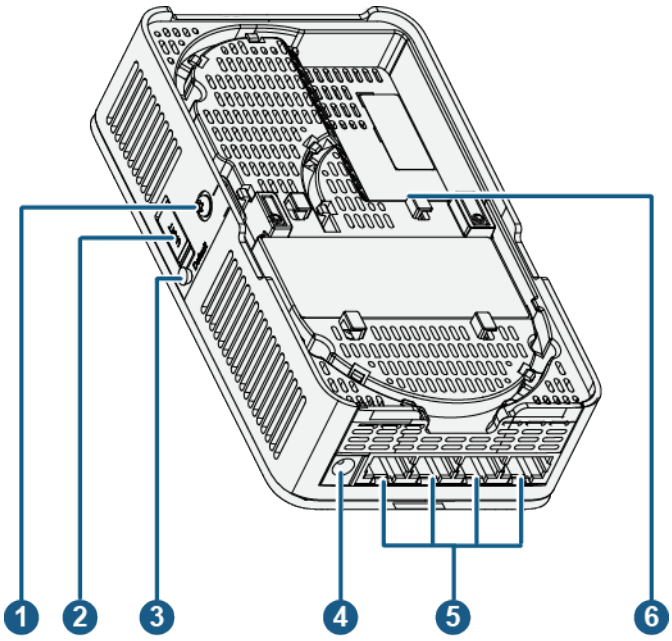
NOTE

The actual device appearance may be different from the following device appearance; these differences will not affect device functions.

Figure 2-226 Appearance

Port

Figure 2-227 Ports



Each port can be described as follows:

1. Anti-theft screw: Accommodates a captive screw.
2. UART: Used only for O&M commissioning.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. DC 12V: Connects a 12 V power adapter to the AP.

NOTE

When the AP uses the DC power supply, use a power adapter for power supply; otherwise, the AP may be damaged.

5. GE4 to GE1: 10/100/1000M port that connects to the wired Ethernet.
6. OPTICAL: Connects to optical fibers.

LED Indicator

The AP5510-W-GP has one indicator on the front, as shown in **Figure 2-228**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-228 Indicator

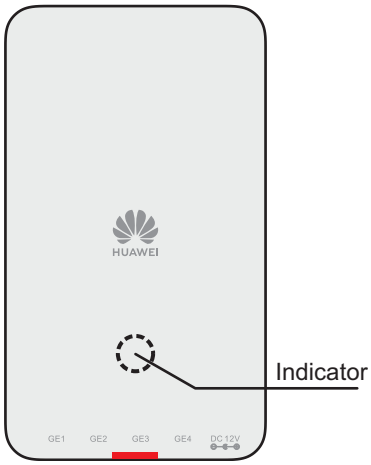


Table 2-116 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is loaded and started, the AP requests to go online if it works in Fit AP management mode. The indicator remains in this state before the AP successfully goes online. • The AP works in Fit AP management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Indicators on the side of the AP5510-W-GP are shown in **Figure 2-229**.

Figure 2-229 Indicator

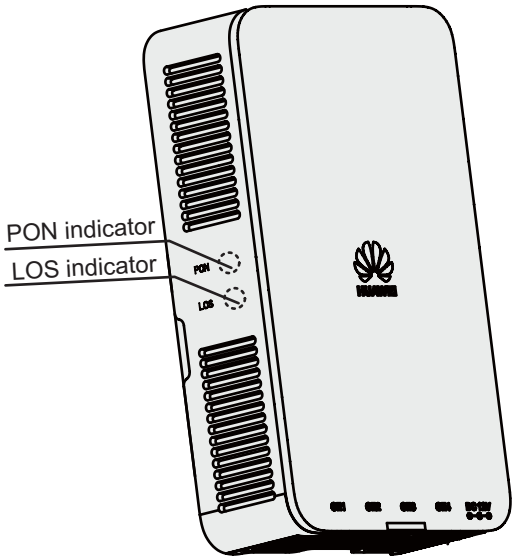


Table 2-117 Indicator description

Indicator	Color	Status	Description
PON indicator	Green	Steady on	The PON indicator is steady on and the LOS indicator is off: The optical network terminal (ONT) has set up a connection with an optical line terminal (OLT).

Indicator	Color	Status	Description
		Fast blinking	• The PON indicator is blinking fast and the LOS indicator is off: The ONT is setting up a connection with an OLT. • The PON indicator is blinking fast and the LOS indicator is slowly blinking: The receive optical power is out of the receive sensitivity range.
		-	• The PON indicator is off and the LOS indicator is slowly blinking: No optical fiber is connected, or no optical signal is available. • The PON indicator is off and the LOS indicator is steady on: The optical network unit (ONU) is forbidden by the OLT, or the transmit optical power is abnormal.

Indicator	Color	Status	Description
		Blinking slowly	The PON and LOS indicators are slowly blinking: A hardware exception occurs on the ONU.
LOS indicator	Red	For the indicator meanings, refer to the description of the PON indicator above. **NOTE** • Fast blinking: once every 0.5s (2 Hz) • Slowly blinking: once every 2s (0.5 Hz)	

Basic Specifications

Table 2-118 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	38.5 mm x 86 mm x 150 mm (1.52 in. x 3.39 in. x 5.91 in.)
	Weight	0.3 kg
	System memory	256 MB DDR3L
	Flash	64 MB NOR Flash
Power specifications	Power input	DC: 12 V ± 5%
	Maximum power consumption	14.2 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: 0°C to 40°C • 1800 m to 5000 m: The maximum temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-119 Radio specifications

Item	Description		
Antenna type	Built-in smart antenna		
Antenna gain	• 2.4 GHz: 3 dBi • 5 GHz: 4 dBi		
Maximum number of users	≤ 256 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 23 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 400 Mbit/s • 802.11ac: 6.5 to 867 Mbit/s		

2.32.4 Performance Specifications (AP5510-W-GP)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.33 AirEngine 5760-10 Product Description

2.33.1 Product Characteristics (AirEngine 5760-10)

The AirEngine 5760-10 is a standard Wi-Fi 6 (802.11ax) wireless access point (AP) released by Huawei. It supports 2x2 MIMO, provides services simultaneously on the 2.4 GHz and 5 GHz band, and can reach a rate of up to 1.774 Gbit/s. It has comprehensive service support capabilities including high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, meeting network deployment requirements. The AirEngine 5760-10 has built-in smart antennas, supports 802.11n, 802.11ac, and 802.11ax, and provides gigabit access for STAs, which greatly improve user experience on wireless networks and apply to small- and medium-sized enterprises, airports and stations, sports mediums, cafes, and entertainment centers.

- Support 802.11ax and OFDMA.
- Provide services simultaneously on both the 2.4 GHz and 5 GHz bands, at a rate of up to 574 Mbit/s at 2.4 GHz, 1.2 Gbit/s at 5 GHz, and 1.774 Gbit/s for the device.
- USB interface used for external power supply and storage.
- Provide an external IoT module, allowing for flexible IoT application extension.
- Support the Fat, Fit, and cloud modes.
- Enable Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

Wi-Fi 6 (802.11ax) compliance

- The AP supports 1024-QAM modulation and 2x2 MIMO, achieving an air interface rate of up to 1.2 Gbit/s on the 5 GHz band and 1.774 Gbit/s for the device.
- OFDMA modulation enables multiple users to receive and send information at the same time, reducing the delay and improving network efficiency.

Smart antenna

The AP integrates smart antennas and implicit beamforming to implement more precise user detection, suppress interference, and improve signal quality, providing users with a seamless and smooth wireless network experience.

IoT extension

The AP provides an external IoT module that allows for extension of ZigBee and RFID, implementing short-distance and lower-power-consumption IoT applications.

Cloud-based management

Huawei CloudCampus Solution consists of SDN controller and a full range of cloud managed network devices. SDN controller provides various functions including

management of APs, tenants, applications, and licenses, network planning and optimization, device monitoring, network service configuration, and value-added services.

High Density Boost technology

Huawei uses the following technologies to address challenges in high-density scenarios, including access problems, data congestion, and poor roaming experience:

SmartRadio for air interface optimization

- Load balancing during smart roaming: The load balancing algorithm can work during smart roaming, enabling load balancing detection between APs on the network after STA roaming to adjust the STA load on each AP, improving network stability.
- Intelligent DFA technology: The dynamic frequency assignment (DFA) algorithm is used to automatically detect adjacent-channel and co-channel interference, and identify any redundant 2.4 GHz radio. Through automatic inter-AP negotiation, a redundant radio is automatically switched to another mode (dual-5G AP models support 2.4G-to-5G switchover) or is disabled to reduce 2.4 GHz co-channel interference and increase the system capacity.
- Intelligent conflict optimization technology: Dynamic enhanced distributed channel access (EDCA) and airtime scheduling algorithms are used to schedule the channel occupation time and service priority of each user. This ensures that each user is assigned a relatively equal amount of time for using channel resources and user services are scheduled in an orderly manner, improving service processing efficiency and user experience.

Air interface performance optimization

- In high-density scenarios where many users access the network, an increased number of low-rate STAs consume more resources on the air interface, reduce the AP capacity, and lower user experience. Therefore, Huawei APs will check the signal strength of STAs during access and rejects access from weak-signal STAs. At the same time, the APs monitor the rate of online STAs in real time and forcibly disconnect low-rate STAs so that the STAs can reassociate with APs that have stronger signals. Terminal access control technology can increase air interface use efficiency and allow access from more users.

5G-prior access (Band steering)

- The AP supports both 2.4G and 5G frequency bands. The 5G-prior access function enables an AP to steer STAs to the 5 GHz frequency band first, which reduces load and interference on the 2.4 GHz frequency band, improving user experience.

Automatic radio calibration

- Automatic radio calibration allows an AP to collect signal strength and channel parameters of surrounding APs and generate AP topology according to the collected data. Based on interference from authorized APs, rogue APs, and non-Wi-Fi interference sources, each AP automatically adjusts its transmit power and working channel to make the network operate at better performance. In this way, network reliability and user experience are improved.

Wired and wireless dual security guarantee

To ensure data security, Huawei APs integrate wired and wireless security measures and provide comprehensive security protection.

Authentication and encryption for wireless access

- The AP supports WEP, WPA/WPA2-PSK, WPA/WPA2-PPSK, WPA/WPA2-802.1X, and WAPI authentication/encryption modes to ensure security of the wireless network. The authentication mechanism is used to authenticate user identities so that only authorized users can access network resources. The encryption mechanism is used to encrypt data transmitted over wireless links to ensure that the data can only be received and parsed by expected users.

Analysis on non-Wi-Fi interference sources

- Huawei APs can analyze the spectrum of non-Wi-Fi interference sources and identify them, including baby monitors, Bluetooth devices, digital cordless phones (at 2.4 GHz frequency band only), wireless audio transmitters (at both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Coupled with Huawei eSight, the precise locations of the interference sources can be detected, and the spectrum of them displayed, enabling the administrator to remove the interference in a timely manner.

Rogue device monitoring

- Huawei APs support WIDS/WIPS, and can monitor, identify, defend, counter, and perform refined management on the rogue devices, to provide security guarantees for air interface environment and wireless data transmission.

AP access authentication and encryption

- The AP access control ensures validity of APs. The CAPWAP link protection and DTLS encryption provide security assurance, improving data transmission security between the AP and the AC

Automatic application identification

Huawei APs support smart application control technology and can implement visualized control on Layer 4 to Layer 7 applications.

Traffic identification

- Coupled with Huawei ACs, the APs can identify over 1600 common applications in various office scenarios. Based on the identification results, policy control can be implemented on user services, including priority adjustment, scheduling, blocking, and rate limiting to ensure efficient bandwidth resource use and improve quality of key services.

Traffic statistics collection

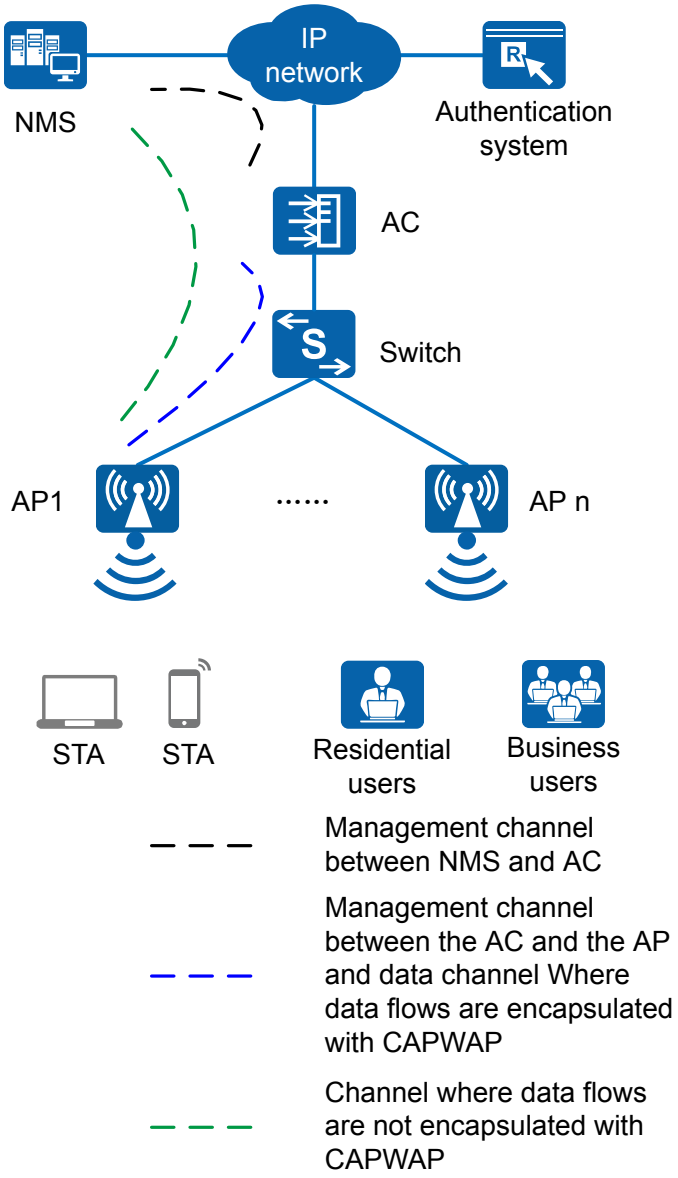
- Traffic statistics of each application can be collected globally, by SSID, or by user, enabling the network administrator to know application use status on the network. The network administrator or operator can implement visualized control on service applications on smart terminals to enhance security and ensure effective bandwidth control.

2.33.2 Usage Scenarios (AirEngine 5760-10)

The AirEngine 5760-10 can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical Fit AP Networking

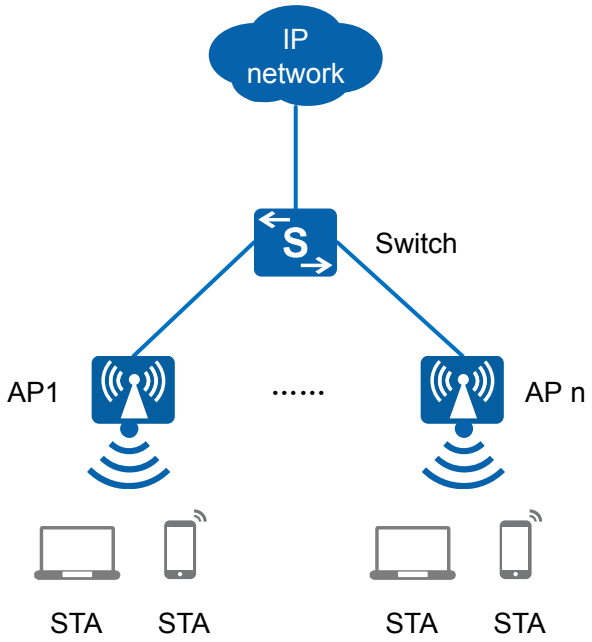
Figure 2-230 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Typical Fat AP Networking

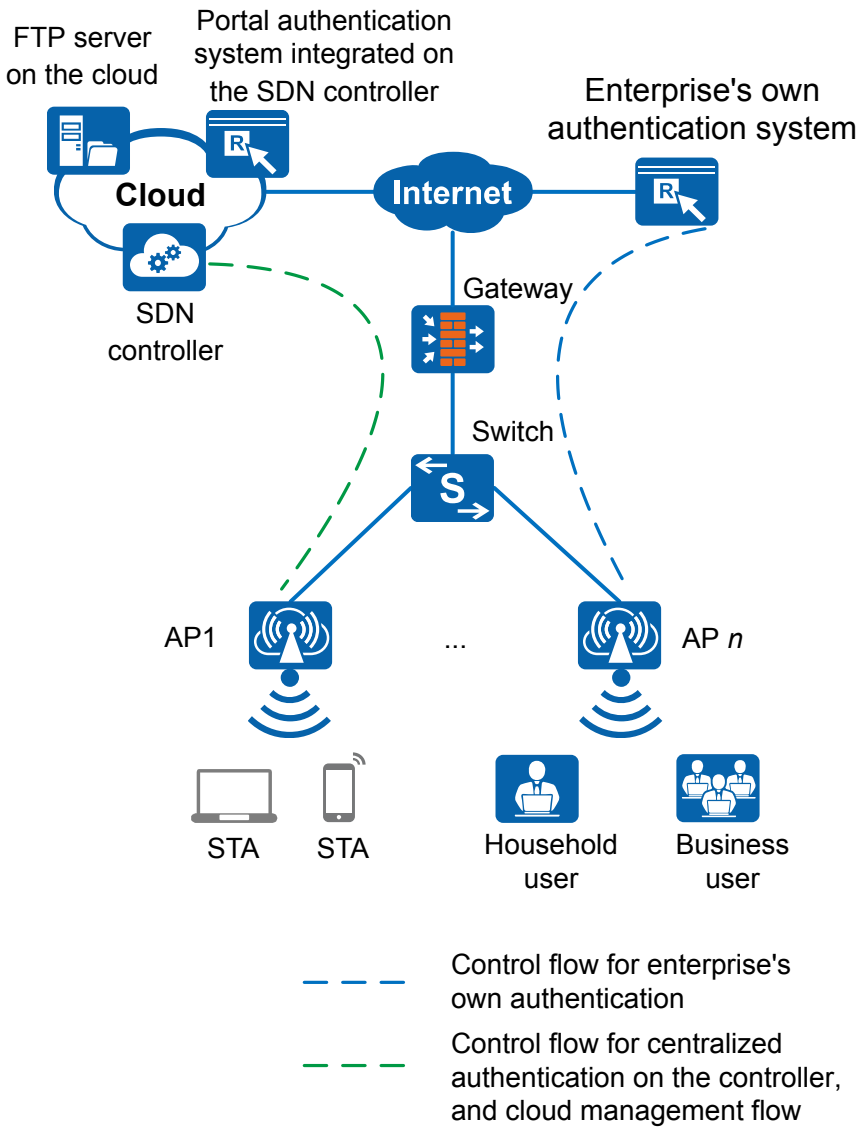
Figure 2-231 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Typical Cloud AP Networking

Figure 2-232 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.33.3 Hardware Information (AirEngine 5760-10)

Appearance

Figure 2-233 shows the appearance of the AP.

NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-233 AirEngine 5760-10 appearance

Port

Figure 2-234 Port of the AirEngine 5760-10

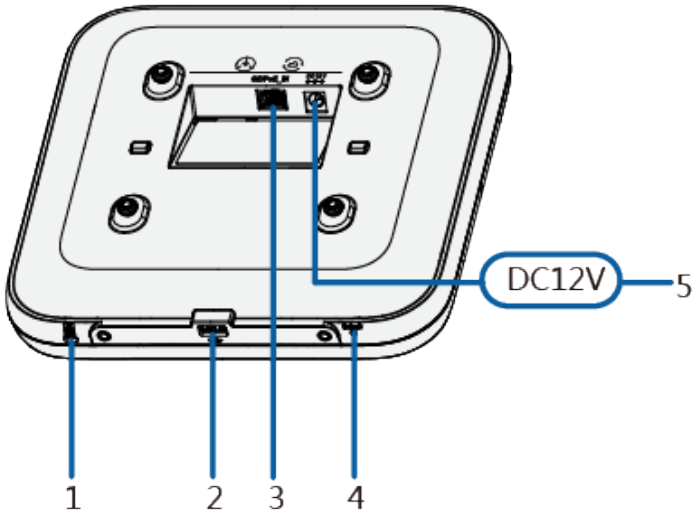


Table 2-120 Interface description

No.	Name	Description
1	Security slot	Connects to a security lock.
2	USB port	Connects to a USB flash drive or an IoT module.
3	GE/PoE_IN	10/100/1000M port that connects to the wired Ethernet and supports PoE input.
4	Default	Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
5	DC 12V	Connects a 12 V power adapter to the AP.

NOTE

- The AP supports the following power supply modes: PoE power supply and DC power supply.
- Use the selected power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AirEngine 5760-10 provides only a single indicator, as shown in **Figure 2-235**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-235 Indicator

Table 2-121 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	White	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	White	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks white once. Until the software is uploaded and started, the indicator remains steady white.
	-	White	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	White	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. • The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-122 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm x 200 mm x 200 mm (1.85 in. x 7.87 in. x 7.87 in.)
	Weight	1.05 kg
	System memory	1024 MB DDR4 16 bit
	Flash	16 MB NOR FLASH +128 MB NAND FLASH
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	15.8 W (excluding the output power of the USB port or IoT card port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa
Radio specifications	Antenna type	Built-in dual-band smart antenna
	Antenna gain	Maximum gain of a single antenna: • 2.4 GHz: 3.5 dBi • 5 GHz: 5 dBi Gain of combined antennas: • 2.4 GHz: 1 dBi • 5 GHz: 2 dBi
	Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
	Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 25 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.
	Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 867 Mbit/s • 802.11ax: 9 to 1200 Mbit/s

2.33.4 Performance Specifications (AirEngine 5760-10)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.34 AP6050DN and AP6150DN Product Description

2.34.1 Product Characteristics (AP6050DN and AP6150DN)

Huawei AP6050DN and AP6150DN are the latest-generation wireless access points (APs) that comply with the 802.11ac Wave 2 standard and provide gigabit bandwidth for wireless networks. They support 4×4 MIMO and four spatial streams and provide a peak rate of 2.53 Gbit/s. The APs support smooth evolution from 802.11n to 802.11ac and meet the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

The AP6050DN and AP6150DN apply to high-density scenarios of medium or large size, such as mobile offices, general education, and higher education.

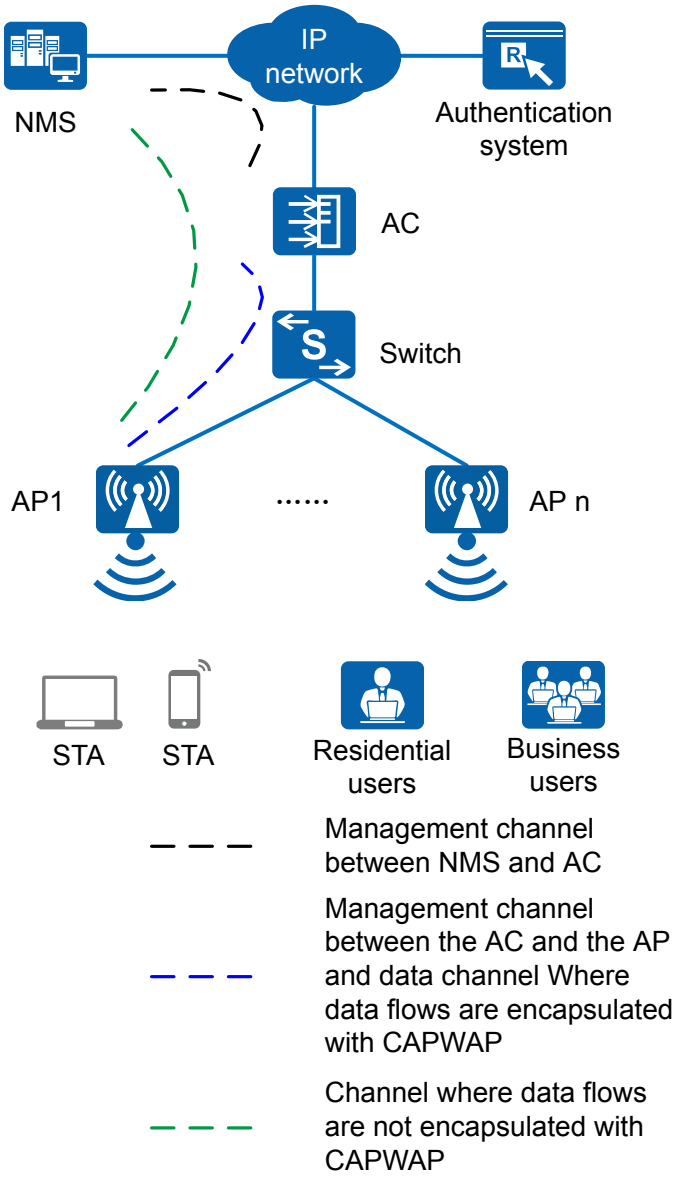
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- Dual Ethernet interfaces supporting link aggregation and traffic load balancing while ensuring link reliability
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.34.2 Usage Scenarios (AP6050DN and AP6150DN)

The AP6050DN and AP6150DN can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-236 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-237 Fit AP networking (WDS mode: point-to-point)

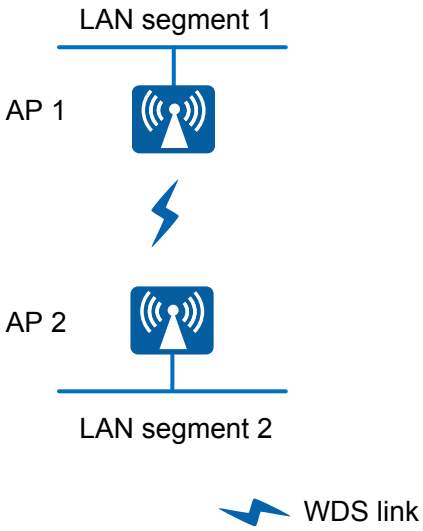
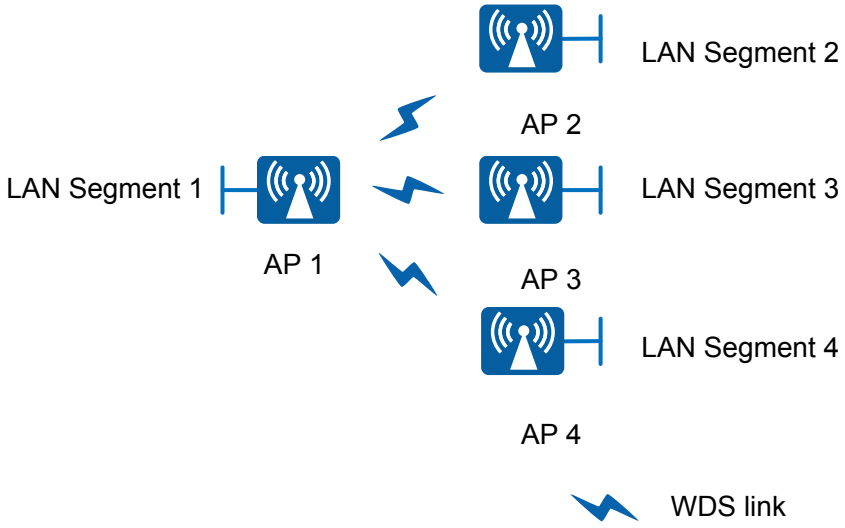
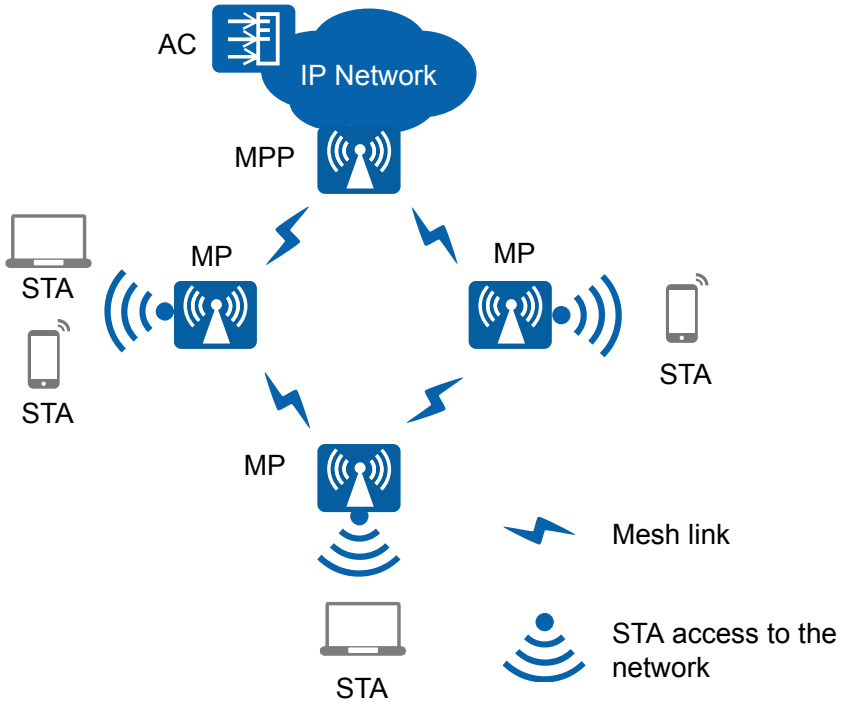


Figure 2-238 Fit AP networking (WDS mode: point-to-multipoint)



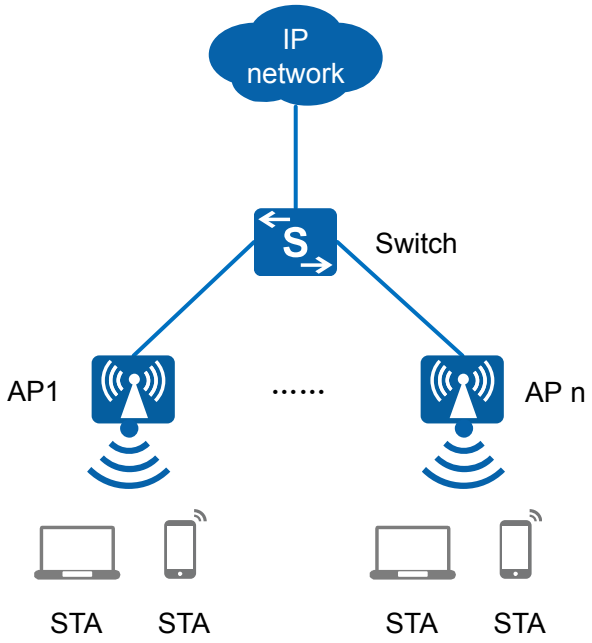
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-239 Fit AP mesh networking



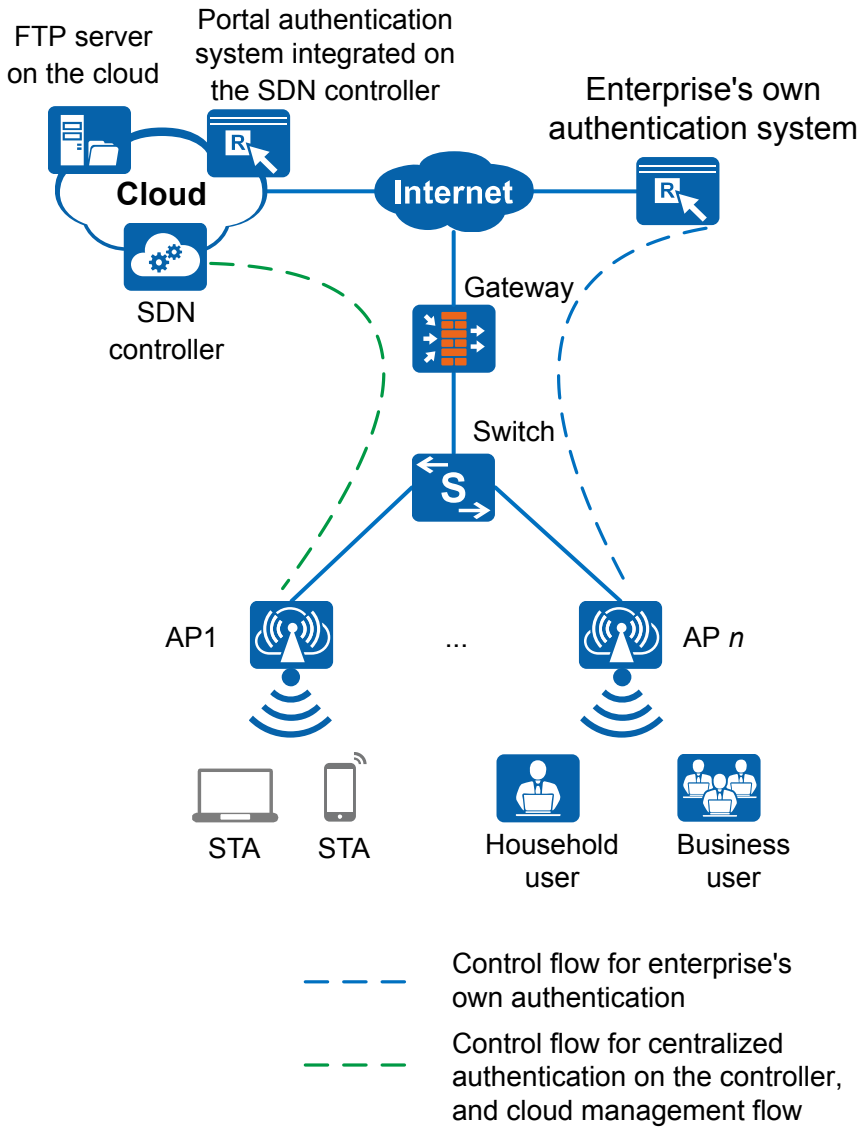
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-240 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-241 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.34.3 Hardware Information (AP6050DN)

Appearance

Figure 2-242 shows the appearance of the AP.

NOTE

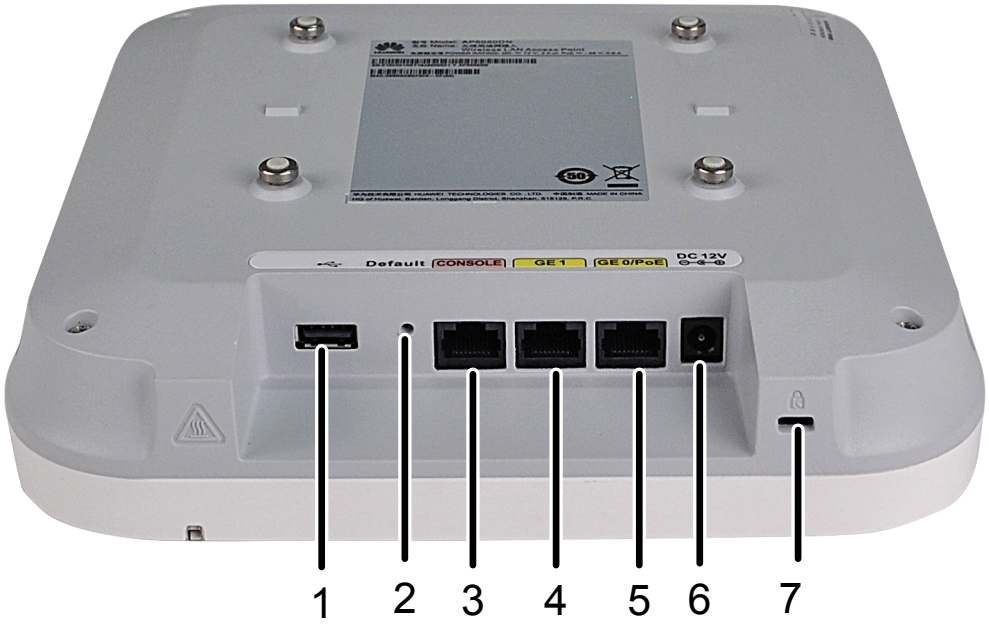
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-242 AP6050DN appearance

Port

The following figure shows ports on the AP6050DN.

Figure 2-243 AP6050DN ports



As shown in **Figure 2-243**, each port can be described as follows:

1. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
2. Default button: restores factory settings if you hold down the button more than 3 seconds.

3. Console port: connects to the maintenance terminal for AP configuration and management.
4. GE1: 10/100/1000M port used to connect to the wired Ethernet.
5. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
6. Input port for 12 V DC power supply.
7. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-123 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-124 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	56 mm x 220 mm x 220 mm
	Weight	1.3 kg
	System memory	512 MB DDR3L
	FLASH	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	22.9 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-125 Radio specifications

Item	Description
Antenna type	Built-in omnidirectional dual-band antenna
Antenna gain	• 2.4 GHz: 4 dBi • 5 GHz: 4 dBi **NOTE** After antenna optimization on the AP6050DN, the 2.4 GHz and 5 GHz antenna gains become 4 dBi and 4 dBi (from 6 dBi and 6 dBi), respectively, improving the overall performance of the AP6050DN.
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 26 dBm (combined power) • 5 GHz: 26 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** • If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency. • If the AP is delivered to Europe, pay attention to the following on channel and frequency band usage: 1. The AP cannot work at frequencies in the range of 5725 MHz to 5850 MHz.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s		

2.34.4 Hardware Information (AP6150DN)

Appearance

Figure 2-244 shows the appearance of the AP.

NOTE

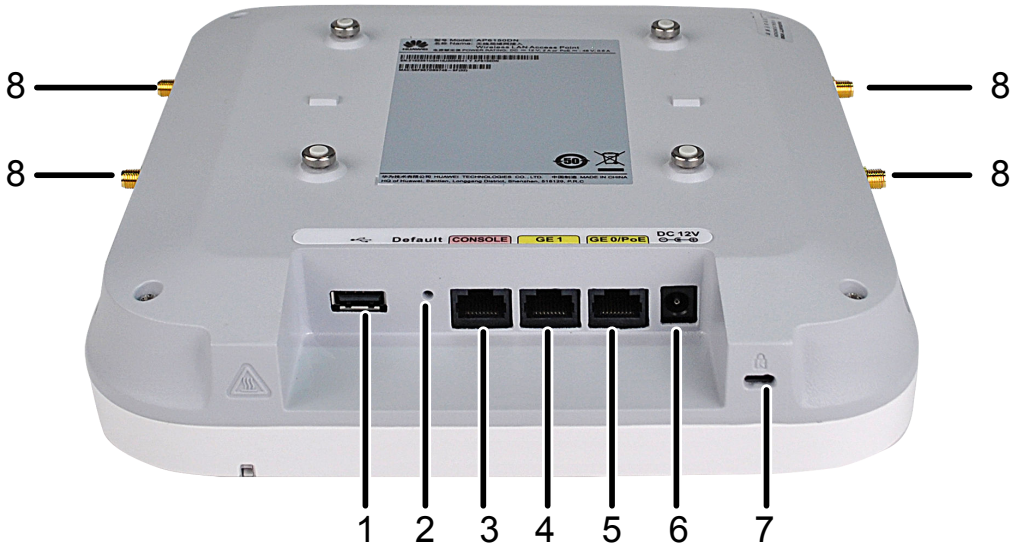
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-244 AP6150DN appearance

Ports

The following figure shows ports on the AP6150DN.

Figure 2-245 AP6150DN ports



As shown in **Figure 2-245**, each port can be described as follows:

1. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
2. Default button: restores factory settings if you hold down the button more than 3 seconds.
3. Console port: connects to the maintenance terminal for AP configuration and management.
4. GE1: 10/100/1000M port used to connect to the wired Ethernet.

5. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
6. Input port for 12 V DC power supply.
7. Lock port: protects the AP against theft.
8. Antenna port: Connects an antenna to the AP to send and receive wireless signals. The port type is RP-SMA-K.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-126 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-127 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	56 mm x 220 mm x 220 mm
	Weight	1.3 kg
	System memory	512 MB DDR3L
	FLASH	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	22.9 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-128 Radio specifications

Item	Description
Antenna type	External omnidirectional dual-band antenna
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 26 dBm (combined power) • 5 GHz: 26 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** • If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency. • If the AP is delivered to Europe, pay attention to the following on channel and frequency band usage: 1. The AP cannot work at frequencies in the range of 5725 MHz to 5850 MHz.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s		

2.34.5 Performance Specifications (AP6050DN and AP6150DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.35 AP6052DN Product Description

2.35.1 Product Characteristics (AP6052DN)

Huawei AP6052DN is the latest-generation technology-leading wireless access point (AP). It provides secure gigabit wireless access in compliance with the

802.11ac Wave 2 standards. The AP supports 4 x 4 MIMO, four spatial streams, and 2.4G-to-5G switchover, and provides a rate of up to 3.46 Gbit/s in dual-5G mode. The AP has built-in omnidirectional antennas and supports smooth evolution from 802.11n to 802.11ac. It meets the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

As the 802.11ac Wave 2 AP that provides the 5GE uplink interface, it is intelligent, secure, and easy to use. Delivering industry-leading performance in a rugged, attractive enclosure, it is ideal for enterprise office and education scenarios.

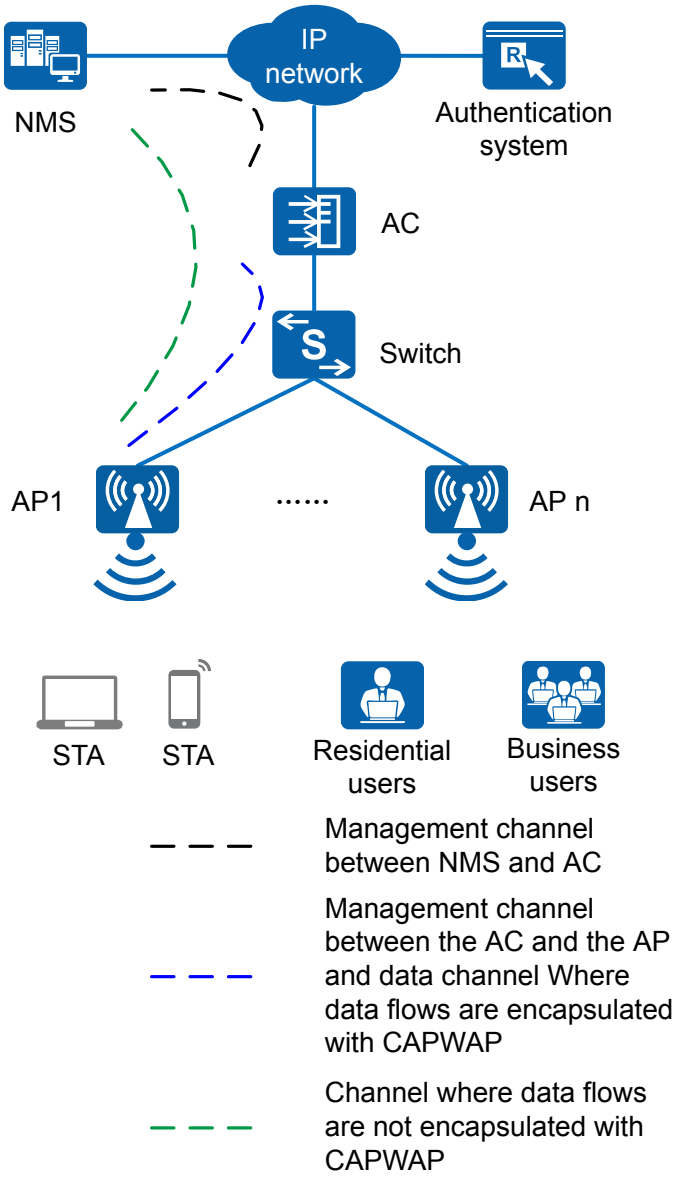
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- AP6052DN: 2.4G-to-5G switchover, with a device rate of up to 3.46 Gbit/s in dual-5G mode
- 5GE uplink interface that can connect to a 100 MHz/1000 MHz/2.5 GHz interface, to improve the service load capability
- Built-in Bluetooth to implement precise positioning with eSight
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.35.2 Usage Scenarios (AP6052DN)

The AP6052DN can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-246 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-247 Fit AP networking (WDS mode: point-to-point)

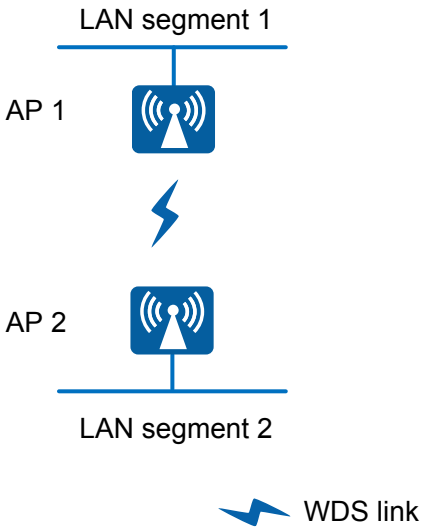
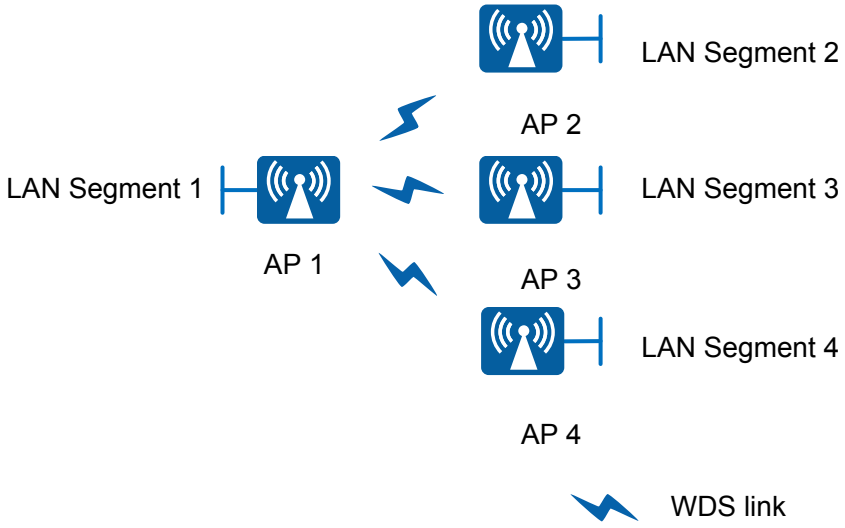
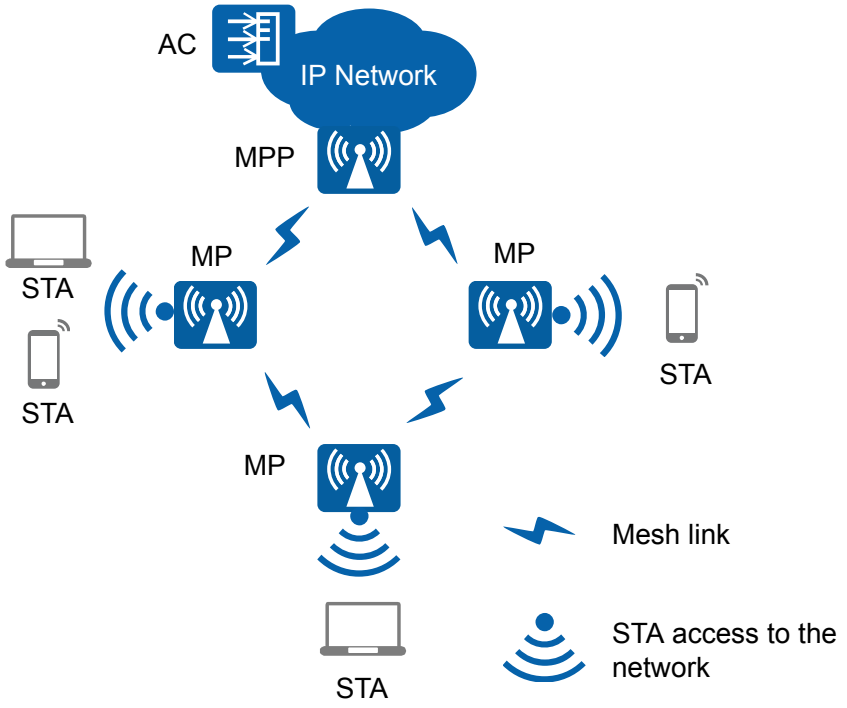


Figure 2-248 Fit AP networking (WDS mode: point-to-multipoint)



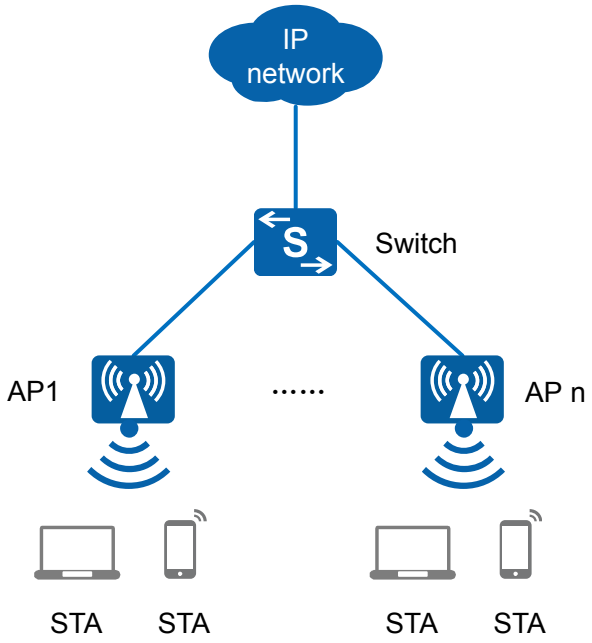
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-249 Fit AP mesh networking



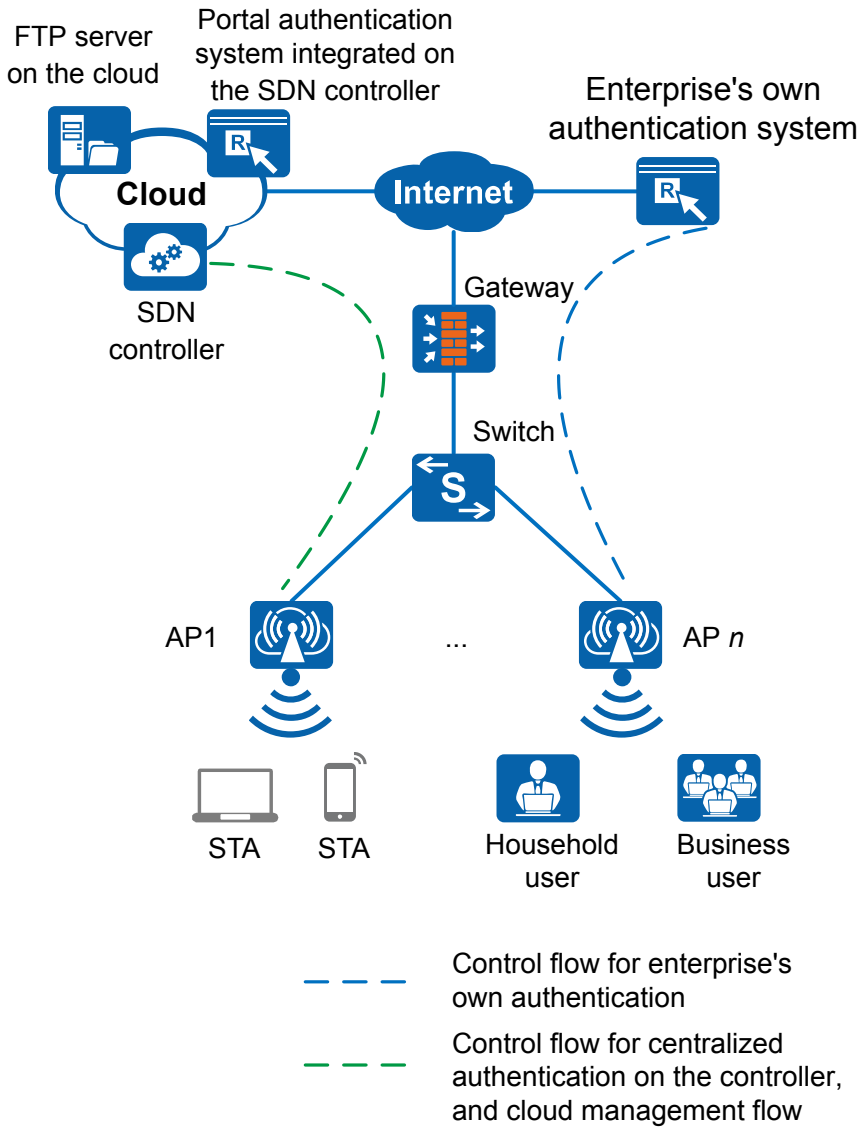
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-250 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-251 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.35.3 Hardware Information (AP6052DN)

Appearance

Figure 2-252 shows the appearance of the AP.

NOTE

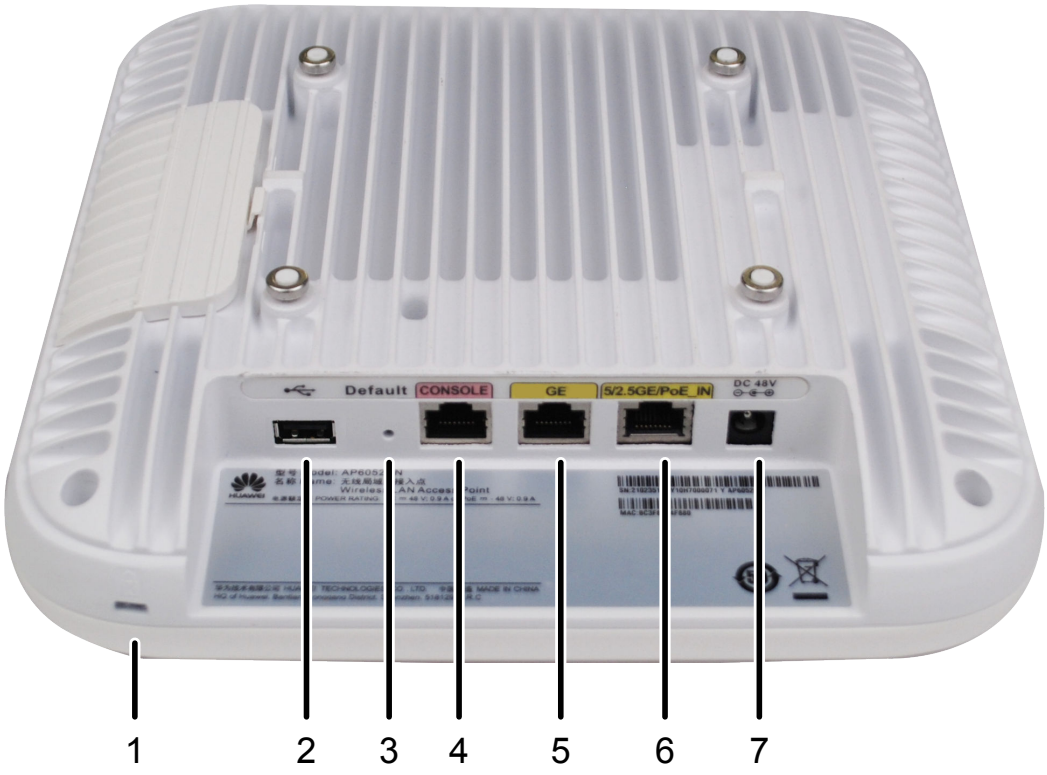
The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-252 AP6052DN appearance

Port

The following figure shows ports on the AP6052DN.

Figure 2-253 AP6052DN ports



As shown in **Figure 2-253**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
5. GE: 10/100/1000M port that connects to the wired Ethernet.
6. 5/2.5GE/PoE_IN:100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.
7. DC 48V: Connects a power adapter to the AP.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-254 Indicator

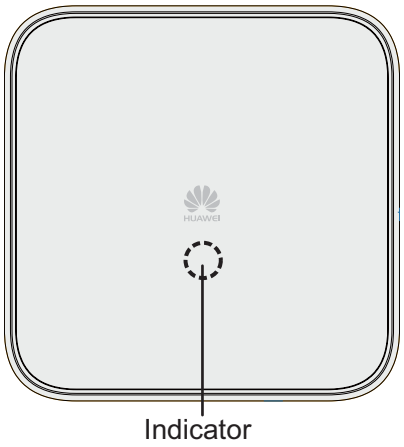


Table 2-129 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.

Indicator	Name	Color	Status	Description
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-130 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	52 mm × 220 mm × 220 mm (2.05 in. x 8.66 in. x 8.66 in.)
	Weight	1.66 kg
	System memory	512 MB DDR3L
	Flash	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: in compliance with IEEE 802.3at/bt
	Maximum power consumption	• DC/802.3bt power supply: 32 W (excluding the output power of the USB port) • 802.3at power supply: 25.5 W (The USB function is unavailable. The port rate of 5/2.5GE/PoE_IN decreases to 2.5 Gbit/s. The GE port is unavailable.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, radio power is managed in self-adaptive mode.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-131 Radio specifications

Item	Description		
Antenna type	Built-in omnidirectional dual-band antenna		
Antenna gain	• 2.4G/5G (switchable): 2 dBi/2.8 dBi • 5G (non-switchable): 2.8 dBi		
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4G/5G (switchable): 26 dBm/21 dBm (combined power) • 5G (non-switchable): 24 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s

2.35.4 Performance Specifications (AP6052DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.36 AP6750-10T Product Description

2.36.1 Product Characteristics (AP6750-10T)

Huawei AP6750-10T is an access point (AP) that complies with 802.11ac Wave 2 and has built-in smart antennas. It has three radios: one 2.4 GHz radio and two 5 GHz radios. The 2.4 GHz radio supports 2x2 MIMO and two spatial streams, one 5 GHz radio supports 2x2 MIMO and two spatial streams, and the other 5 GHz radio supports 4x4 MIMO and four spatial streams. The AP6750-10T provides comprehensive service support capabilities, and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance, which meet network deployment requirements The AP complies with 802.11n and 802.11ac and can provide gigabit access for wireless users, greatly improving wireless network experience. The AP is applicable to e-classrooms, shopping malls, and supermarkets.

- Provides services simultaneously on one 2.4GHz radio and two 5GHz radios.
- Supports dual GE uplink interfaces.
- Provides built-in Bluetooth 5.0, implements precise location of Bluetooth terminals, and supports remote wireless O&M through Bluetooth console ports.
- Provides a USB port for external power supply and storage.
- Supports an external IoT module, allowing for flexible IoT application extension.
- Supports the Fat, Fit, and cloud modes.
- Enables Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

Triple-radio design

The AP has three radios: one 2.4G radio and two 5G radios. The 2.4 GHz radio supports 2x2 MIMO and two spatial streams, and provides a maximum rate of 400

Mbit/s. One 5 GHz radio supports 2x2 MU-MIMO, and the other 5 GHz radio supports 4x4 MU-MIMO, providing a maximum rate of 867 Mbit/s and 1733 Mbit/s, respectively. The AP provides service functions simultaneously on the three radios, at a rate of 3 Gbit/s for the device.

MU-MIMO

The AP supports MU-MIMO to send data to multiple STAs at the same time.

Smart antenna

The AP integrates smart antennas and implicit beamforming to implement more precise user detection, suppress interference, and improve signal quality, providing users with a seamless and smooth wireless network experience.

IoT extension

The AP provides an IoT slot for connecting to an external IoT module such as a ZigBee or RFID module, implementing short-distance, lower-power consumption IoT applications.

Cloud-based management

Huawei CloudCampus Solution consists of SDN controller and a full range of cloud managed network devices. SDN controller provides various functions including management of APs, tenants, applications, and licenses, network planning and optimization, device monitoring, network service configuration, and value-added services.

High Density Boost technology

Huawei uses the following technologies to address challenges in high-density scenarios, including access problems, data congestion, and poor roaming experience:

SmartRadio for air interface optimization

- Load balancing during smart roaming: The load balancing algorithm can work during smart roaming, enabling load balancing detection between APs on the network after STA roaming to adjust the STA load on each AP, improving network stability.
- Intelligent Dynamic Frequency Assignment (DFA) technology: The DFA algorithm is used to automatically detect adjacent-channel and co-channel interference, and identify any redundant 2.4 GHz radio. Through automatic inter-AP negotiation, a redundant radio is automatically switched to another mode (dual-5G AP models support 2.4G-to-5G switchover) or is disabled to reduce 2.4 GHz co-channel interference and increase the system capacity.
- Intelligent conflict optimization technology: Dynamic enhanced distributed channel access (EDCA) and airtime scheduling algorithms are used to schedule the channel occupation time and service priority of each STA. This ensures that each STA is assigned a relatively equal amount of time for using channel resources and user services are scheduled in an orderly manner, improving service processing efficiency and user experience.

Air interface performance optimization

- In high-density scenarios where many STAs access the network, an increased number of low-rate STAs consume more resources on the air interface, reduce the AP capacity, and lower user experience. Therefore, Huawei APs will check the signal strength of STAs during access and reject access from weak-signal STAs. At the same time, the APs monitor the rate of online STAs in real time and forcibly disconnect low-rate STAs so that the STAs can reassociate with APs that have stronger signals. Terminal access control technology can increase air interface use efficiency and allow access of more STAs.

5G-prior access

- The AP supports both 2.4G and 5G frequency bands. The 5G-prior access function enables an AP to steer STAs to the 5 GHz frequency band first, which reduces load and interference on the 2.4 GHz frequency band, improving user experience.

Automatic radio calibration

- Automatic radio calibration allows an AP to collect signal strength and channel parameters of surrounding APs and generate an AP topology according to the collected data. Based on interference from authorized APs, rogue APs, and non-Wi-Fi interference sources, each AP automatically adjusts its transmit power and working channel to make the network operate at better performance. In this way, network reliability and user experience are improved.

Wired and wireless dual security guarantee

To ensure data security, Huawei APs integrate wired and wireless security measures and provide comprehensive security protection.

Authentication and encryption for wireless access

- Huawei APs support WEP, WPA/WPA2-PSK, WPA/WPA2-PPSK, WPA/WPA2-802.1X, and WAPI authentication/encryption modes to ensure security of a wireless network. The authentication mechanism is used to authenticate user identities so that only authorized users can access network resources. The encryption mechanism is used to encrypt data transmitted over wireless links to ensure that the data can only be received and parsed by expected users.

Analysis on non-Wi-Fi interference sources

- Huawei APs can analyze the spectrum of non-Wi-Fi interference sources and identify them, including baby monitors, Bluetooth devices, digital cordless phones (on 2.4 GHz frequency band only), wireless audio transmitters (on both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Coupled with Huawei eSight, the APs can accurately detect interference sources, and display the spectrum of them on eSight, enabling the administrator to remove the interference in a timely manner.

Rogue device monitoring

- Huawei APs support WIDS/WIPS, and can monitor, identify, defend against, counter, and perform refined management on rogue devices, providing

security guarantees for air interface environment and wireless data transmission.

Authentication and encryption for wired access

- The AP access control ensures validity of APs. CAPWAP link protection and DTLS encryption provide security assurance, improving data transmission security between APs and ACs.

Automatic application identification

Huawei APs support smart application control technology and can implement visualized management and control on Layer 4 to Layer 7 applications.

Traffic identification

- Coupled with Huawei ACs, the APs can identify over 1600 common applications in various office scenarios. Based on the identification results, policy control can be implemented on user services, including priority adjustment, scheduling, blocking, and rate limiting to ensure efficient bandwidth resource use and improve quality of key services.

Traffic statistics collection

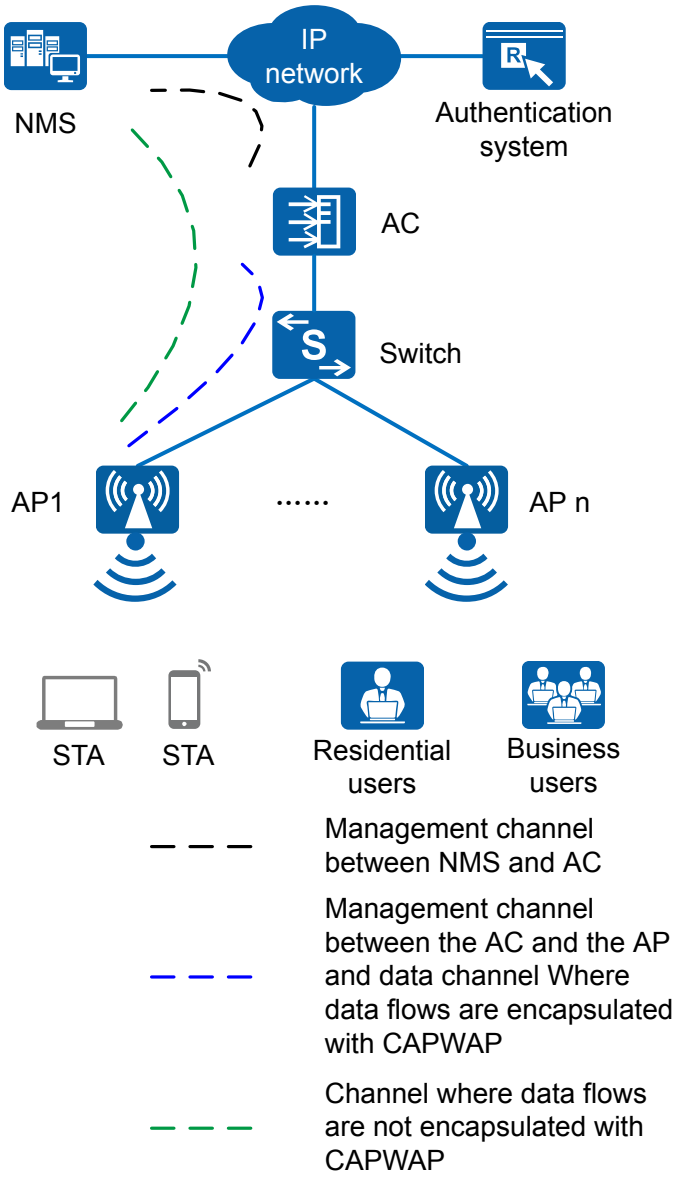
- Traffic statistics of each application can be collected globally, by SSID, or by user, so that the network administrator can know application use status on the network. The network administrator or operator then can implement visualized management and control on service applications on smart terminals to enhance security and ensure effective bandwidth control.

2.36.2 Usage Scenarios (AP6750-10T)

The AP6750-10T can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical Fit AP Networking

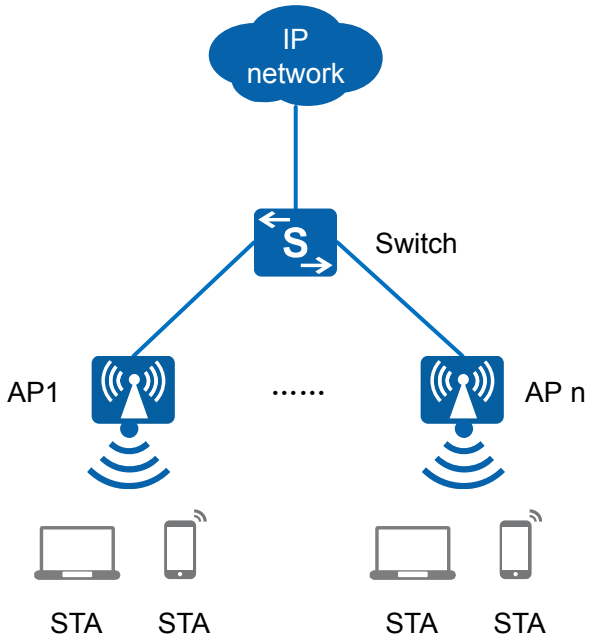
Figure 2-255 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Typical Fat AP Networking

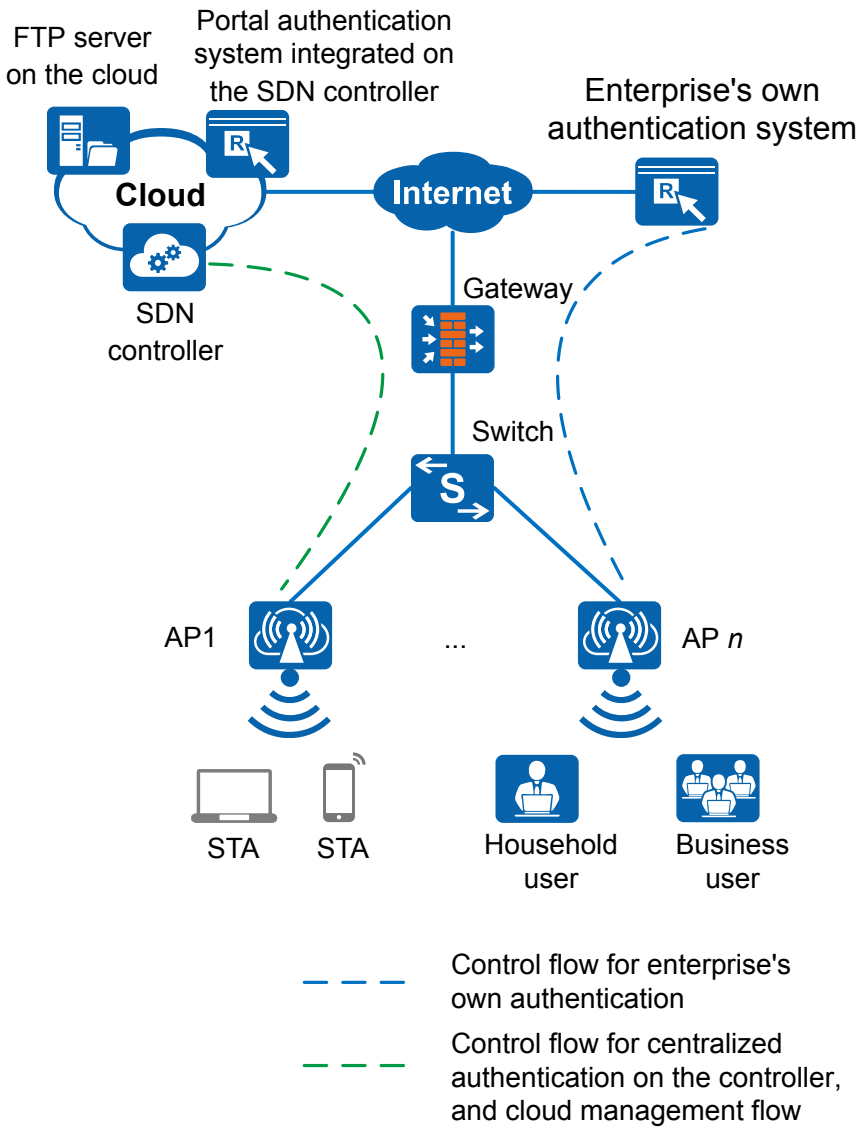
Figure 2-256 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Typical Cloud AP Networking

Figure 2-257 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.36.3 Hardware Information (AP6750-10T)

Appearance

Figure 2-258 shows the appearance of the AP.

NOTE

The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-258 AP6750-10T appearance

Port

Figure 2-259 Port of the AP6750-10T

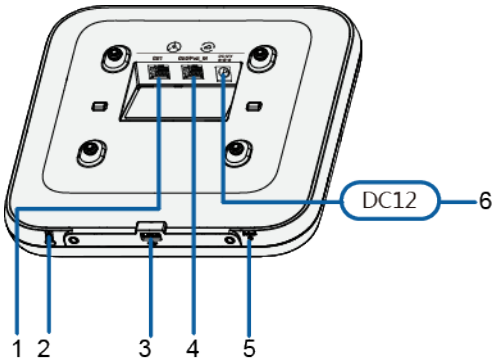


Table 2-132 Interface description

No.	Name	Description
1	GE1	10/100/1000M port that connects to the wired Ethernet.
2	Security slot	Connects to a security lock.
3	USB port	Connects to a USB flash drive or an IoT module.
4	GE0/PoE_IN	10/100/1000M port that connects to the wired Ethernet and supports PoE input.
5	Default	Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
6	DC 12V	Connects a 12 V power adapter to the AP.

NOTE

- The AP supports the following power supply modes: PoE power supply and DC power supply.
- Use the selected power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP6750-10T provides only one indicator, as shown in **Figure 2-260**.

NOTE

Indicator colors may vary slightly at different temperature.

Figure 2-260 Indicator

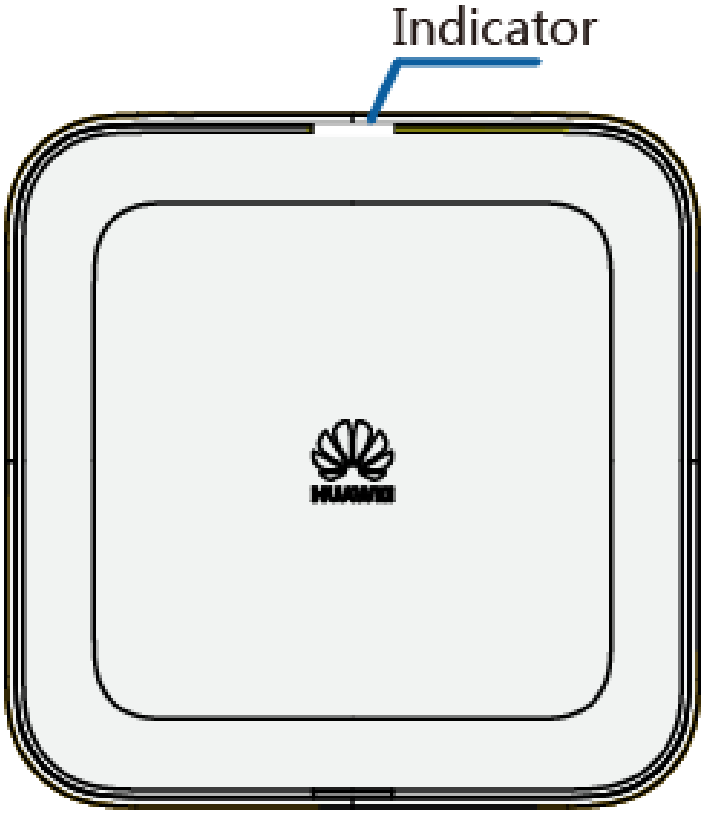


Table 2-133 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	White	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.

Indicator	Name	Color	Status	Description
	-	White	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks white once. Until the software is uploaded and started, the indicator remains steady white.
	-	White	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	White	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-134 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	47 mm × 220 mm × 220 mm
	Weight	1.2 kg
	System memory	512 MB DDR3L 16-bit
	Flash	4 MB NOR Flash + 128 MB NAND Flash
Power specifications	Power input	• DC: 12 V ± 10% • PoE power supply: in compliance with IEEE 802.3at/af
	Maximum power consumption	19.3 W (excluding the output power of the USB port or IoT card port) **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: The maximum temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa
Radio specifications	Antenna type	Built-in smart antenna
	Antenna gain	Maximum gain of a single antenna: • 2.4G: 3.5 dBi • 5G: 5 dBi Gain of combined antennas: • 2.4G: 1 dBi • 5G-1: 2 dBi • 5G-2: 3 dBi

Item		Description
	Maximum number of users	Fit AP: ≤ 768 Fat AP: ≤ 768 Cloud AP: ≤ 768 **NOTE** The actual number of users varies according to the environment.
	Maximum transmit power	• 2.4G: 23 dBm (combined power) • 5G-1: 24 dBm (combined power) • 5G-2: 27 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.
	Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s

2.36.4 Performance Specifications (AP6750-10T)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.37 AP7030DE Product Description

2.37.1 Product Characteristics (AP7030DE)

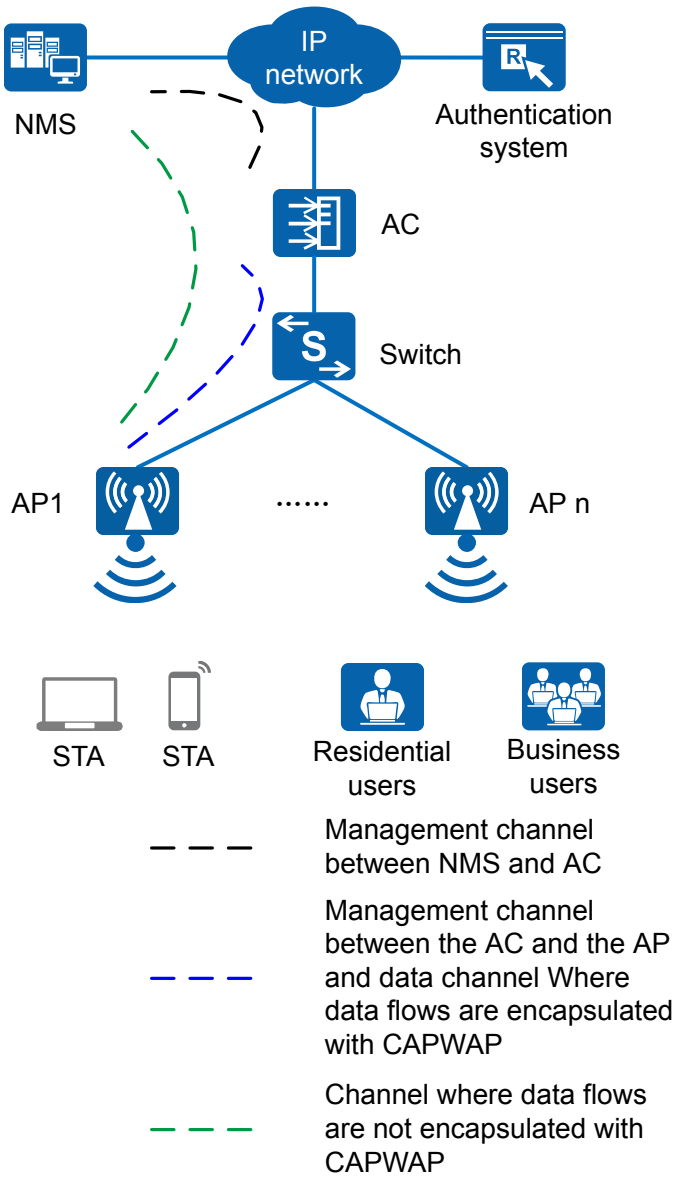
Table 2-135 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP7030DE	Dual bands: • 2.4 GHz • 5 GHz The AP7030DE can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The latest-generation technology-leading AP7030DE supports 3x3 MIMO and provides comprehensive service support capabilities. It is deployed indoors and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance. Huawei AP7030DE complies with IEEE 802.11ac and can provide gigabit access for wireless users. This high capacity greatly improves user experience on wireless networks.	The AP7030DE provides high-performance wireless services for large and medium enterprises in high-density scenarios. It can be flexibly deployed in different environments.

2.37.2 Usage Scenarios (AP7030DE)

Typical networking modes are as follows:

Figure 2-261 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

2.37.3 Hardware Information (AP7030DE)

Appearance

Figure 2-262 shows the appearance of the AP.

NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-262 Appearance

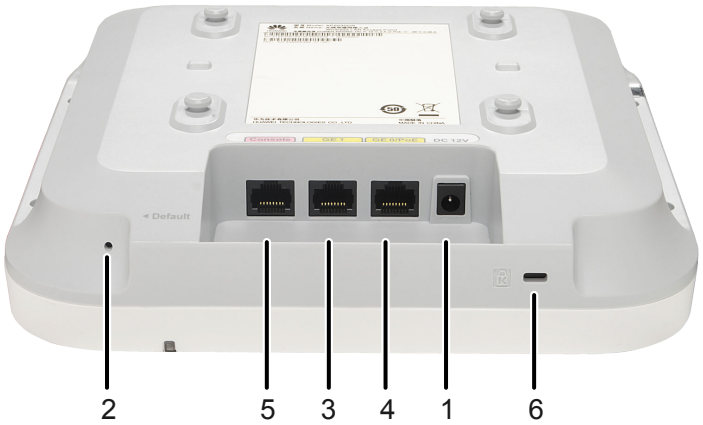
CAUTION

 There is a scald warning label attached on the device, warning you not to touch the device after the device has been operating for a long time.

Interfaces

The following figure shows interfaces on the AP7030DE.

Figure 2-263 Interfaces



As shown in **Figure 2-263**, the AP7030DE has the following interfaces.

- 1. Input port for 12 V DC power supply

- 2. Default button: restores factory settings if you hold down the button more than 3 seconds.
- 3. GE1/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs. PoE power supply is supported on dual network ports.
- 4. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
- 5. Console port: connects to the maintenance terminal for AP configuration and management.
- 6. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-136 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Type	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-137 Basic specifications of the AP7030DE

Item		Description
Technical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	1.1 kg
	System memory	• 256 MB DDR3 • 64 MB flash memory
Power specifications	Power input	• DC: 12 V ± 10% • PoE power: in compliance with IEEE 802.3at
	Maximum power consumption	19 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to +1800 m: -20°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.

Item		Description
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-138 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart antenna (up to 12 antennas)
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 5 dBi
Maximum number of users	≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 21 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
802.11b/g
• 20 MHz: 3
802.11n
• 20 MHz: 3
• 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
802.11a
• 20 MHz: 13
802.11n
• 20 MHz: 13
• 40 MHz: 6
802.11ac
• 20 MHz: 13
• 40 MHz: 6
• 80 MHz: 3</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 600 Mbit/s
• 802.11ac: 6.5 to 1300 Mbit/s</td></tr>
</table>

2.37.4 Performance Specifications (AP7030DE)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.38 AP7050DE Product Description

2.38.1 Product Characteristics (AP7050DE)

Huawei AP7050DE is the latest-generation technology-leading wireless access point (AP). It provides secure gigabit wireless access in compliance with the 802.11ac Wave 2 standards. The AP supports 4 x 4 MU-MIMO and four spatial streams and provides a rate of up to 2.53 Gbit/s. The AP has built-in smart antennas and supports smooth evolution from 802.11n standards to 802.11ac standards and meets the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

As the 802.11ac Wave 2 AP that uses smart antenna technology, it is intelligent, secure, and easy to use. The AP delivers industry-leading performance in a rugged, attractive enclosure and is ideal for indoor coverage scenarios, such as schools and large campuses.

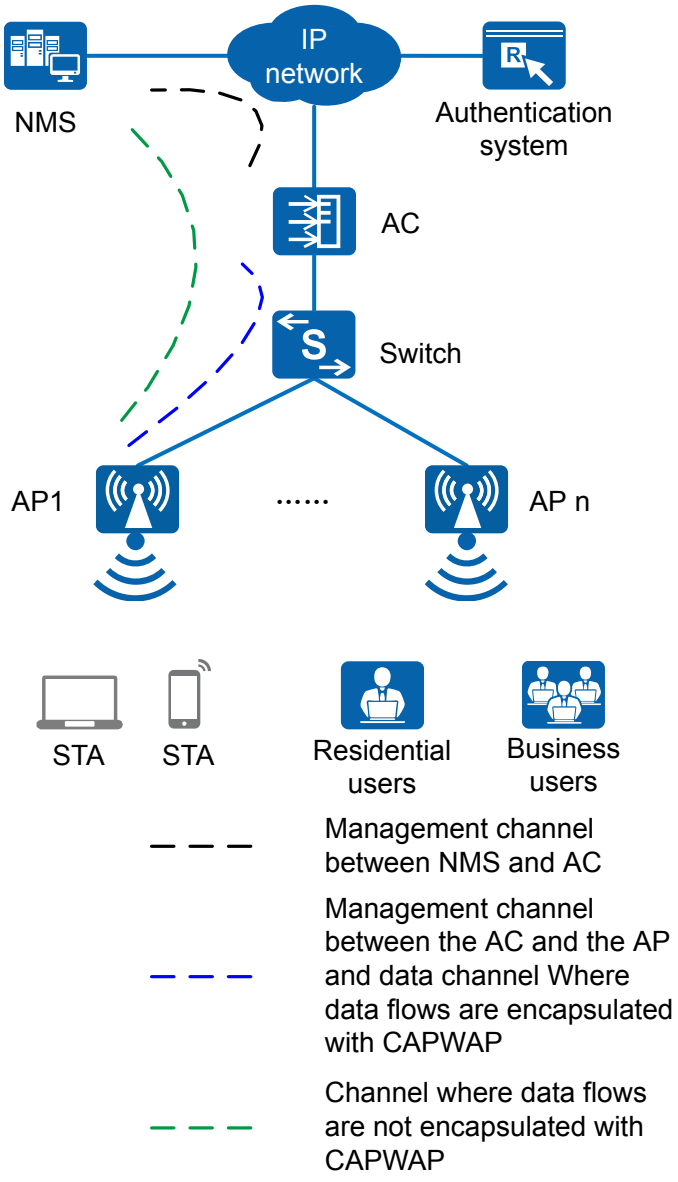
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Built-in Bluetooth to implement precise positioning with eSight
- Dual Ethernet interfaces supporting link aggregation and traffic load balancing while ensuring link reliability
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.38.2 Usage Scenarios (AP7050DE)

The AP7050DE can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-264 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-265 Fit AP networking (WDS mode: point-to-point)

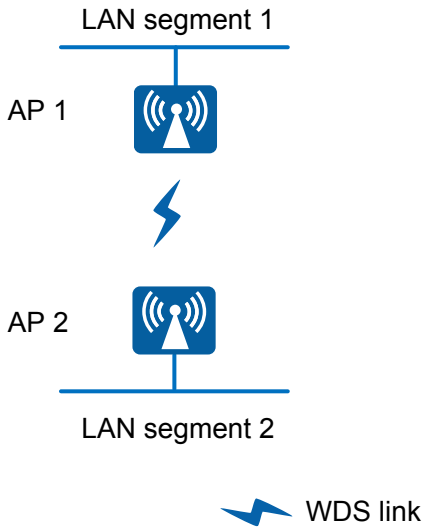
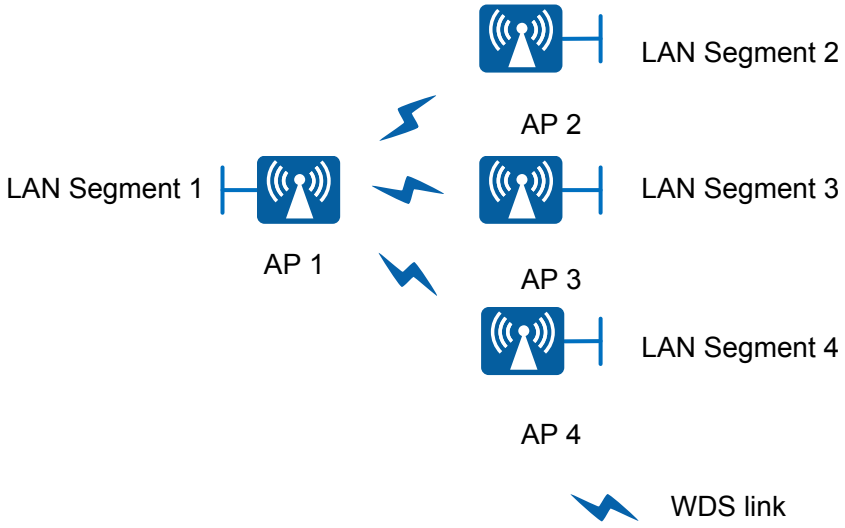
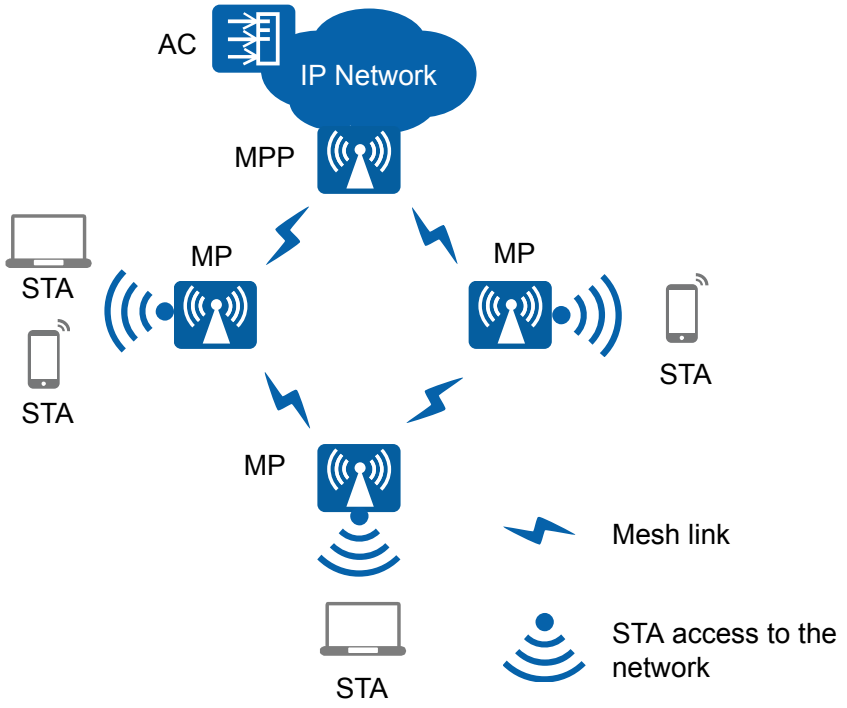


Figure 2-266 Fit AP networking (WDS mode: point-to-multipoint)



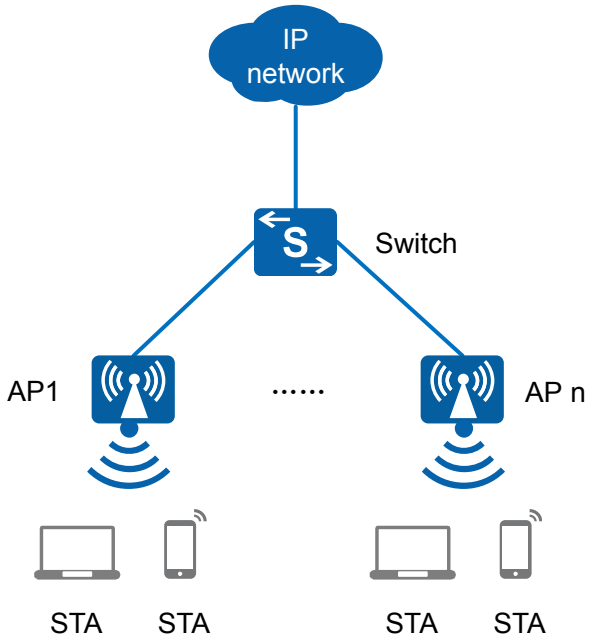
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-267 Fit AP mesh networking



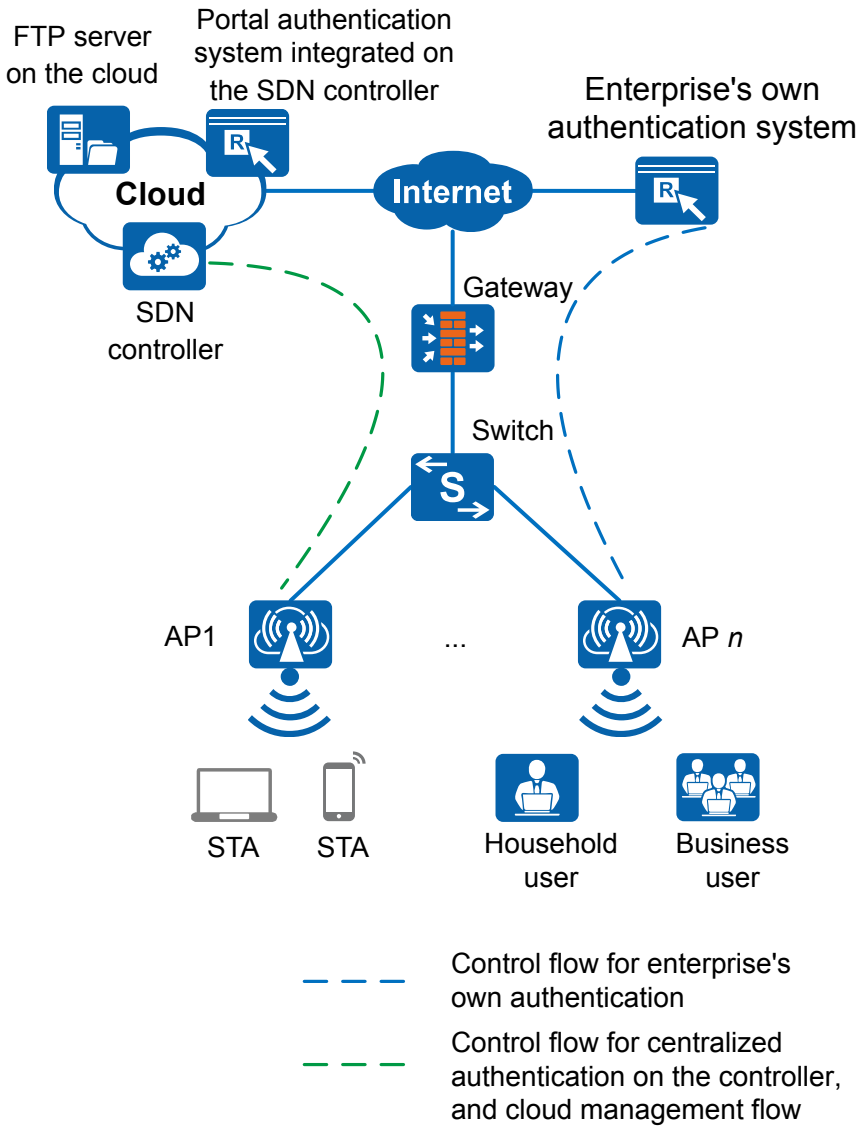
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-268 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-269 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.38.3 Hardware Information (AP7050DE)

Appearance

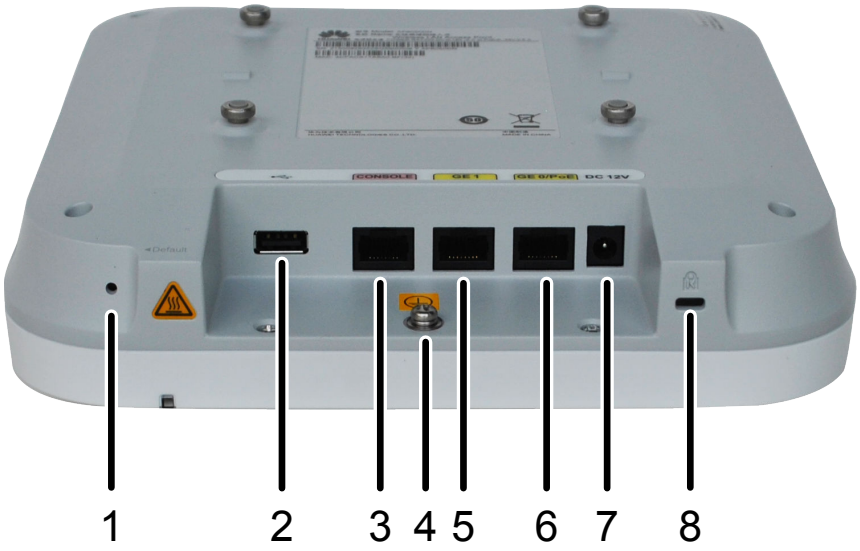
NOTE

The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-270 AP7050DE appearance

Port

Figure 2-271 AP7050DE ports



As shown in **Figure 2-271**, each port can be described as follows:

1. Default button: restores factory settings if you hold down the button more than 3 seconds.
2. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
3. Console port: connects to the maintenance terminal for AP configuration and management.

4. Ground screw: connects the AP to a ground cable.
5. GE1: 10/100/1000M port used to connect to the wired Ethernet.
6. GE0/PoE: 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs.
7. Input port for 12 V DC power supply.
8. Lock port: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-139 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-140 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm (2.09 in. x 8.66 in. x 8.66 in.)
	Weight	1.3 kg
	System memory	● 512 MB DDR3L ● 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 12 V ± 10% ● PoE power supply: in compliance with IEEE 802.3at
	Maximum power consumption	24 W (excluding the output power of the USB port) **NOTE** The actual maximum power consumption depends on local laws and regulations.

Item		Description
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-141 Radio specifications

Item	Description
Antenna type	Built-in dual-band smart antenna (hardware)
Antenna gain	• 2.4 GHz: 2dBi • 5 GHz: 3dBi
Maximum number of users	FIT AP: ≤ 512 FAT AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 26 dBm (combined power) • 5 GHz: 27 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac wave2: 6.5 to 1733.3 Mbit/s		

2.38.4 Performance Specifications (AP7050DE)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.39 AP7050DN-E Product Description

2.39.1 Product Characteristics (AP7050DN-E)

Huawei AP7050DN-E is the latest-generation technology-leading wireless access point (AP). It provides secure gigabit wireless access in compliance with the 802.11ac Wave 2 standards. The AP supports 4 x 4 MU-MIMO and four spatial streams and provides a rate of up to 2.53 Gbit/s. The AP has built-in omnidirectional antennas and supports smooth evolution from 802.11n standards to 802.11ac standards and meets the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop

cloud services, delivering smooth and high-quality wireless services to enterprise users.

As the 802.11ac Wave 2 AP that provides the 2.5GE uplink interface, it is intelligent, secure, and easy to use. Delivering industry-leading performance in a rugged, attractive enclosure, it is ideal for co-deployment with Pico base stations, campuses, and large or medium enterprises.

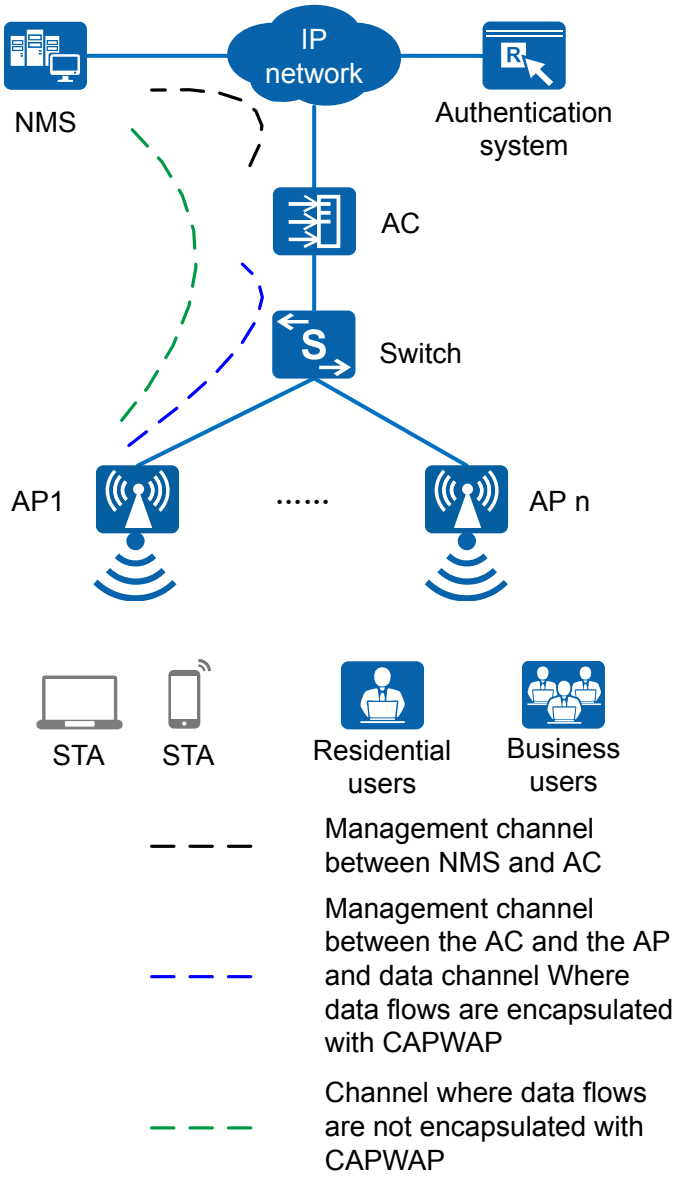
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- 2.5GE uplink interface to improve the service load capability
- Support for the PoE out function, with a maximum output power of 45 W, supplying power to Pico base stations and providing GE high-bandwidth access
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.39.2 Usage Scenarios (AP7050DN-E)

The AP7050DN-E can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-272 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-273 Fit AP networking (WDS mode: point-to-point)

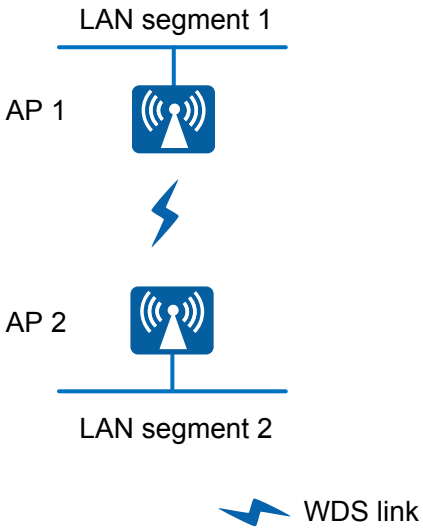
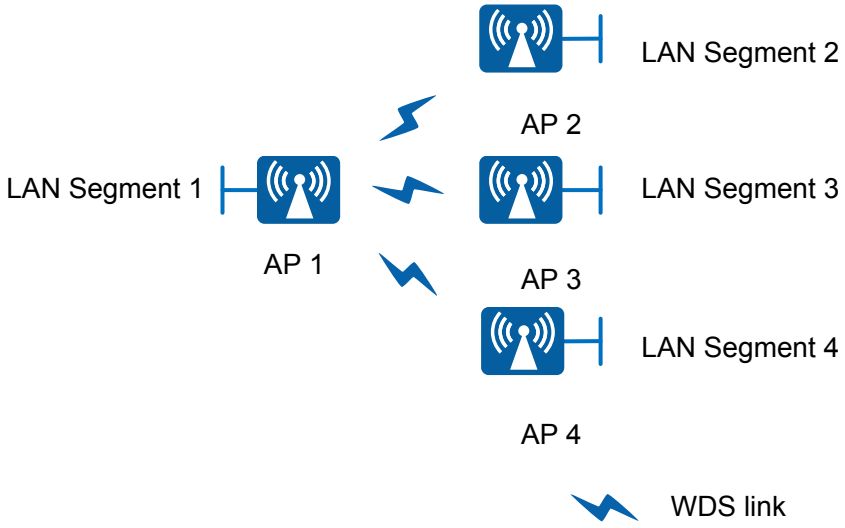
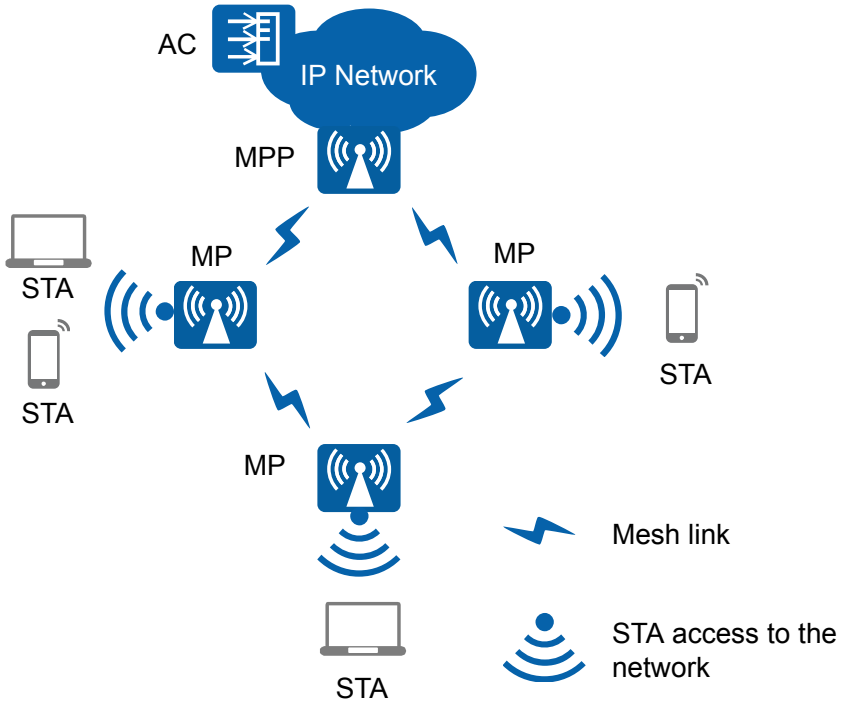


Figure 2-274 Fit AP networking (WDS mode: point-to-multipoint)



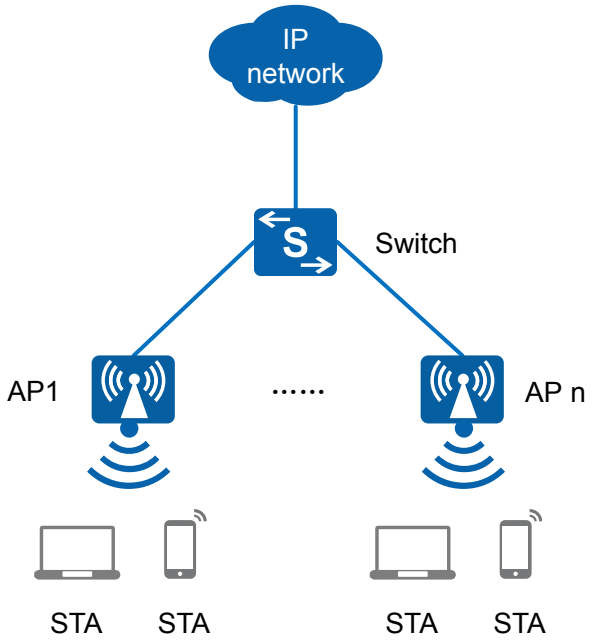
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-275 Fit AP mesh networking



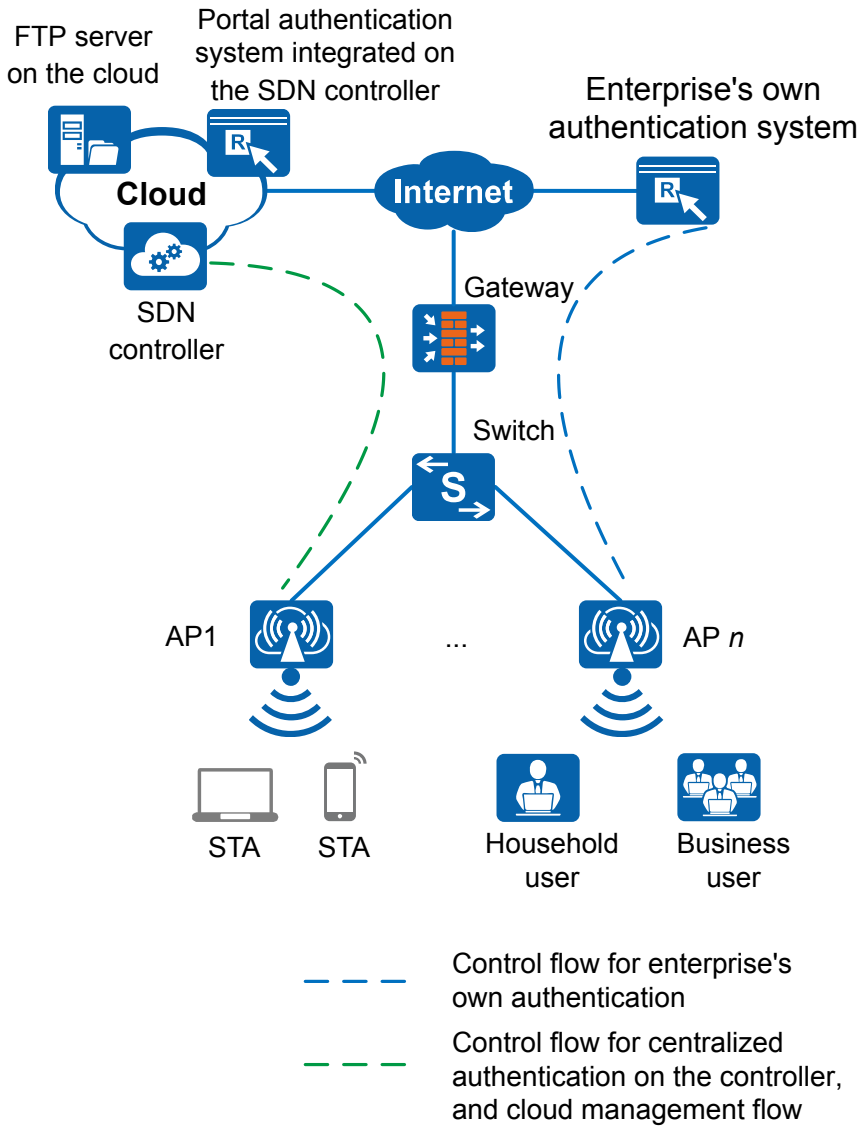
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-276 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-277 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.39.3 Hardware Information (AP7050DN-E)

Appearance

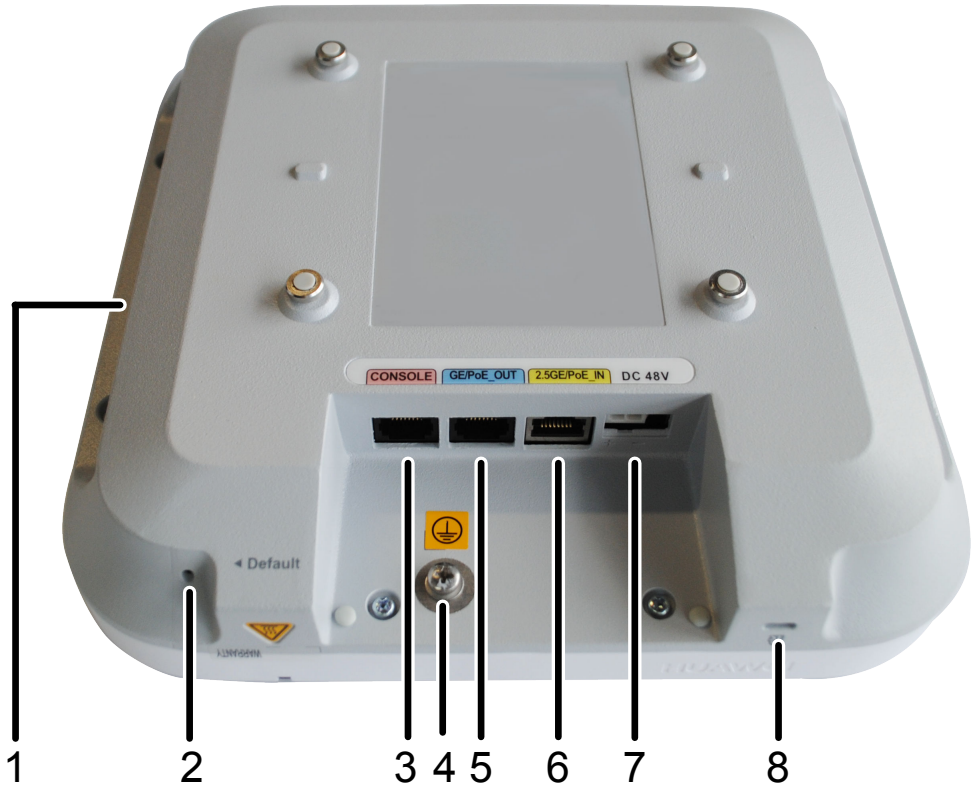
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-278 AP7050DN-E appearance

Ports

Figure 2-279 AP7050DN-E ports



As shown in **Figure 2-279**, each port can be described as follows:

1. USB port: connects to a USB flash drive to extend the storage space of the AP, and provides a maximum of 2.5 W power.
2. Default button: restores factory settings and restarts the device if you hold down the button more than 3 seconds.
3. Console port: connects to the maintenance terminal for AP configuration and management.
4. Ground screw: connects the AP to a ground cable.
5. GE/PoE_OUT: 10/100/1000M port used to connect to the wired Ethernet. The port can supply PoE power to downlink devices, such as Pico devices.

   NOTE

   The GE/PoE_OUT port provides the maximum power of 45 W, and complies with the 802.3af and 802.3at standards.
6. 2.5GE/PoE_IN: 100/1000/2500 Mbit/s port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for the AP and support UPoE input.
   - When UPoE power input is used, connect the port to a Huawei switch that supports UPoE output.
   - When DC power input is used, connect the port to an AC or upper-layer switch.

   NOTE

   If the port works in 100 Mbit/s, it cannot be connected to remote devices working at a rate of 100 Mbit/s.
7. DC 48 V: input port for 48 V DC power supply.

   NOTE

   When the AP uses the DC power supply, use a power adapter for power supply; otherwise, the AP may be damaged.
8. Security slot: protects the AP against theft.

LED Indicators

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-142 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.

Indicator	Name	Color	Status	Description
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-143 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm (2.09 in. x 8.66 in. x 8.66 in.)
	Weight	1.47 kg
	System memory	• 512 MB DDR3L • 4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 48 V ± 2.4 V • PoE power supply: in compliance with IEEE 802.3at/bt
	Maximum power consumption	• DC/802.3bt power supply: 30.6 W (excluding the output power of the USB port or PoE_OUT port) • 802.3at power supply: 24.3 W (The USB and PoE_OUT functions are unavailable.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, the 2.4 GHz radio works in 2x2 MIMO mode, and the 5 GHz radio works in 3x3 MIMO mode.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +45°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m. **NOTE** The operating temperature ranges from 0°C to 40°C when the AP is installed together with a Pico base station.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-144 Radio specifications

Item	Description		
Antenna type	Built-in dual-band omnidirectional antenna		
Antenna gain	• 2.4 GHz: 5 dBi • 5 GHz: 6 dBi		
Maximum number of users	FIT AP: ≤ 512 FAT AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 23 dBm (combined power) • 5 GHz: 27 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac: 6.5 to 1730 Mbit/s

2.39.4 Performance Specifications (AP7050DN-E)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.40 AP7052DE Product Description

2.40.1 Product Characteristics (AP7052DE)

Huawei AP7052DE is the latest-generation technology-leading wireless access point (AP). It provides secure gigabit wireless access in compliance with the 802.11ac Wave 2 standards. The AP supports 4 x 4 MIMO and four spatial streams and provides a rate of up to 2.53 Gbit/s. The AP has built-in smart antennas and supports smooth evolution from 802.11n standards to 802.11ac standards and meets the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

As the 802.11ac Wave 2 AP that provides the 5GE uplink interface, it is intelligent, secure, and easy to use. Delivering industry-leading performance in a rugged, attractive enclosure, it is ideal for enterprise office and education scenarios.

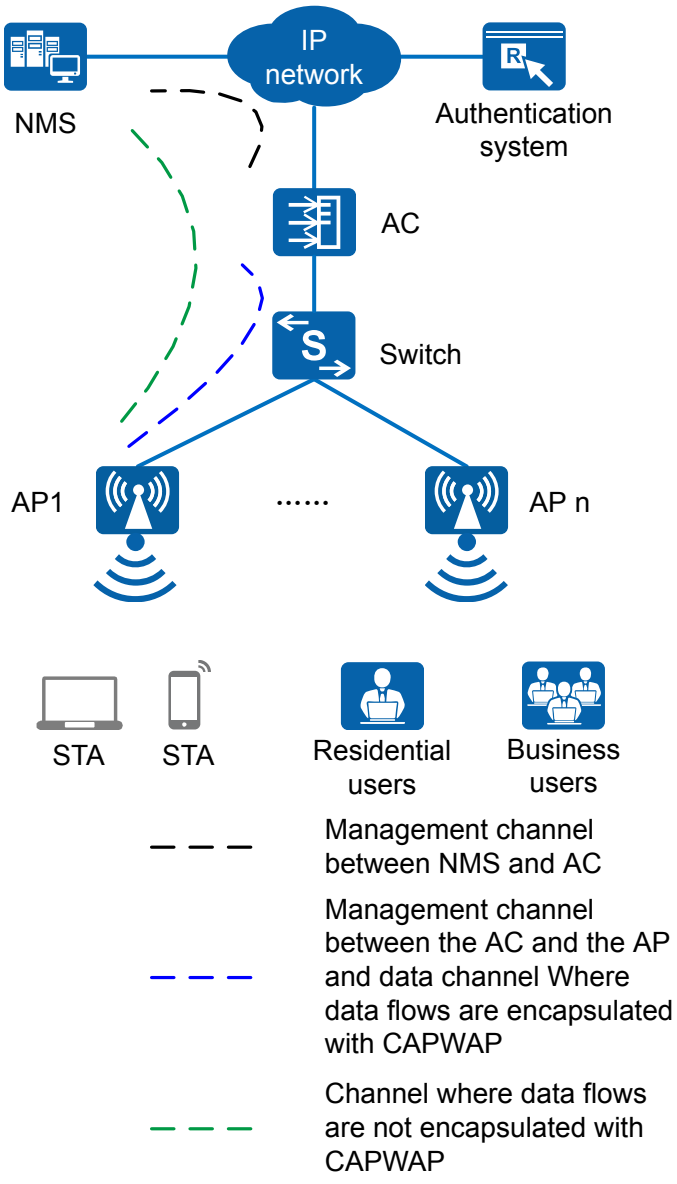
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- 5GE uplink interface that can connect to a 100 MHz/1000 MHz/2.5 GHz interface, to improve the service load capability
- Smart antenna array technology enables targeted signal coverage for mobile terminals, reduces interferences, and improves signal quality. Additionally, it supports millisecond-level switchover as terminals move.
- Dual PoE power supply for backup
- Built-in Bluetooth to implement precise positioning with eSight
- USB interface used for external power supply and storage
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.40.2 Usage Scenarios (AP7052DE)

The AP7052DE can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-280 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-281 Fit AP networking (WDS mode: point-to-point)

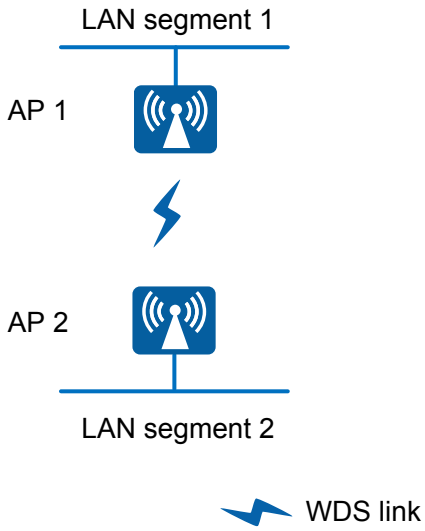
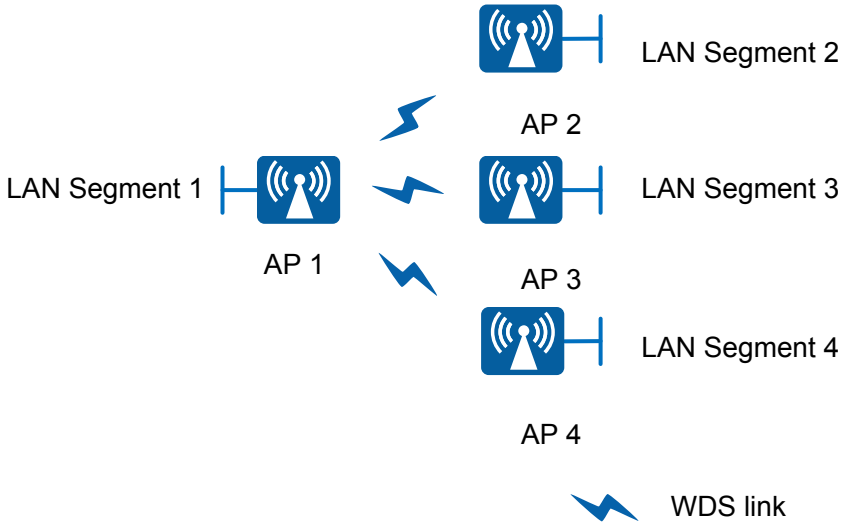
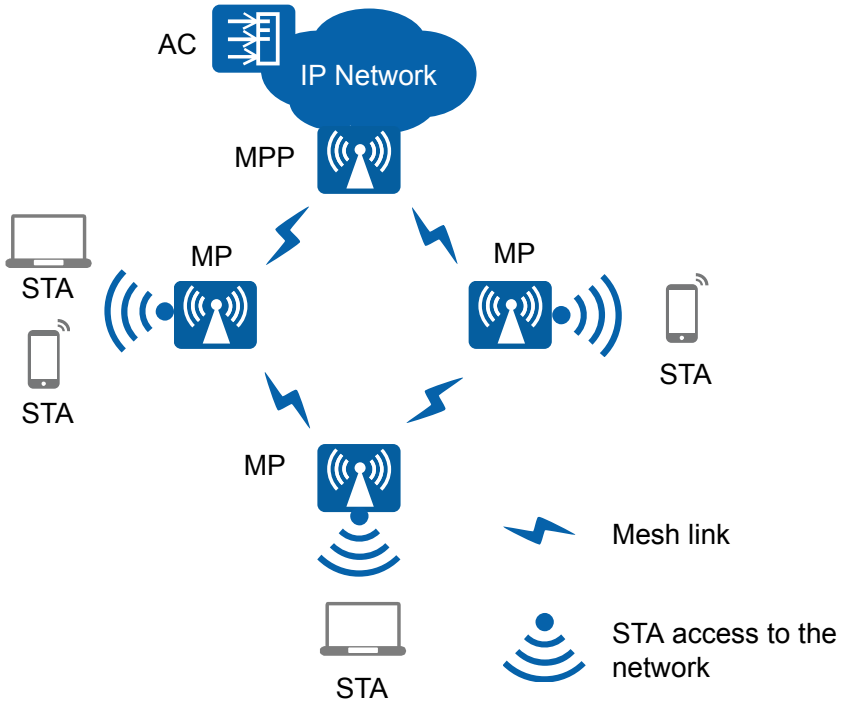


Figure 2-282 Fit AP networking (WDS mode: point-to-multipoint)



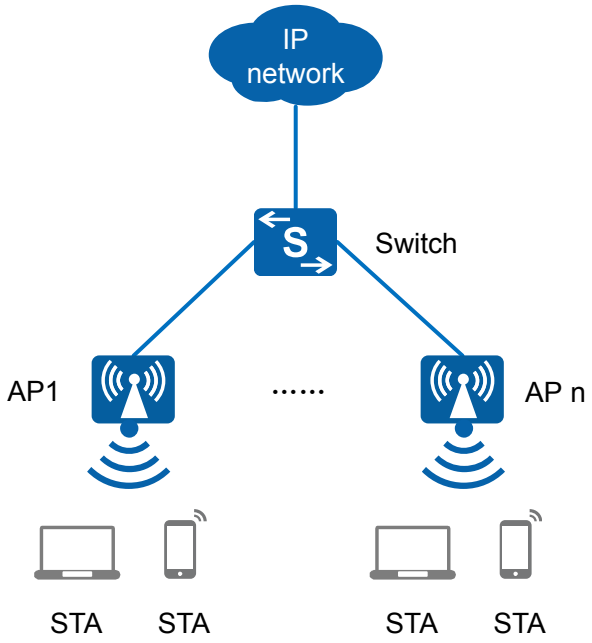
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-283 Fit AP mesh networking



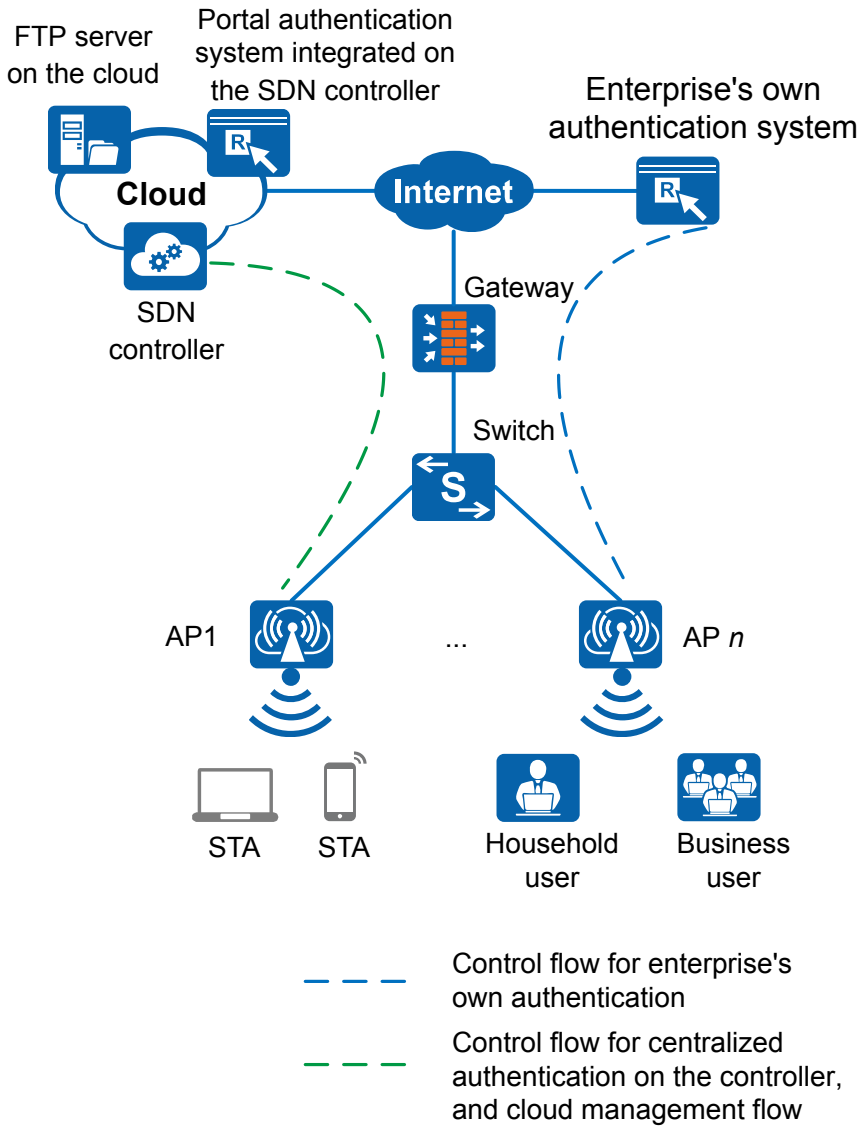
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-284 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-285 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.40.3 Hardware Information (AP7052DE)

Appearance

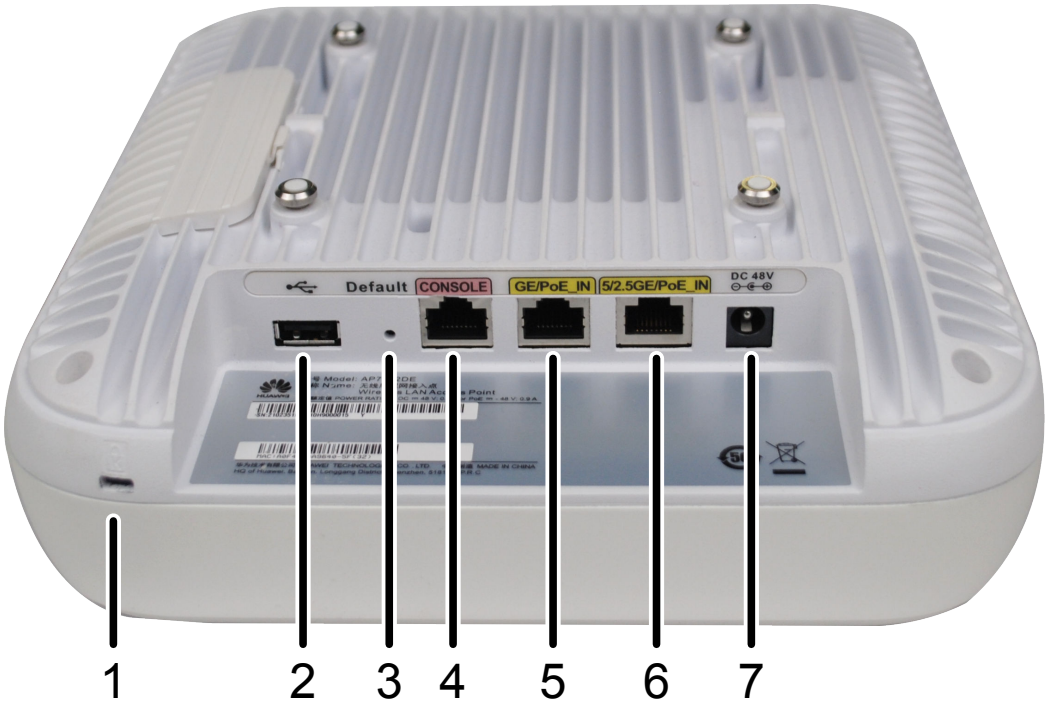
NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-286 AP7052DE appearance

Port

Figure 2-287 AP7052DE ports



As shown in **Figure 2-287**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
5. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
6. 5/2.5GE/PoE_IN:100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.
7. DC 48V: Connects a power adapter to the AP.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-288 Indicator

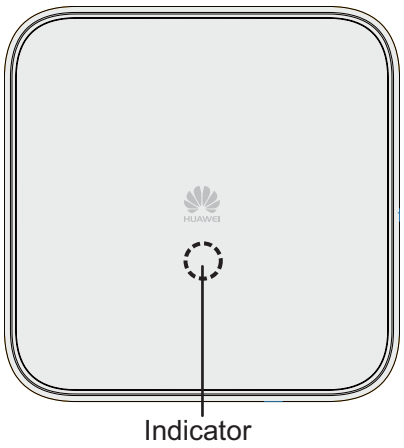


Table 2-145 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.

Indicator	Name	Color	Status	Description
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-146 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	74.5 mm × 220 mm × 220 mm (2.93 in. x 8.66 in. x 8.66 in.)
	Weight	1.75 kg
	System memory	512 MB DDR3L
	FLASH	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: in compliance with IEEE 802.3at/bt
	Maximum power consumption	• DC/802.3bt power supply: 35.7 W (excluding the output power of the USB port) • 802.3at power supply: 25.5 W (The USB function is unavailable. The port rate of 5/2.5GE/PoE_IN decreases to 2.5 Gbit/s.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, radio power is managed in self-adaptive mode.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-147 Radio specifications

Item	Description		
Antenna type	Built-in dual-band smart antenna (hardware)		
Antenna gain	• 2.4 GHz: 3dBi • 5 GHz: 4dBi		
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 29 dBm (combined power) • 5 GHz: 28 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s

2.40.4 Performance Specifications (AP7052DE)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.41 AP7052DN and AP7152DN Product Description

2.41.1 Product Characteristics (AP7052DN and AP7152DN)

Huawei AP7052DN and AP7152DN are the latest-generation technology-leading wireless access points (APs). They provide secure gigabit wireless access in compliance with the 802.11ac Wave 2 standards. The APs support 4 x 4 MIMO, four spatial streams, and 2.4G-to-5G switchover, and provide a rate of up to 3.46 Gbit/s in dual-5G mode. The APs have built-in omnidirectional antennas and support smooth evolution from 802.11n standards to 802.11ac standards. They meet the bandwidth requirements of large-bandwidth services such as High Definition (HD) video streams, multimedia, and desktop cloud services, delivering smooth and high-quality wireless services to enterprise users.

As 802.11ac Wave 2 APs that provide the 5GE uplink interface, they are intelligent, secure, and easy to use. Delivering industry-leading performance in a rugged, attractive enclosure, the two AP models are ideal for enterprise office and education scenarios.

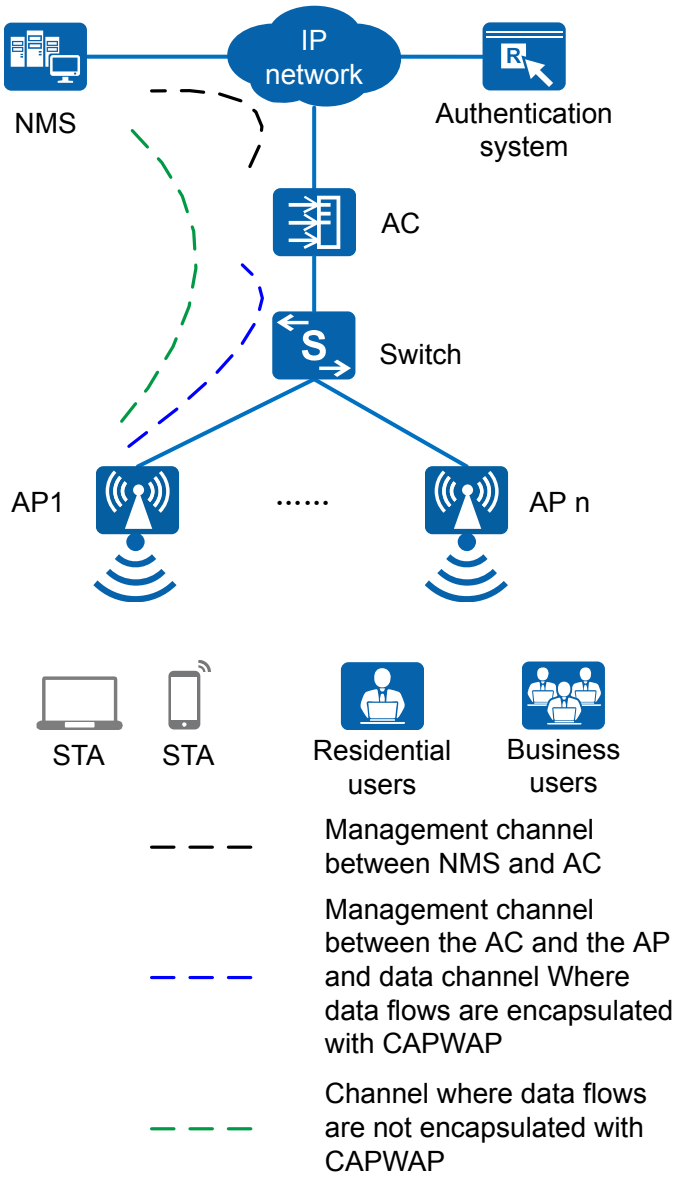
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on 2.4 GHz and 5 GHz frequencies, peak rate of 800 Mbit/s at 2.4 GHz and 1.73 Gbit/s at 5 GHz, and 2.53 Gbit/s for the device
- 2.4G-to-5G switchover, with a device rate of up to 3.46 Gbit/s in dual-5G mode
- 5GE uplink interface that can connect to a 100 MHz/1000 MHz/2.5 GHz interface, to improve the service load capability
- Dual PoE power supply for backup
- Built-in Bluetooth to implement precise positioning with eSight
- USB interface used for external power supply and storage
- IoT module to allow for flexible expansion of IoT applications
- Support for the Fat, Fit, and cloud modes
- Support for cloud-based management and O&M of APs and services through SDN controller, reducing O&M costs

2.41.2 Usage Scenarios (AP7052DN and AP7152DN)

The AP7052DN and AP7152DN can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 2-289 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-290 Fit AP networking (WDS mode: point-to-point)

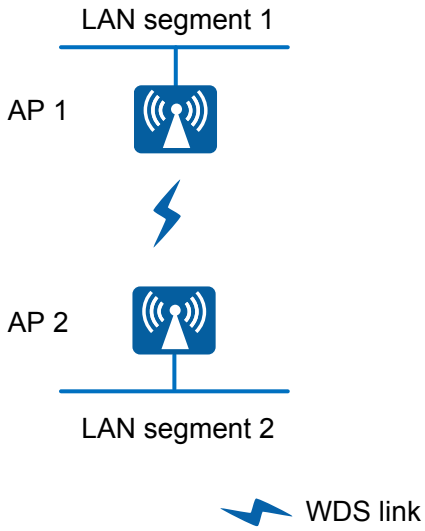
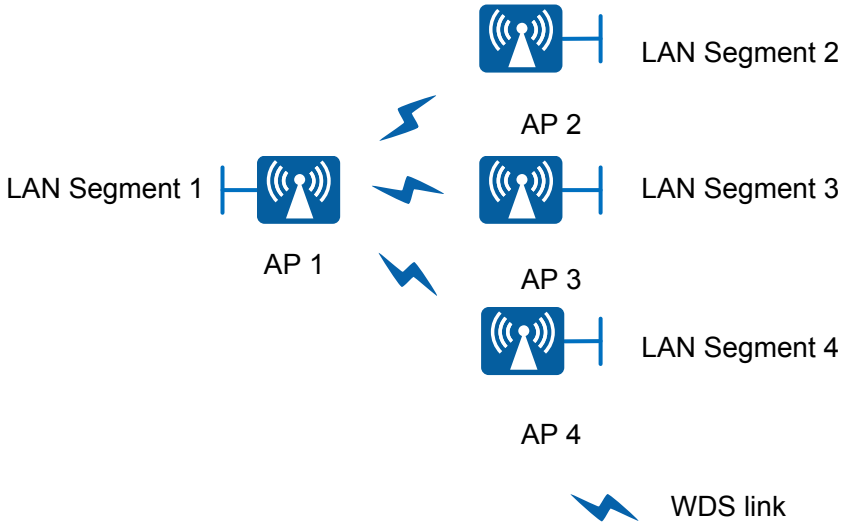
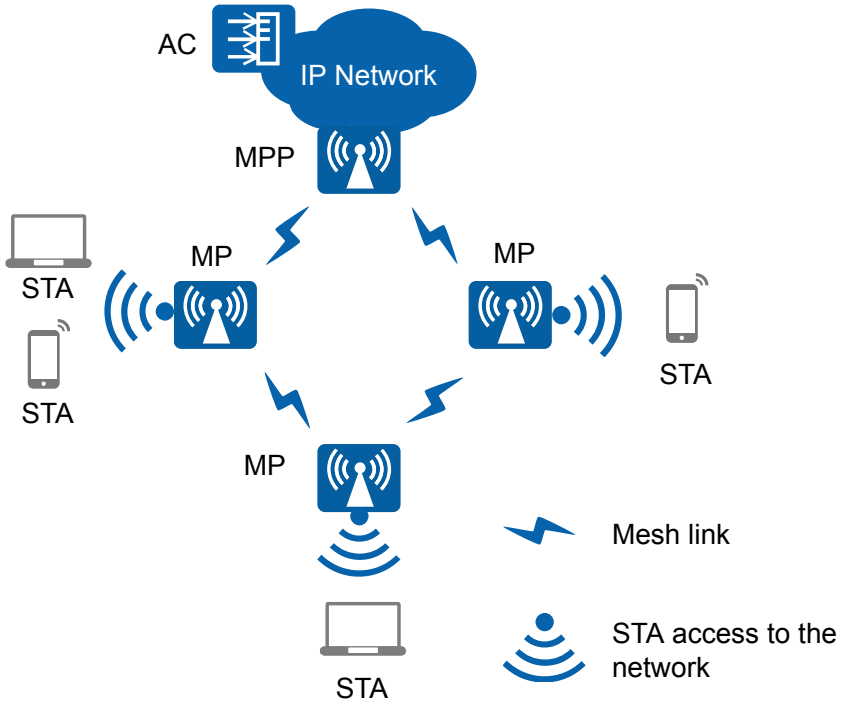


Figure 2-291 Fit AP networking (WDS mode: point-to-multipoint)



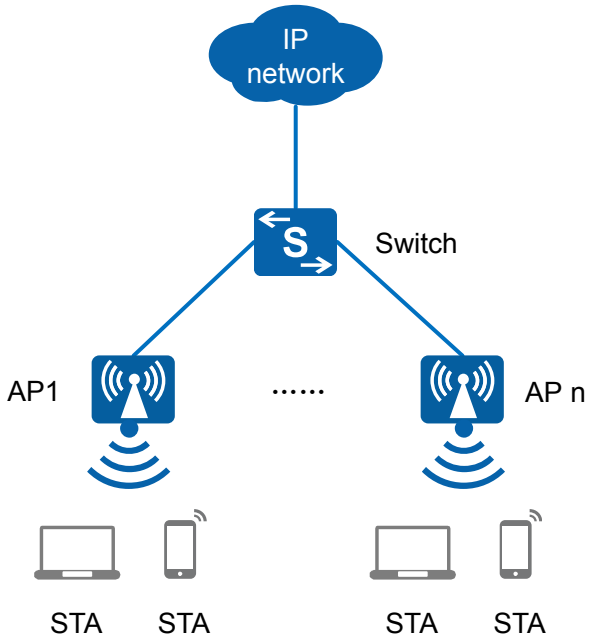
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 2-292 Fit AP mesh networking



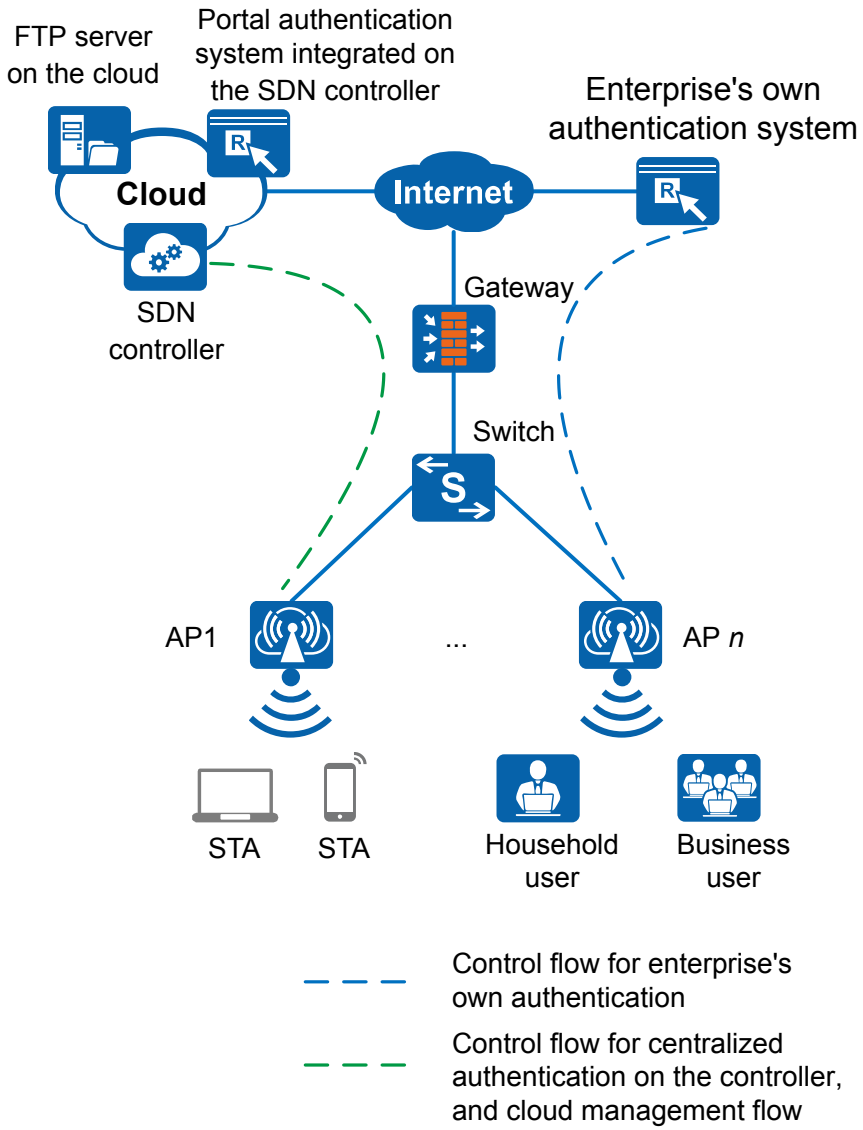
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect to APs to access the WMN. The WMN uses dedicated mesh routing protocols to guarantee high transmission quality and is more applicable to scenarios that require high bandwidth and highly stable Internet connections.

Figure 2-293 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-294 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.41.3 Hardware Information (AP7052DN)

Appearance

Figure 2-295 shows the appearance of the AP.

NOTE

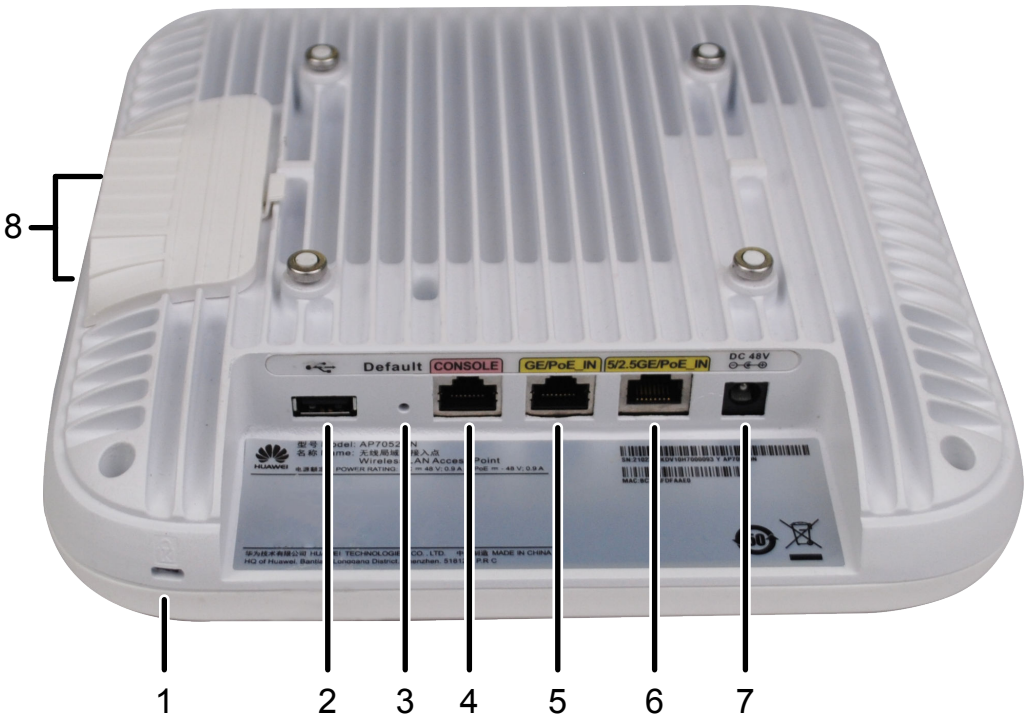
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-295 AP7052DN appearance

Port

The following figure shows ports on the AP7052DN.

Figure 2-296 AP7052DN ports



As shown in **Figure 2-296**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
5. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
6. 5/2.5GE/PoE_IN:100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.
7. DC 48V: Connects a power adapter to the AP.
8. Radio port: Connects an antenna to an IoT card through a radio cable.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-297 Indicator

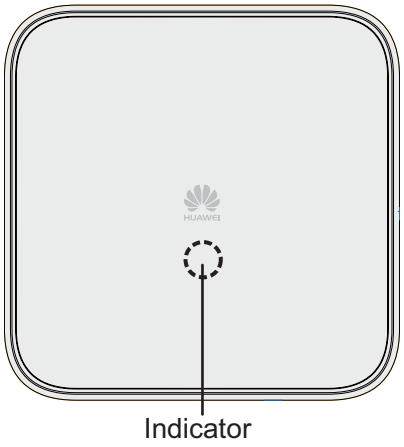


Table 2-148 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.

Indicator	Name	Color	Status	Description
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-149 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	52 mm x 220 mm x 220 mm (2.05 in. x 8.66 in. x 8.66 in.)
	Weight	1.68 kg
	System memory	512 MB DDR3L
	FLASH	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: in compliance with IEEE 802.3at/bt
	Maximum power consumption	• DC/802.3bt power supply: 33 W (excluding the output power of the USB port) • 802.3at power supply: 25.5 W (The USB function is unavailable. The port rate of 5/2.5GE/PoE_IN decreases to 2.5 Gbit/s. The IoT card power is lower than 0.5 W.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, radio power is managed in self-adaptive mode.
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-150 Radio specifications

Item	Description		
Antenna type	Built-in omnidirectional dual-band antenna		
Antenna gain	• 2.4G/5G (switchable): 2 dBi/2.8 dBi • 5G (non-switchable): 2.8 dBi		
Maximum number of users	Fit AP: ≤ 512 Fat AP: ≤ 512 Cloud AP: ≤ 512 **NOTE** The actual number of users varies according to the environment.		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4G/5G (switchable): 26 dBm/21 dBm (combined power) • 5G (non-switchable): 24 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
Maximum number of non-overlapping channels	2.4 GHz (2.412 GHz to 2.472 GHz) • 802.11b/g – 20 MHz: 3 • 802.11n – 20 MHz: 3 – 40 MHz: 1	5 GHz (5.18 GHz to 5.825 GHz) • 802.11a – 20 MHz: 13 • 802.11n – 20 MHz: 13 – 40 MHz: 6 • 802.11ac – 20 MHz: 13 – 40 MHz: 6 – 80 MHz: 3 – 160 MHz: 1	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*. **NOTICE** If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage: 1. The country code of the AP is fixed. 2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.

Item	Description
Channel rate supported	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 800 Mbit/s • 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s

2.41.4 Hardware Information (AP7152DN)

Appearance

Figure 2-298 shows the appearance of the AP.

NOTE

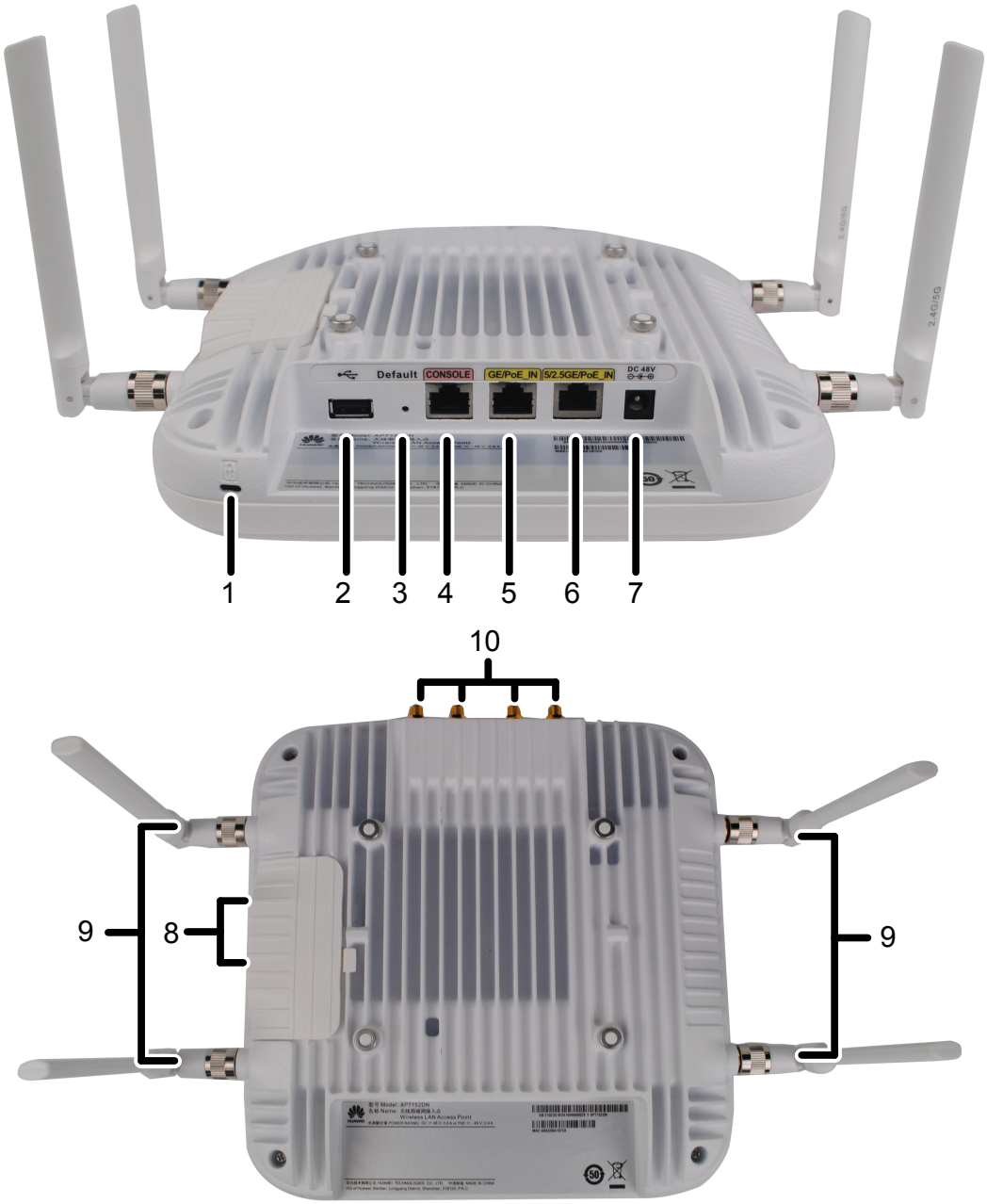
The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-298 AP7152DN appearance

Port

The following figure shows ports on the AP7152DN.

Figure 2-299 AP7152DN ports



As shown in **Figure 2-299**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

5. GE/PoE_IN:10/100/1000M port that connects to the wired Ethernet and supports PoE input.
6. 5/2.5GE/PoE_IN:100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.
7. DC 48V: Connects a power adapter to the AP.
8. Radio port: Connects an antenna to an IoT card through a radio cable.
9. 2.4G/5G: Connects a 2.4 GHz or 5 GHz antenna to the AP to send and receive wireless signals.The port type is RP-SMA-K.The port is applicable only to an AP that supports external antennas.
10. 5G: Connects a 5 GHz antenna to the AP to send and receive wireless signals.The port type is RP-SMA-K.The port is applicable only to an AP that supports external antennas.

LED Indicators

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-300 Indicator

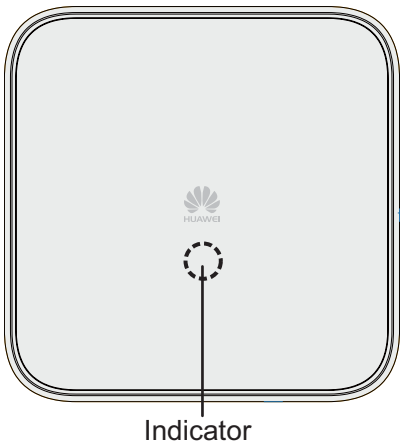


Table 2-151 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. ● The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. ● The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-152 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	52 mm x 220 mm x 220 mm (2.05 in. x 8.66 in. x 8.66 in.)
	Weight	1.7 kg
	System memory	512 MB DDR3L

Item		Description
	FLASH	16 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	• DC: 42.5 V to 57 V • PoE power supply: in compliance with IEEE 802.3at/bt
	Maximum power consumption	• DC/802.3bt power supply: 33 W (excluding the output power of the USB port) • 802.3at power supply: 25.5 W (The USB function is unavailable. The port rate of 5/2.5GE/PoE_IN decreases to 2.5 Gbit/s. The IoT card power is lower than 0.5 W.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, radio power is managed in self-adaptive mode.
Environment specifications	Operating temperature and altitude	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-153 Radio specifications

Item	Description
Antenna type	External omnidirectional dual-band antenna
Antenna gain	• 2.4G/5G (switchable): 3.5 dBi/4 dBi • 5G (non-switchable): 4 dBi

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of users</td><td colspan="3">Fit AP: ≤ 512
Fat AP: ≤ 512
Cloud AP: ≤ 512
NOTE
The actual number of users varies according to the environment.</td></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4G/5G (switchable): 26 dBm/21 dBm (combined power)
• 5G (non-switchable): 24 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3
– 160 MHz: 1</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 800 Mbit/s
• 802.11ac Wave 2: 6.5 to 1733.3 Mbit/s</td></tr>
</table>

2.41.5 Performance Specifications (AP7052DN and AP7152DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.42 AP7060DN Product Description

2.42.1 Product Characteristics (AP7060DN)

Huawei AP7060DN is a cutting-edge 802.11ax wireless access point (AP) with built-in omnidirectional antennas. The device rate can reach up to 6 Gbit/s. On the 2.4 GHz band, the AP7060DN supports 4x4 MIMO and four spatial streams, achieving a rate of 1.15 Gbit/s. On the 5 GHz band, the AP7060DN supports 8x8 MIMO and eight spatial streams, achieving a rate of 4.8 Gbit/s. With its 10GE uplink port, the AP7060DN can easily eliminate the bottleneck in upstream bandwidth of common APs. The AP7060DN supports high-bandwidth services such as VR/AR interactive teaching, HD video streaming, multimedia, and desktop cloud, and provides high-quality wireless services for enterprises.

- Provides services simultaneously on both the 2.4 GHz and 5 GHz frequency bands, at a rate of up to 1.15 Gbit/s at 2.4 GHz, 4.8 Gbit/s at 5 GHz, and 6 Gbit/s for the device.
- Provides a 10GE uplink port that supports 100M/1000M/2.5G/5G auto sensing.
- Supports Bluetooth serial interface–based O&M through built-in Bluetooth by collaborating with CloudCampus APP.
- Supports precise locating of Bluetooth terminals by collaborating with eSight.
- Provides a USB port for external power supply and storage.
- Supports an external IoT module, allowing for flexible IoT application extension.
- Supports the Fat, Fit, and cloud modes.
- Enables Huawei SDN controller to manage and operate APs and services on the APs, reducing network O&M costs.

Wi-Fi 6 (802.11ax) standard compliance

- The AP supports 1024-QAM and 8x8 MIMO, achieving an air interface rate of 4.8 Gbit/s.
- Orthogonal Frequency Division Multiple Access (OFDMA) enables multiple STAs to receive and send data at the same time, reducing the latency and improving network efficiency.

IoT extension

The AP provides an IoT slot for connecting to an external IoT module such as a ZigBee or RFID module, implementing short-distance, lower-power consumption IoT applications.

Cloud-based management

Huawei CloudCampus Solution consists of SDN controller and a full range of cloud managed network devices. SDN controller provides various functions including

management of APs, tenants, applications, and licenses, network planning and optimization, device monitoring, network service configuration, and value-added services.

High Density Boost technology

Huawei uses the following technologies to address challenges in high-density scenarios, including access problems, data congestion, and poor roaming experience:

SmartRadio for air interface optimization

- Load balancing during smart roaming: The load balancing algorithm can work during smart roaming, enabling load balancing detection between APs on the network after STA roaming to adjust the STA load on each AP, improving network stability.
- Intelligent Dynamic Frequency Assignment (DFA) technology: The DFA algorithm is used to automatically detect adjacent-channel and co-channel interference, and identify any redundant 2.4 GHz radio. Through automatic inter-AP negotiation, a redundant radio is automatically switched to another mode (dual-5G AP models support 2.4G-to-5G switchover) or is disabled to reduce 2.4 GHz co-channel interference and increase the system capacity.
- Intelligent conflict optimization technology: Dynamic enhanced distributed channel access (EDCA) and airtime scheduling algorithms are used to schedule the channel occupation time and service priority of each STA. This ensures that each STA is assigned a relatively equal amount of time for using channel resources and user services are scheduled in an orderly manner, improving service processing efficiency and user experience.

Air interface performance optimization

- In high-density scenarios where many STAs access the network, an increased number of low-rate STAs consume more resources on the air interface, reduce the AP capacity, and lower user experience. Therefore, Huawei APs will check the signal strength of STAs during access and reject access from weak-signal STAs. At the same time, the APs monitor the rate of online STAs in real time and forcibly disconnect low-rate STAs so that the STAs can reassociate with APs that have stronger signals. Terminal access control technology can increase air interface use efficiency and allow access of more STAs.

5G-prior access

- The APs support both 2.4 GHz and 5 GHz frequency bands. The 5G-prior access function enables an AP to steer STAs to the 5 GHz frequency band first, which reduces load and interference on the 2.4 GHz frequency band, improving user experience.

Wired and wireless dual security guarantee

To ensure data security, Huawei APs integrate wired and wireless security measures and provide comprehensive security protection.

Authentication and encryption for wireless access

- Huawei APs support WEP, WPA/WPA2-PSK, WPA/WPA2-PPSK, WPA/WPA2-802.1X, and WAPI authentication/encryption modes to ensure security

of a wireless network. The authentication mechanism is used to authenticate user identities so that only authorized users can access network resources. The encryption mechanism is used to encrypt data transmitted over wireless links to ensure that the data can only be received and parsed by expected users.

Analysis on non-Wi-Fi interference sources

- Huawei APs can analyze the spectrum of non-Wi-Fi interference sources and identify them, including baby monitors, Bluetooth devices, digital cordless phones (on 2.4 GHz frequency band only), wireless audio transmitters (on both the 2.4 GHz and 5 GHz frequency bands), wireless game controllers, and microwave ovens. Coupled with Huawei eSight, the APs can accurately detect interference sources, and display the spectrum of them on eSight, enabling the administrator to remove the interference in a timely manner.

Rogue device monitoring

- Huawei APs support WIDS/WIPS, and can monitor, identify, defend against, counter, and perform refined management on rogue devices, providing security guarantees for air interface environment and wireless data transmission.

Authentication and encryption for wired access

- The AP access control ensures validity of APs. CAPWAP link protection and DTLS encryption provide security assurance, improving data transmission security between APs and ACs.

Automatic radio calibration

- Automatic radio calibration allows an AP to collect signal strength and channel parameters of surrounding APs and generate an AP topology according to the collected data. Based on interference from authorized APs, rogue APs, and non-Wi-Fi interference sources, each AP automatically adjusts its transmit power and working channel to make the network operate at better performance. In this way, network reliability and user experience are improved.

Automatic application identification

Huawei APs support smart application control technology and can implement visualized management and control on Layer 4 to Layer 7 applications.

Traffic identification

- Coupled with Huawei ACs, the APs can identify over 1600 common applications in various office scenarios. Based on the identification results, policy control can be implemented on user services, including priority adjustment, scheduling, blocking, and rate limiting to ensure efficient bandwidth resource use and improve quality of key services.

Traffic statistics collection

- Traffic statistics of each application can be collected globally, by SSID, or by user, so that the network administrator can know application use status on the network. The network administrator or operator then can implement

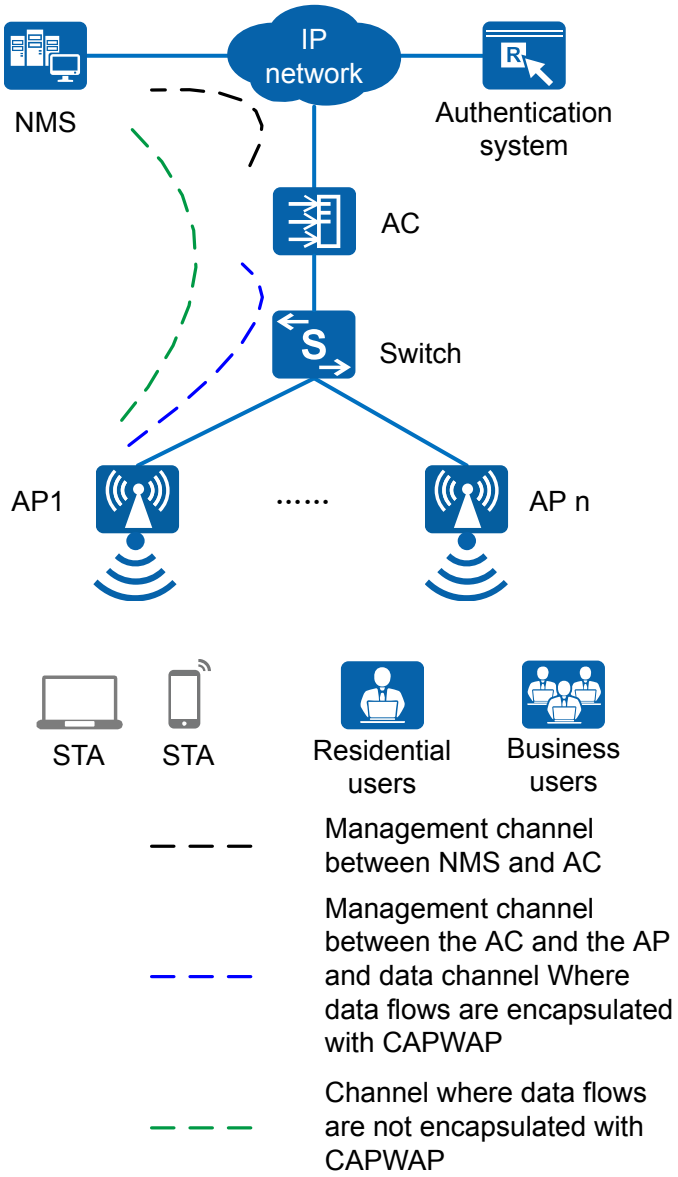
visualized management and control on service applications on smart terminals to enhance security and ensure effective bandwidth control.

2.42.2 Usage Scenarios (AP7060DN)

The AP7060DN can work as a Fat AP, Fit AP, or cloud AP. The AP can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

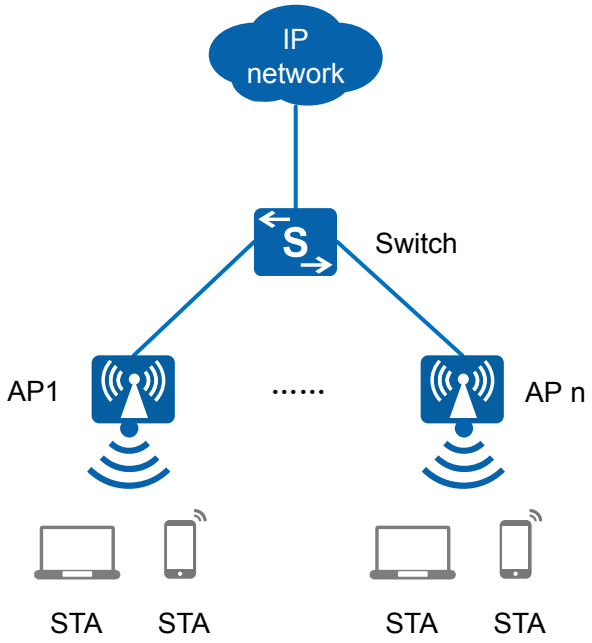
Figure 2-301 Fit AP networking (AP mode)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and

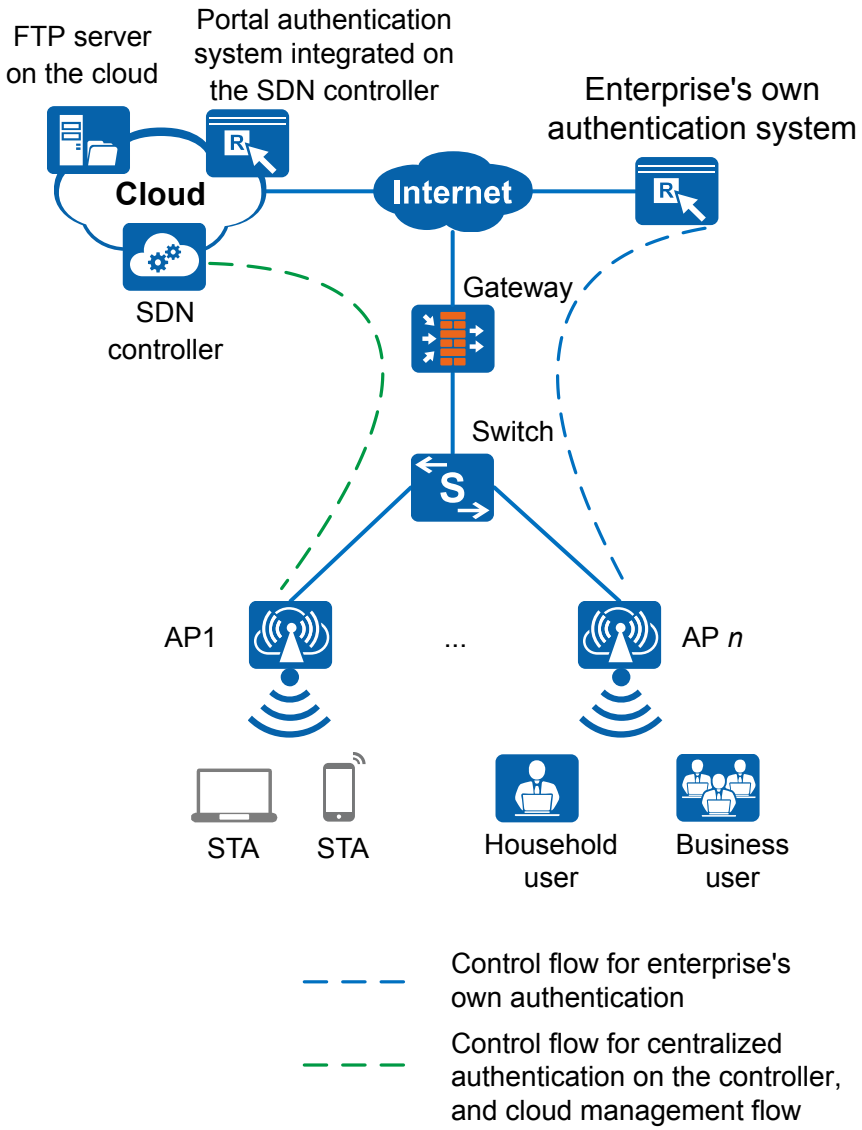
QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 2-302 Fat AP networking



In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 2-303 Cloud AP networking



In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

2.42.3 Hardware Information (AP7060DN)

Appearance

Figure 2-304 shows the appearance of the AP.

NOTE

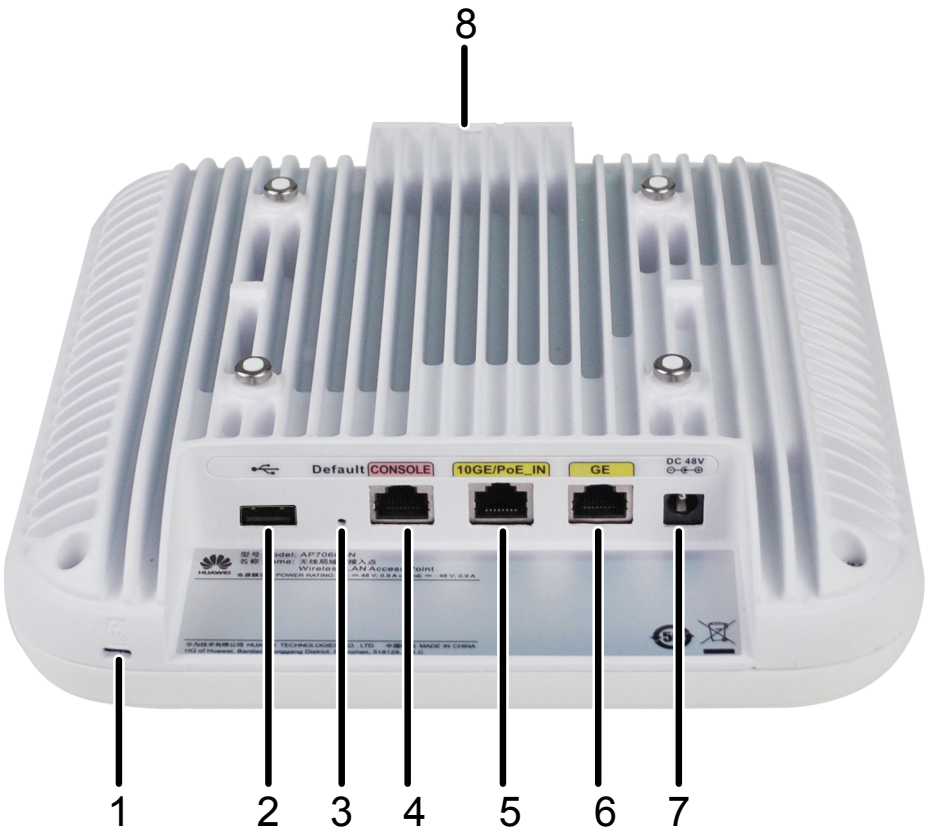
The actual device appearance may be different from the following device appearance, but these differences will not affect device functions.

Figure 2-304 Appearance

Port

The following figure shows ports on the AP7060DN.

Figure 2-305 Ports



As shown in **Figure 2-305**, each port can be described as follows:

1. Security slot: Connects to a security lock.
2. USB port: Connects to a USB flash drive or other storage devices to extend the storage space of the AP. The USB2.0 standard is supported.
3. Default: Restores factory settings and restarts the device when you hold down the button more than 3 seconds.
4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.
5. 10GE/PoE_IN: 100M/1000M/2.5G/5G/10G port that connects to the wired Ethernet and supports PoE input.
6. GE: 10/100/1000M port that connects to the wired Ethernet.
7. DC 48V: Connects a power adapter to the AP.
8. IoT extended port: Connects to an IoT module.

NOTE

- The AP supports the following power supply modes: PoE power supply and DC power supply.
- Use the selected power adapter for power supply; otherwise, the AP may be damaged.

LED Indicators

The AP7060DN provides only a single indicator, as shown in **Figure 2-306**.

NOTE

- The indicator is located inside the panel, which turns on after the AP is powered on.
- Indicator colors may vary slightly at different temperature.

Figure 2-306 LED indicator

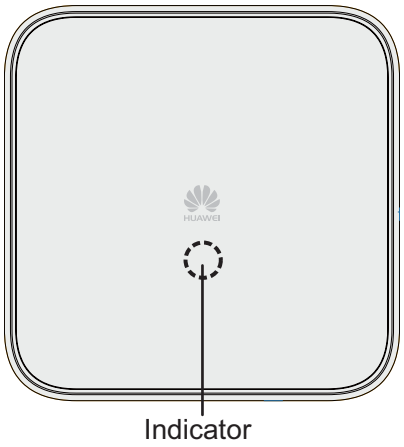


Table 2-154 Description about the single indicator

Indicator	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.

Indicator	Name	Color	Status	Description
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. ● The software is being upgraded. ● After the software is loaded and started, the AP requests to go online if it works in Fit AP or cloud-based management mode. The indicator remains in this state before the AP successfully goes online. ● The AP works in Fit AP or cloud-based management mode and fails to go online.
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-155 Basic specifications

Item		Description
Physical specifications	Dimensions (H x W x D)	57 mm x 220 mm x 220 mm (2.24 in. x 8.66 in. x 8.66 in.)
	Weight	1.8 kg
	System memory	2 GB DDR4
	FLASH	32 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	● DC: 42.5 V to 57 V ● PoE power supply: in compliance with IEEE 802.3bt/at

Item		Description
	Maximum power consumption	30 W (excluding the output power of the USB port or IoT card port) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, the USB function and IoT module are unavailable, the 2.4 GHz radio works in 3x3 MIMO mode, and the 5 GHz radio works in 6x6 MIMO mode.
Environment specifications	Operating temperature	• -60 m to +1800 m: -10°C to +50°C • 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 2-156 Radio specifications

Item	Description
Antenna type	Built-in dual-band combined antenna
Antenna gain	• 2.4 GHz: 4.6 dBi • 5 GHz: 5.6 dBi **NOTE** • The preceding gain is the peak gain of a single antenna. • Equivalent antenna gain after all 2.4 GHz or 5 GHz antennas are combined: 2.4 GHz: 4 dBi5 GHz: 2 dBi
Maximum number of users	Fit AP: ≤ 1024 Fat AP: ≤ 1024 Cloud AP ≤ 1024 **NOTE** The actual number of users varies according to the environment.

<table>
<tr><th>Item</th><th colspan="3">Description</th></tr>
<tr><td>Maximum number of VAPs for each radio</td><td colspan="3">16</td></tr>
<tr><td>Maximum transmit power</td><td colspan="3">• 2.4 GHz: 24 dBm (combined power)
• 5 GHz: 27 dBm (combined power)
NOTE
The actual transmit power depends on local laws and regulations.</td></tr>
<tr><td>Maximum number of non-overlapping channels</td><td>2.4 GHz (2.412 GHz to 2.472 GHz)
• 802.11b/g
– 20 MHz: 3
• 802.11n
– 20 MHz: 3
– 40 MHz: 1
• 802.11ax
– 20 MHz: 3
– 40 MHz: 1</td><td>5 GHz (5.18 GHz to 5.825 GHz)
• 802.11a
– 20 MHz: 13
• 802.11n
– 20 MHz: 13
– 40 MHz: 6
• 802.11ac
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3
– 160 MHz: 1
• 802.11ax
– 20 MHz: 13
– 40 MHz: 6
– 80 MHz: 3
– 160 MHz: 1</td><td>NOTE
The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the Country Codes & Channels Compliance.
NOTICE
If the AP is delivered to the USA, pay attention to the following on channel and frequency band usage:
1. The country code of the AP is fixed.
2. High power radars working at frequencies in the range of 5.25 GHz to 5.35 GHz, 5.47 GHz to 5.6 GHz, and 5.65 GHz to 5.725 GHz can interfere with or even damage APs working at the same frequency.</td></tr>
<tr><td>Channel rate supported</td><td colspan="3">• 802.11b: 1, 2, 5.5, and 11 Mbit/s
• 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s
• 802.11n: 6.5 to 800 Mbit/s
• 802.11ac wave2: 6.5 to 1733.3 Mbit/s
• 802.11ax: 9 to 4800 Mbit/s</td></tr>
</table>

2.42.4 Performance Specifications (AP7060DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

2.43 AP9330DN Product Description

2.43.1 Product Characteristics (AP9330DN)

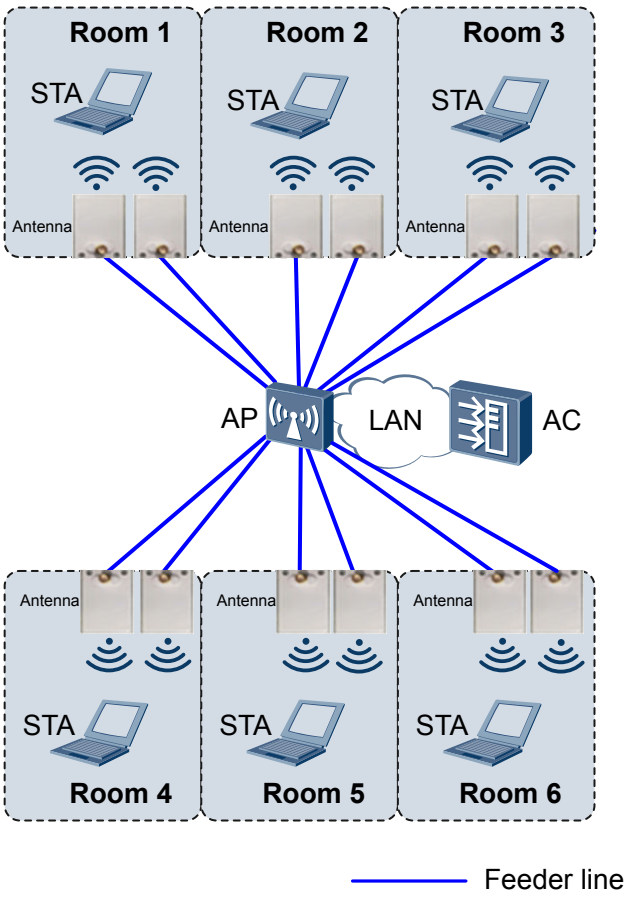
Table 2-157 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP9330DN	Dual bands: • 2.4 GHz • 5 GHz The AP9330DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	The latest-generation technology-leading AP9330DN supports smart distributed antenna system technology. With this technology, one AP9330DN can cover six rooms with double streams for each room. Deployed indoors, the AP provides comprehensive service support capabilities and features high reliability, high security, simple network deployment, automatic AC discovery and configuration, and real-time management and maintenance.	It provides high quality wireless services for industries, such as healthcare, and hotels. The AP9330DN provides flexible distribution options in different environments. The AP9330DN is not recommended in large-capacity scenarios for providing wireless coverage, such as school dormitory buildings.

2.43.2 Usage Scenarios (AP9330DN)

Typical networking modes are as follows:

Figure 2-307 Typical Fit AP networking (one AP for six rooms with dual bands and double streams)



In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

2.43.3 Hardware Information (AP9330DN)

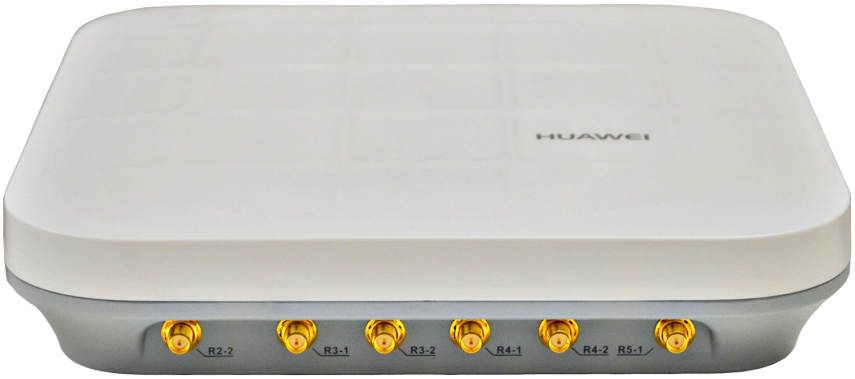
Appearance

Figure 2-308 shows AP9330DN appearance.

NOTE

The actual device appearance may slightly differ from the following device appearance, but these differences will not affect device functions.

Figure 2-308 AP9330DN appearance



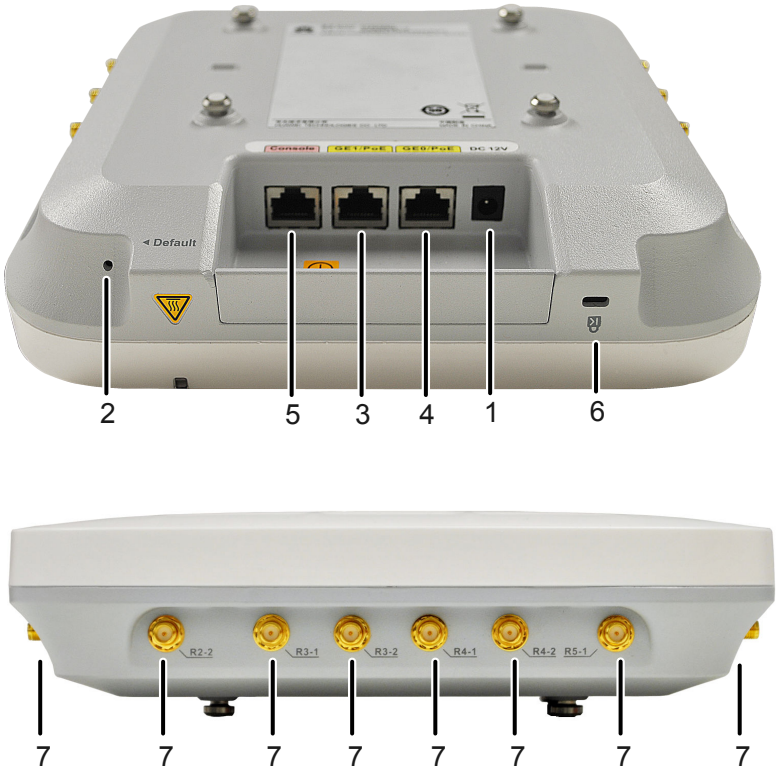
CAUTION

There is a scald warning label attached on the device, warning you not to touch the device after the device has been operating for a long time.

Port

The following figure shows ports on the AP9330DN.

Figure 2-309 Ports on the AP9330DN



As shown in **Figure 2-309**, each port can be described as follows:

- 1. Power input port: 12 V DC.
- 2. Default button: restores the factory settings if you hold down the button more than 3 seconds.
- 3. GE1/PoE port: a 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs. PoE power supply is supported on dual network ports.
- 4. GE0/PoE port: a 10/100/1000M port used to connect to the wired Ethernet. The port can connect to a PoE power supply to provide power for APs. PoE power supply is supported on dual network ports.
- 5. Console port: connects to a maintenance terminal for device configuration and management.
- 6. Lock port: protects the AP against theft.
- 7. Antenna port: uses an RP-SMA-K connector (outside thread, central pin) and connects to box antennas and feeder cables in rooms. An AP9330DN has a total of twelve such ports. The antenna port is identified as Rn-1 or Rn-2. In scenarios where one AP covers six rooms with double streams and dual bands for each room, the antennas connected to two antenna ports with the same **n** value must be deployed in the same room.

LED Indicator

NOTE

Indicator colors may vary slightly at different temperature.

Table 2-158 Description about the single indicator

Type	Name	Color	Status	Description
Indicator	-	Green	Steady on	Default status after power-on. The AP is just powered on and the software is not started yet.
	-	Green	Steady on after blinking once	Software startup status. After the system is reset and starts uploading the software, the indicator blinks green once. Until the software is uploaded and started, the indicator remains steady green.
	-	Green	Blinking once every 2s (0.5 Hz)	Running status. • The system is running properly, the Ethernet connection is normal, and STAs are associated with the AP. • The system enters the Uboot CLI.

Type	Name	Color	Status	Description
			Blinking once every 5s (0.2 Hz)	Running status. The system is running properly, the Ethernet connection is normal, and no STA is associated with the AP. The system is in low power consumption state.
	-	Green	Blinking once every 0.25s (4 Hz)	Alarm. • The software is being upgraded. • After the software is uploaded and started, the AP working in Fit AP mode requests to go online on the AC and maintains this state until it goes online successfully on the AC (before the CAPWAP link is established). • The AP works in Fit AP and fails to go online (the CAPWAP link is disconnected).
	-	Red	Steady on	Fault. A fault that affects services has occurred, such as a DRAM detection failure or system software loading failure. The fault cannot be automatically rectified and must be rectified manually.

Basic Specifications

Table 2-159 Basic specifications of the AP9330DN

Item		Description
Technical specifications	Dimensions (H x W x D)	53 mm x 220 mm x 220 mm
	Weight	1.3 kg
	System memory	• 256 MB DDR3 • 64 MB flash memory
Power specifications	Power input	• DC: 12 V ± 10% • PoE power: in compliance with IEEE 802.3at

Item		Description
	Maximum power consumption	19 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to +1800 m: -10°C to +50°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +70°C
	Operating humidity	5% to 95% (non-condensing)
	IP rating	IP41
	Atmospheric pressure	70 kPa to 106 kPa

Radio Specifications

Table 2-160 Radio specifications

Item	Description
Antenna type	External antenna. The AP has a total of twelve antenna ports which use RP-SMA-K connectors (outside thread, central pin), applicable to indoor distribution scenarios.
Maximum number of users	≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	• 2.4 GHz: 25 dBm (combined power) • 5 GHz: 21 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.

Item	Description		
Maximum number of non-overlapping channels	2.4 GHz 802.11b/g • 20 MHz: 3 802.11n • 20 MHz: 3 • 40 MHz: 1	5 GHz 802.11a • 20 MHz: 13 802.11n • 20 MHz: 13 • 40 MHz: 6 802.11ac • 20 MHz: 13 • 40 MHz: 6 • 80 MHz: 3	**NOTE** The table uses the number of non-overlapping channels supported by China as an example. The number of non-overlapping channels varies in different countries. For details, see the *Country Codes & Channels Compliance*.
Channel rate	• 802.11b: 1, 2, 5.5, and 11 Mbit/s • 802.11a/g: 6, 9, 12, 18, 24, 36, 48, and 54 Mbit/s • 802.11n: 6.5 to 600 Mbit/s • 802.11ac: 6.5 to 1300 Mbit/s		

2.43.4 Performance Specifications (AP9330DN)

For AP performance specifications, log in to **Huawei official website** and download the brochure of the corresponding AP model, or query the specifications using **Info-Finder**.

