3 Outdoor Access Points

About This Chapter

3.1 AP8030DN Product Description

3.1.1 Product Characteristics (AP8030DN)

Table 3-1 Product characteristics

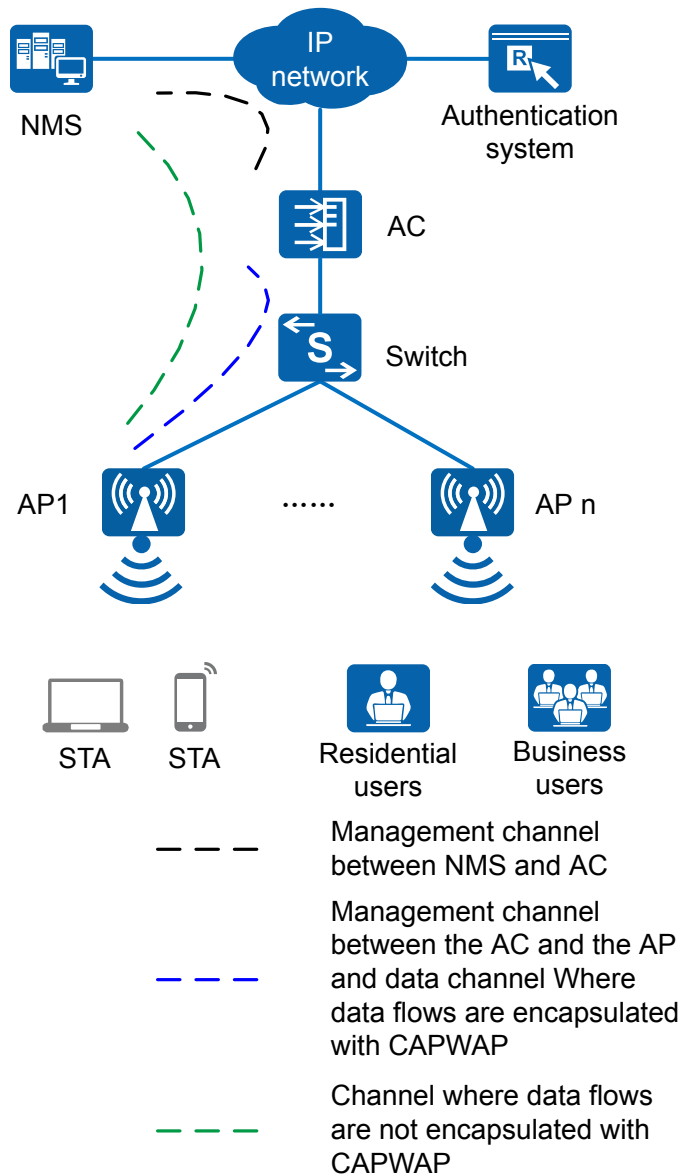| Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP8030DN	Dual band: ● 2.4 GHz ● 5 GHz The AP8030DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users.	IEEE 802.11a/b/g/n/ac	Huawei AP8030DN is the latest 802.11ac outdoor dual-band wireless access point (AP). Physically hardened, the AP8030DN supports 3x3 MIMO and offers enhanced outdoor coverage performance. It can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users. It also 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 requirements of outdoor deployment.	Huawei AP8030DNs comply with IP67 dustproof and waterproof protection standards, applicable to coverage scenarios (for example, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul).

3.1.2 Usage Scenarios (AP8030DN)

The AP8030DN can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.
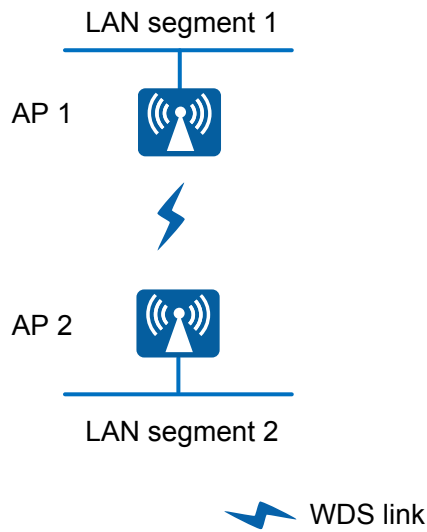
Typical networking modes are as follows:

Figure 3-1 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 3-2** Fit AP networking (WDS mode: point-to-point)

LAN segment 1

AP 1

AP 2

LAN segment 2

WDS link

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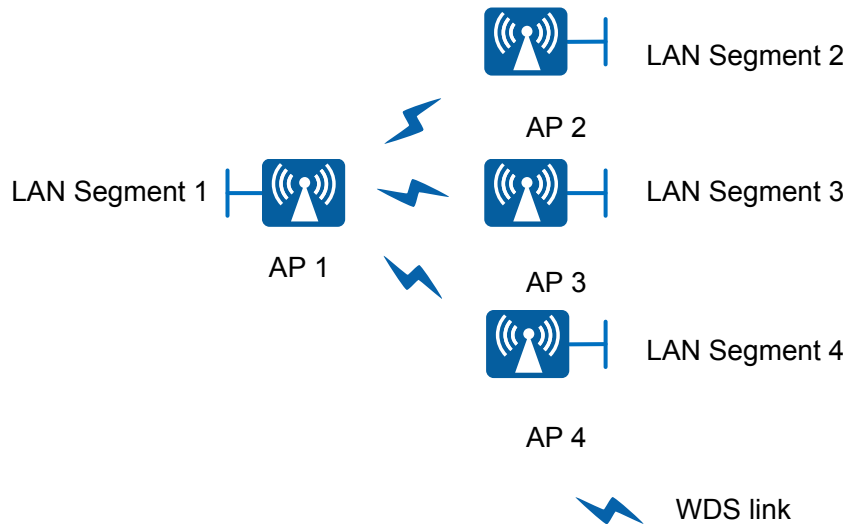
LAN Segment 2

AP 2

LAN Segment 1

LAN Segment 3

AP 1

AP 3

LAN Segment 4

AP 4

WDS link

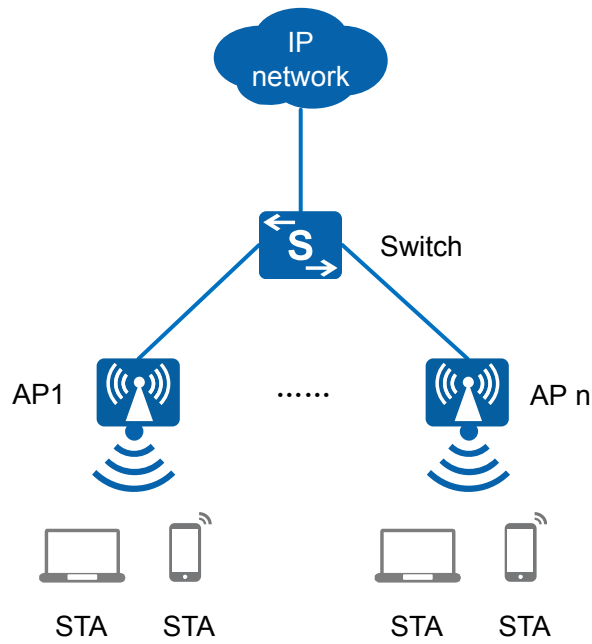In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting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

Figure 3-4 Fit AP mesh networking
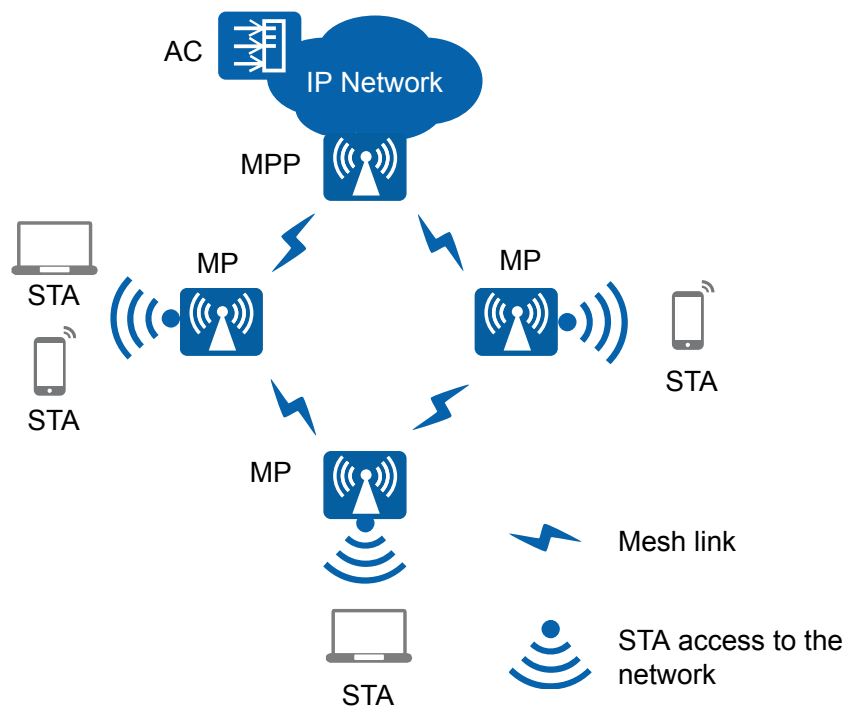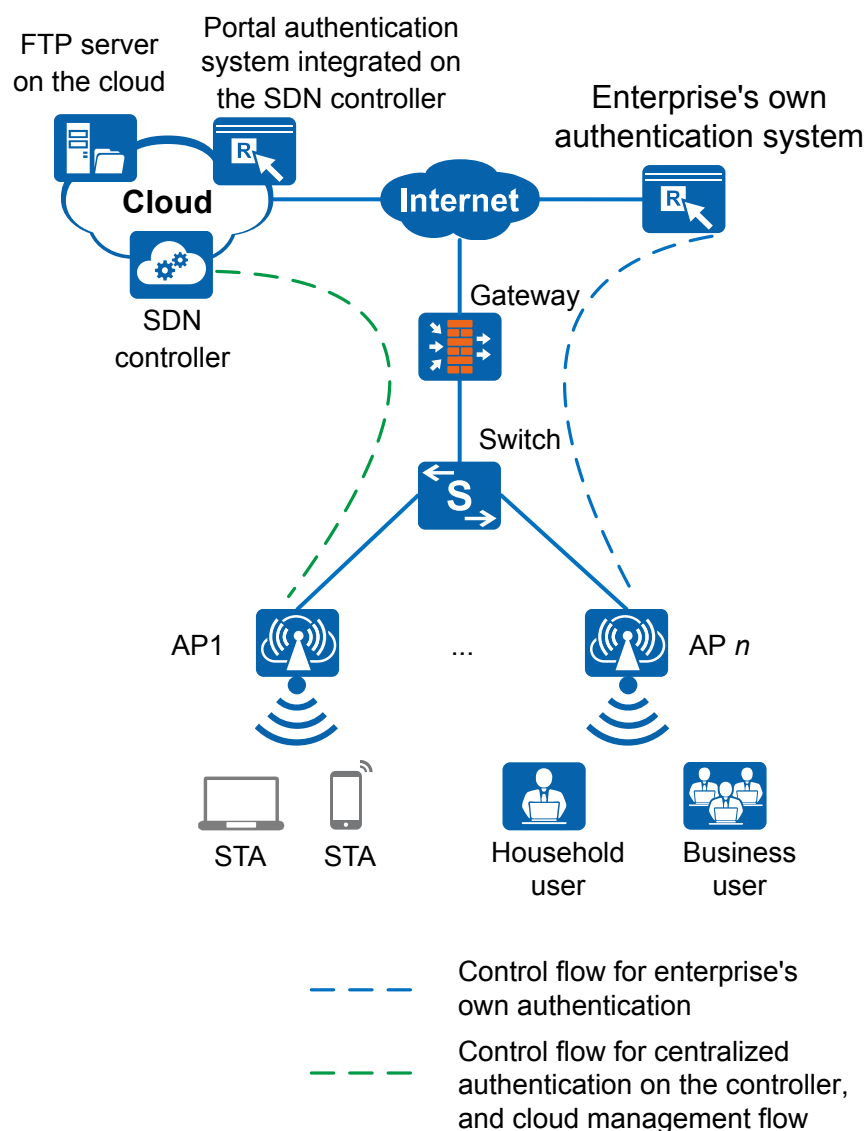
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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 3-5 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 3-6 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.

3.1.3 Hardware Information (AP8030DN)

Appearance

Figure 3-7 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 3-7 AP 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.
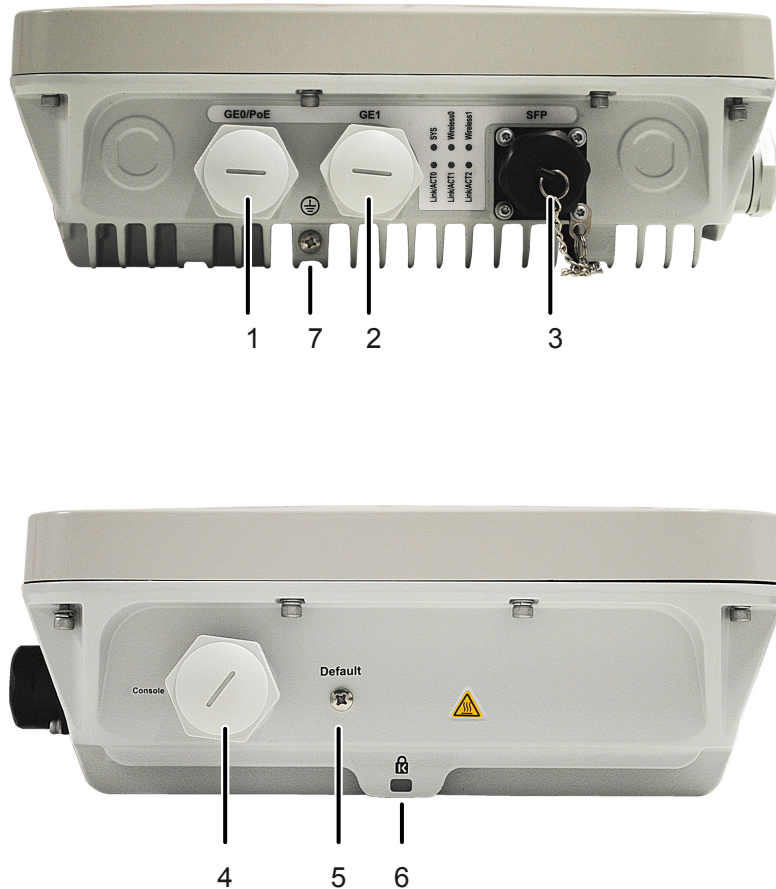
Interfaces

The following figure shows interfaces on the AP.

Figure 3-8 Interfaces on the AP

1. GE0/PoE interface: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. GE1 interface: 10/100/1000M port that connects to the wired Ethernet.

3. SFP: Optical port that supports the 100M/1000M optical module.

4. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

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

☐ NOTE

The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

6. Security slot: Connects to a security lock.

7. Device ground screw: Connects the device to a ground cable.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

📖 **NOTE**

Indicator colors may vary slightly at different temperature.

Indicators of the same type have the same state meanings.
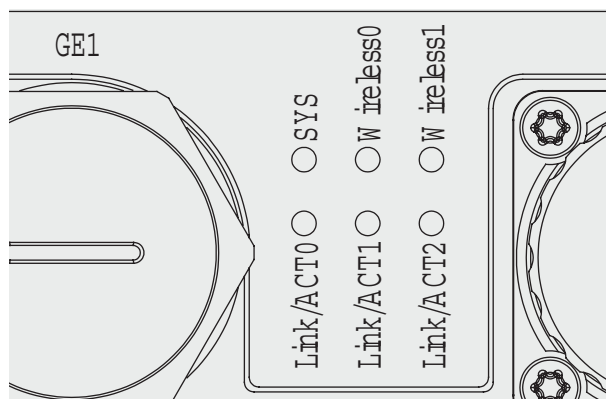
Table 3-2 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-3 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless indicators consist of Wireless0 and Wireless1, showing wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces respectively.

Table 3-4 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-5 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

◫ **NOTE**

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate. **wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.

- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.

  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.

  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.

  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-6 Basic specifications of the AP8030DN

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 290 mm x 260 mm
	Weight	3.6 kg
	System memory	• 256 MB DDR3 • 64 MB Flash
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at
	Maximum power consumption	20.1 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°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	0% to 100% (non-condensing)

Item		Description
	IP rating	IP67
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-7 Radio specifications

Item	Description
Antenna type	Built-in directional antenna ● Horizontal beamwidth: 60 degrees ● Vertical beamwidth: 30 degrees
Antenna gain	● 2.4 GHz: 10 dBi ● 5 GHz: 10 dBi
Maximum number of users	● Fit AP: ≤ 256 ● Fat AP: ≤ 64 ● Cloud AP: ≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	● 2.4 GHz: 28 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	**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 450 Mbit/s ● 802.11ac: 6.5 to 1300 Mbit/s		

3.1.4 Performance Specifications (AP8030DN)

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**.

3.2 AP8130DN Product Description

3.2.1 Product Characteristics (AP8130DN)

Table 3-8 Product characteristics

| Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP8130DN	Dual band: ● 2.4 GHz ● 5 GHz The AP8130DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users. It supports 2.4G-to-5G switchover and works on dual 5 GHz frequency bands.	IEEE 802.11a/b/g/n/ac	Huawei AP8130DN, physically hardened, supports 3x3 MIMO and offers enhanced outdoor coverage performance. It complies with IEEE 802.11a/b/g/n/ac, and can work as a wireless bridge. The AP can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users. 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 requirements of outdoor deployment.	Huawei AP8130DNs comply with IP67 dustproof and waterproof protection standards, applicable to coverage scenarios (for example, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul).

3.2.2 Usage Scenarios (AP8130DN)

The AP8130DN can work as a Fat AP, Fit AP, or cloud AP. It can switch flexibly among three working modes based on the network plan.
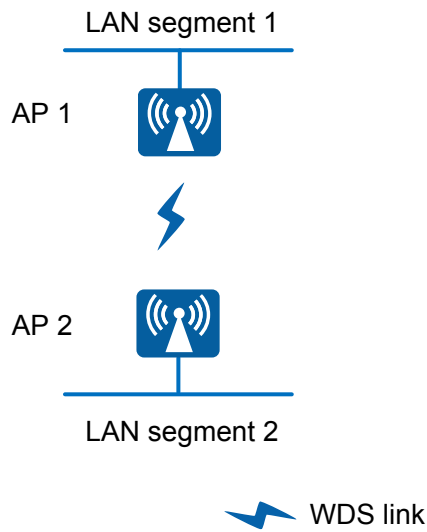
Typical networking modes are as follows:

Figure 3-9 Fit AP networking (AP mode)
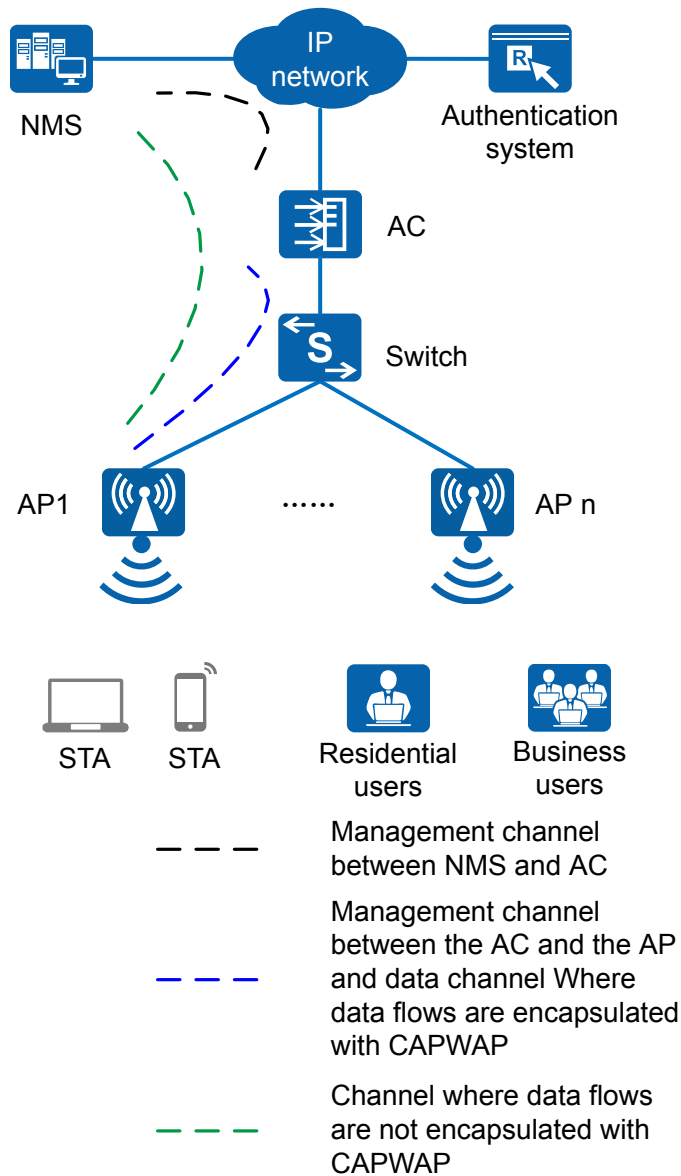
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 3-10 Fit AP networking (WDS mode: point-to-point)

LAN segment 1

AP 1

AP 2

LAN segment 2

WDS link
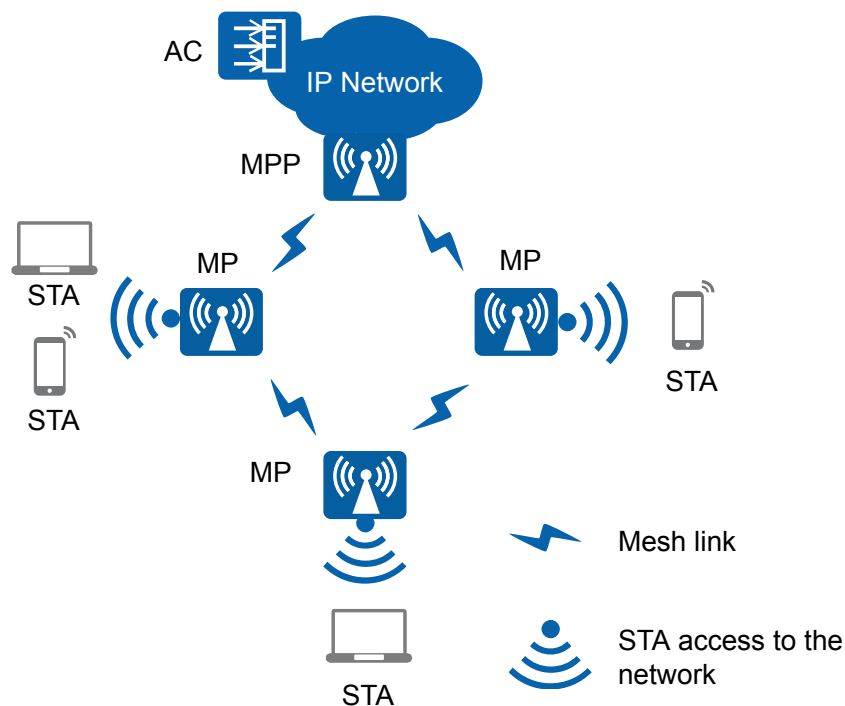
Figure 3-11 Fit AP networking (WDS mode: point-to-multipoint)
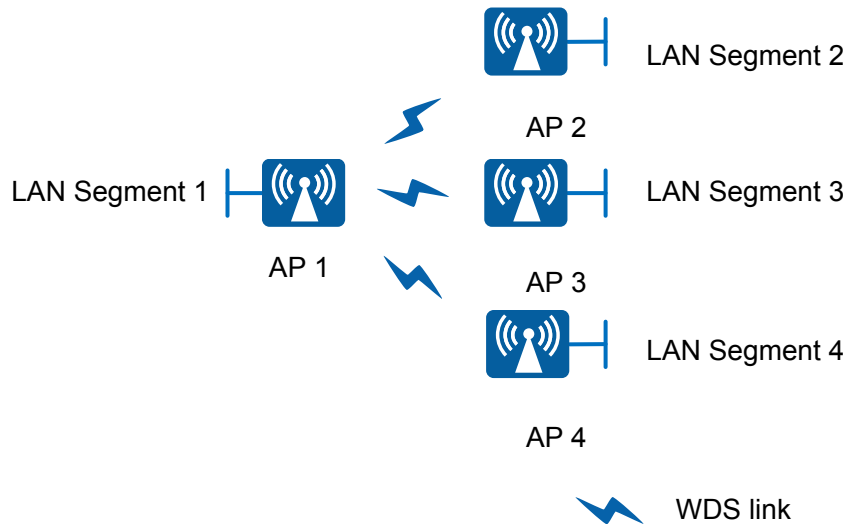
LAN Segment 2

AP 2

LAN Segment 1

LAN Segment 3

AP 1

AP 3

LAN Segment 4

AP 4

WDS link

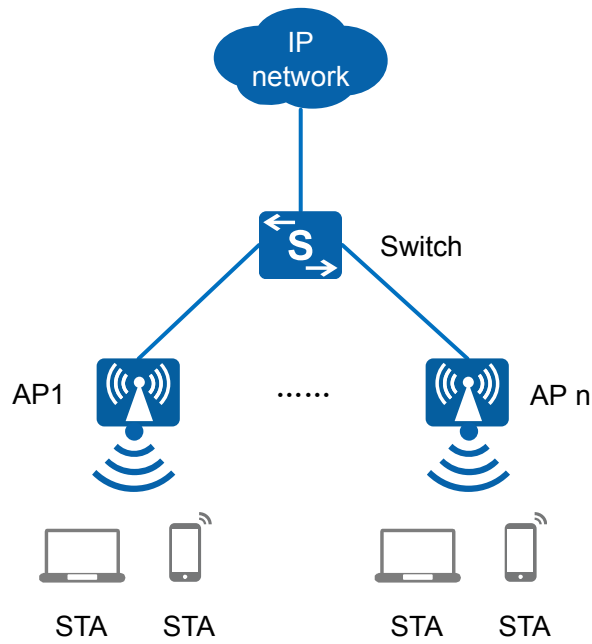In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting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

Figure 3-12 Fit AP mesh networking
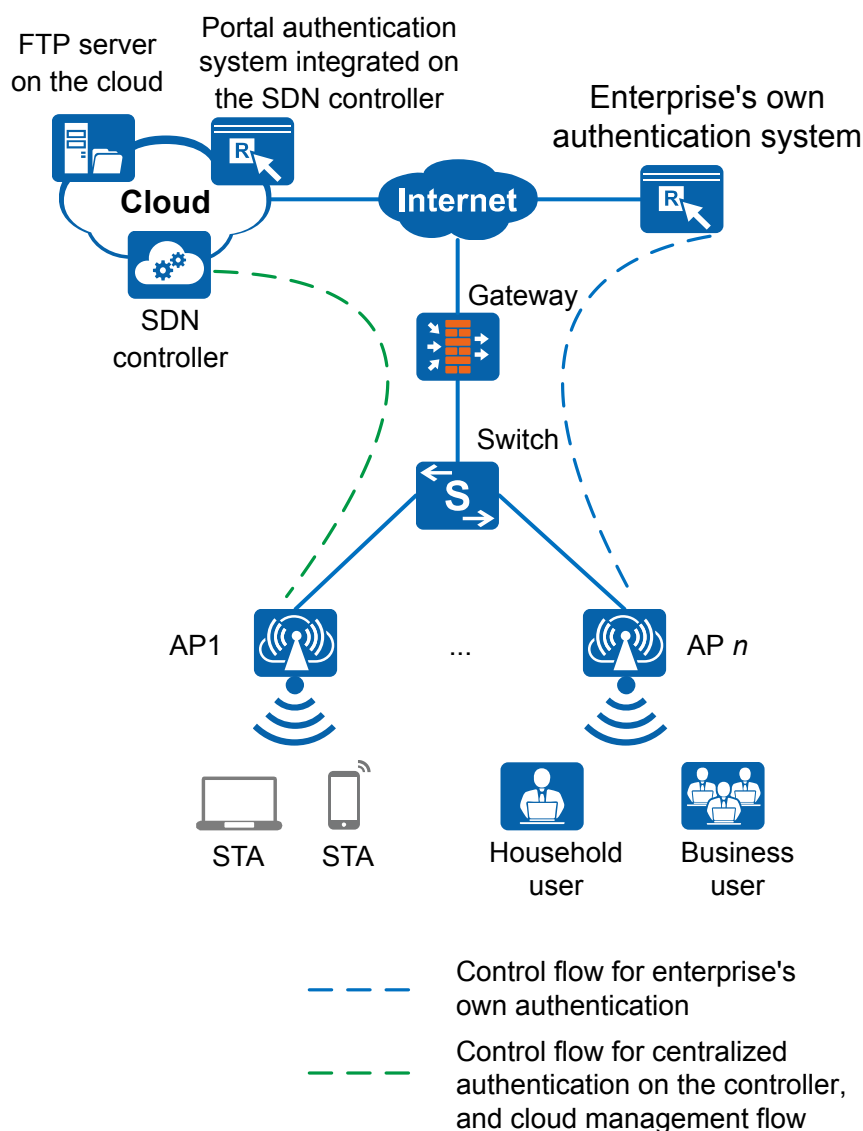
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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 3-13 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 3-14 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.

3.2.3 Hardware Information (AP8130DN)

Appearance

Figure 3-15 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 3-15 AP appearance
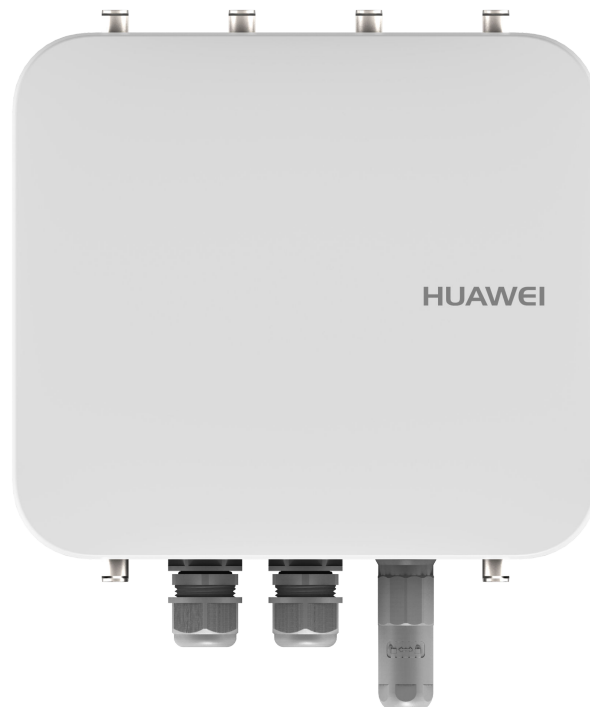
⚠ CAUTION

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 AP.

Figure 3-16 Interfaces on the AP

1. GE0/PoE interface: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. GE1 interface: 10/100/1000M port that connects to the wired Ethernet.

3. SFP: Optical port that supports the 100M/1000M optical module.

4. 5G: Connects a 5 GHz antenna to the AP to send and receive wireless signals. The port type is N-type female.

5. 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 N-type female.

6. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

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

 NOTE

> The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

8. Security slot: Connects to a security lock.

9. Device ground screw: Connects the device to a ground cable.

10. Ground screw for the surge protective device: Connects the AP to the ground point of an external surge protective device.

LED Indicators

The AP8130DN provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

 NOTE

> Indicator colors may vary slightly at different temperature.
>
> Indicators of the same type have the same state meanings.

Table 3-9 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-10 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.

Type	Color	Status	Description
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless indicators consist of Wireless0 and Wireless1, showing wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces respectively.

Table 3-11 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-12 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.

Color	Status	Description
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

☐ NOTE

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.
- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.
  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.
  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.
  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-13 Basic specifications of the AP8130DN

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 290 mm x 260 mm (3.94 in. x 11.42 in. x 10.24 in.)
	Weight	4.0 kg
	System memory	- 256 MB DDR3 - 64 MB Flash
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at

Item		Description
	Maximum power consumption	22.4 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°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	0% to 100% (non-condensing)
	IP rating	IP67
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-14 Radio specifications

Item	Description
Antenna type	Outdoor external antenna
Maximum number of users	● Fit AP mode: ≤ 256 ● Fat AP mode: ≤ 64 ● Cloud AP mode: ≤ 256
Maximum number of VAPs for each radio	16
Maximum transmit power	● 2.4 GHz: 28 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
			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 450 Mbit/s ● 802.11ac: 6.5 to 1300 Mbit/s		

3.2.4 Performance Specifications (AP8130DN)

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**.

3.3 AP8050DN and AP8150DN Product Description

3.3.1 Product Characteristics (AP8050DN and AP8150DN)

Huawei AP8050DN and AP8150DN are dual-band wireless access points (APs) that support 802.11ac Wave 2, 2 x 2 MU-MIMO, and two spatial streams. The APs are physically hardened and offer enhanced outdoor coverage performance. They can operate at both the 2.4 GHz and 5 GHz frequencies and support the wireless bridge function. They have built-in Bluetooth and comply with IEEE 802.11a/b/g/n/ac. Their ability to operate at both 2.4 GHz and 5 GHz allows more access and provides gigabit-level wireless outdoor bandwidth. 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 meet outdoor network requirements. It is applicable to coverage scenarios (for example, densely-populated stadiums, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul).

- 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

- AP8150DN: 2.4G-to-5G switchover, with a device rate of up to 1.73 Gbit/s in dual-5G mode In addition, one AP can provide high-performance wireless bridging and relay functions, reducing costs and improving device installation efficiency.

- Built-in 5 kA surge protectors; no external surge protection device required, simplifying installation and reducing costs

- High-grade metal materials and an overall heat dissipation design, working temperature ranging from –40°C to +65°C, 6 kA or 6 kV surge protection capability on an Ethernet interface, and IP68 waterproof and dustproof, meeting industry-level requirements

- Built-in Bluetooth to extend Bluetooth-based 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

3.3.2 Usage Scenarios (AP8050DN and AP8150DN)

The AP8050DN and AP8150DN can work as a Fat AP, Fit AP, or cloud AP. They can switch flexibly among three working modes based on the network plan.
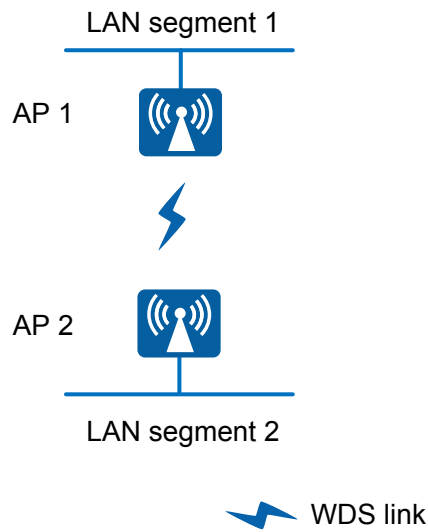
Typical networking modes are as follows:

Figure 3-17 Fit AP networking (AP mode)
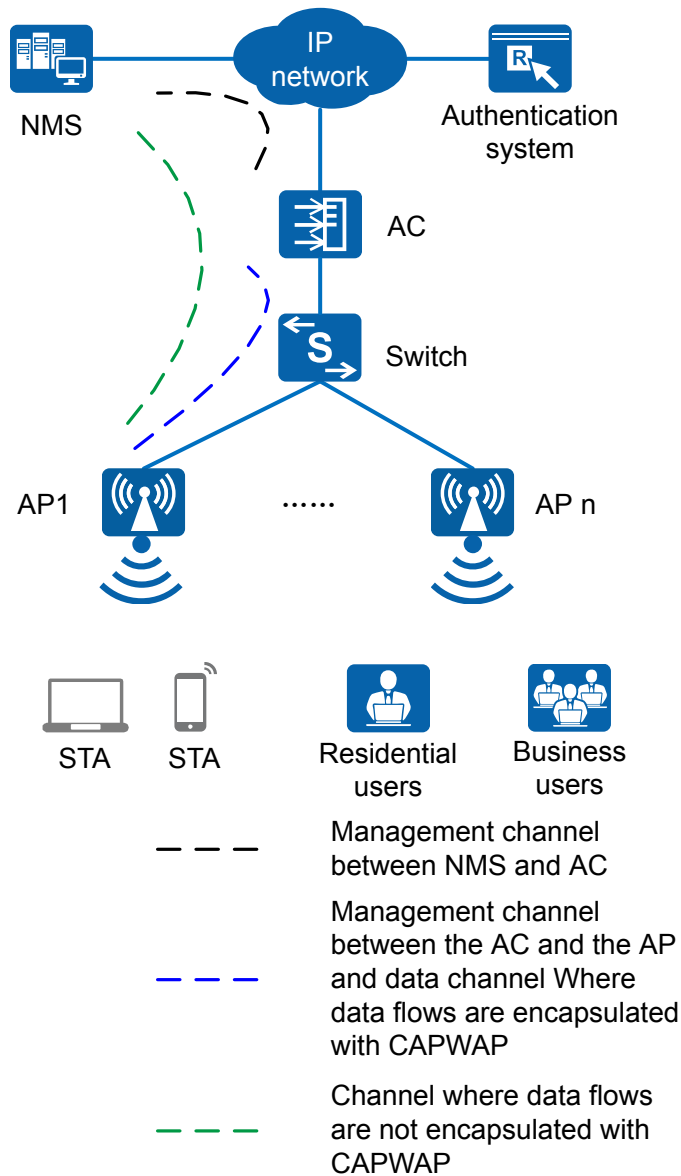
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 3-18 Fit AP networking (WDS mode: point-to-point)

LAN segment 1

AP 1

AP 2

LAN segment 2

WDS link

Figure 3-19 Fit AP networking (WDS mode: point-to-multipoint)
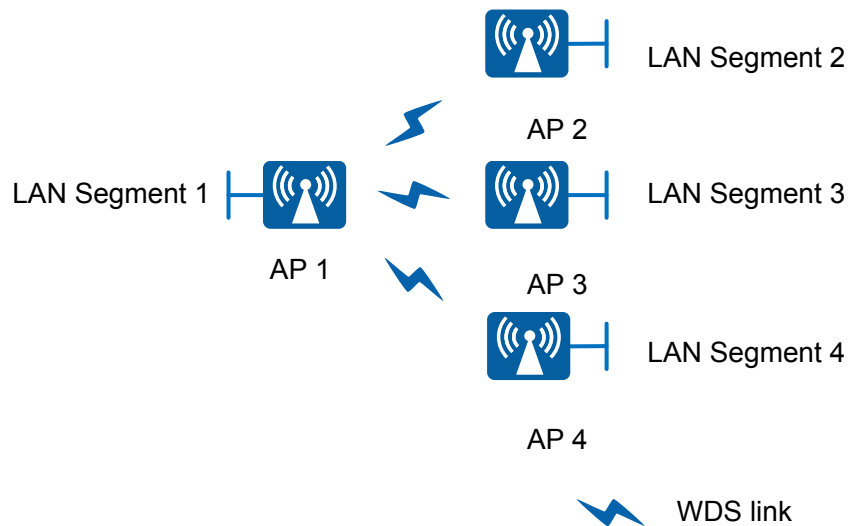
LAN Segment 2

AP 2

LAN Segment 1

LAN Segment 3

AP 1

AP 3

LAN Segment 4

AP 4

WDS link

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 3-20 Fit AP mesh networking
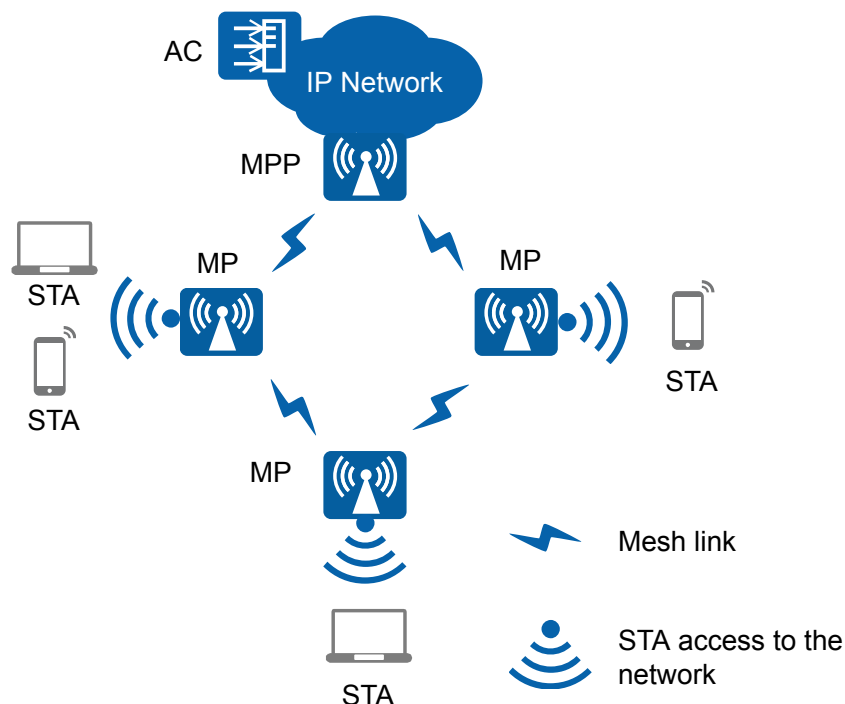
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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 3-21 Fat AP networking
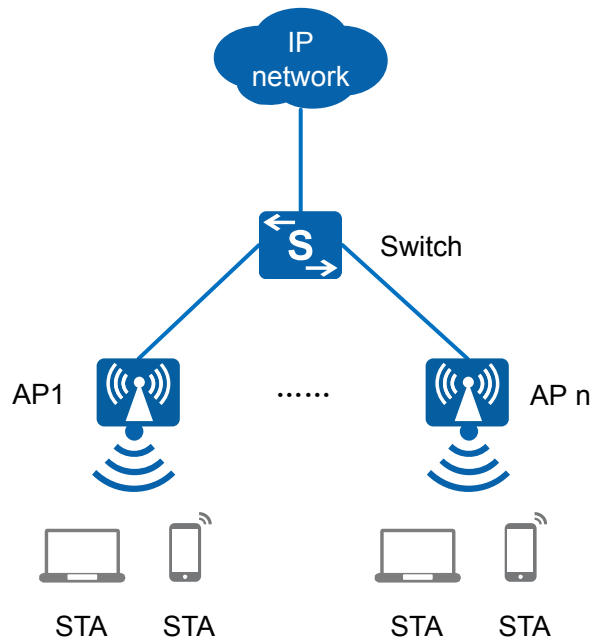
In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 3-22 Cloud AP networking
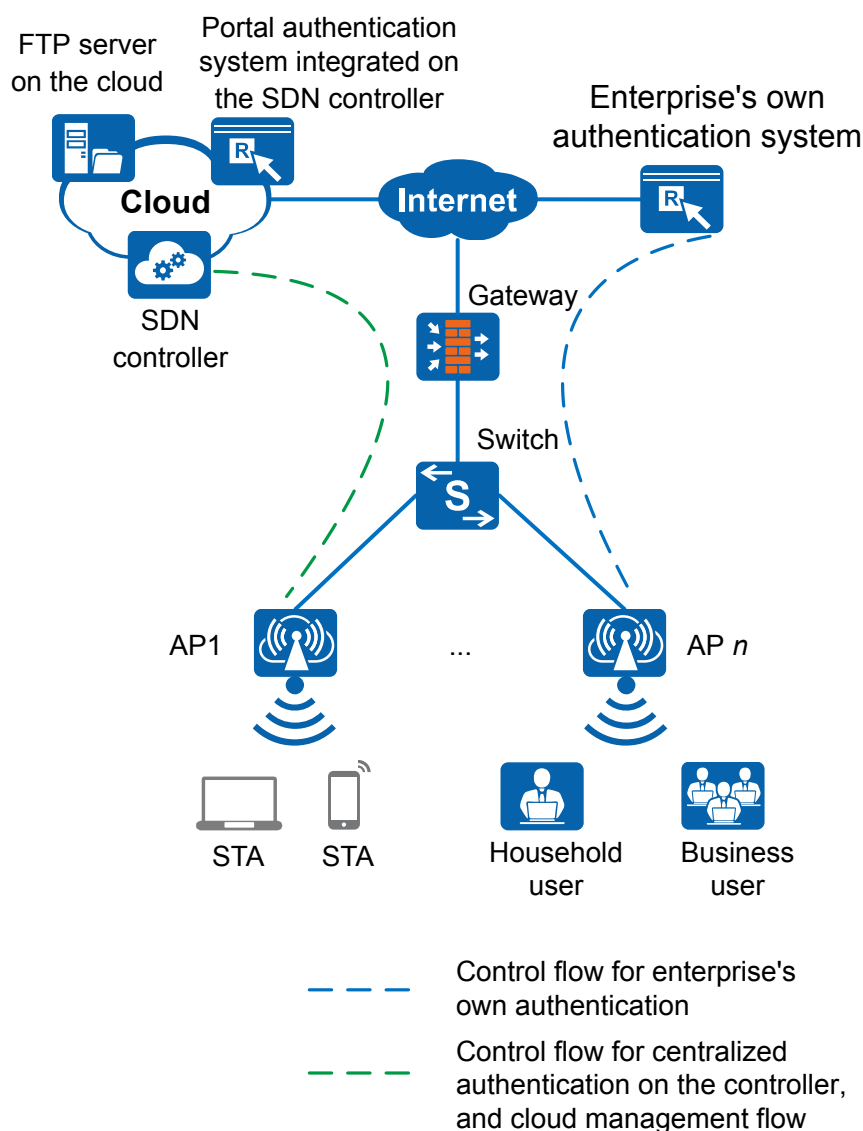
In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

3.3.3 Hardware Information (AP8050DN)

Appearance

Figure 3-23 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 3-23 AP 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 AP.

Figure 3-24 Interfaces on the AP

1. GE0/PoE: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. Device ground screw: Connects the device to a ground cable.

3. GE1: 10/100/1000M port that connects to the wired Ethernet.

4. SFP: Optical port that supports the 100M/1000M optical module.

5. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

6. Security slot: Connects to a security lock.

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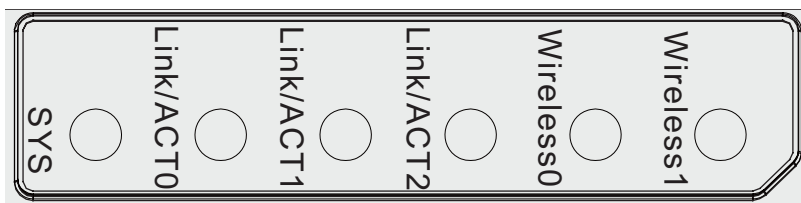
☐ NOTE

The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

 NOTE

Indicator colors may vary slightly at different temperature.

Indicators of the same type have the same state meanings.

SYS Link/ACT0 Link/ACT1 Link/ACT2 Wireless0 Wireless1

Table 3-15 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-16 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless indicators consist of Wireless0 and Wireless1, showing wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces respectively.

Table 3-17 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-18 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

📖 **NOTE**

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.

- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.

  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.

  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.

  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-19 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 220 mm x 220 mm (3.94 in. x 8.66 in. x 8.66 in.)
	Weight	2 kg
	System memory	256 MB DDR3L
	FLASH	4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at
	Maximum power consumption	18 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C

Item		Description
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-20 Radio specifications

Item	Description
Antenna type	Built-in directional antenna • Horizontal beamwidth: 60 degrees • Vertical beamwidth: 30 degrees
Antenna gain	• 2.4 GHz: 10 dBi • 5 GHz: 10 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: 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
			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 400 Mbit/s ● 802.11ac: 6.5 to 867 Mbit/s		

3.3.4 Hardware Information (AP8150DN)

Appearance

Figure 3-25 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.
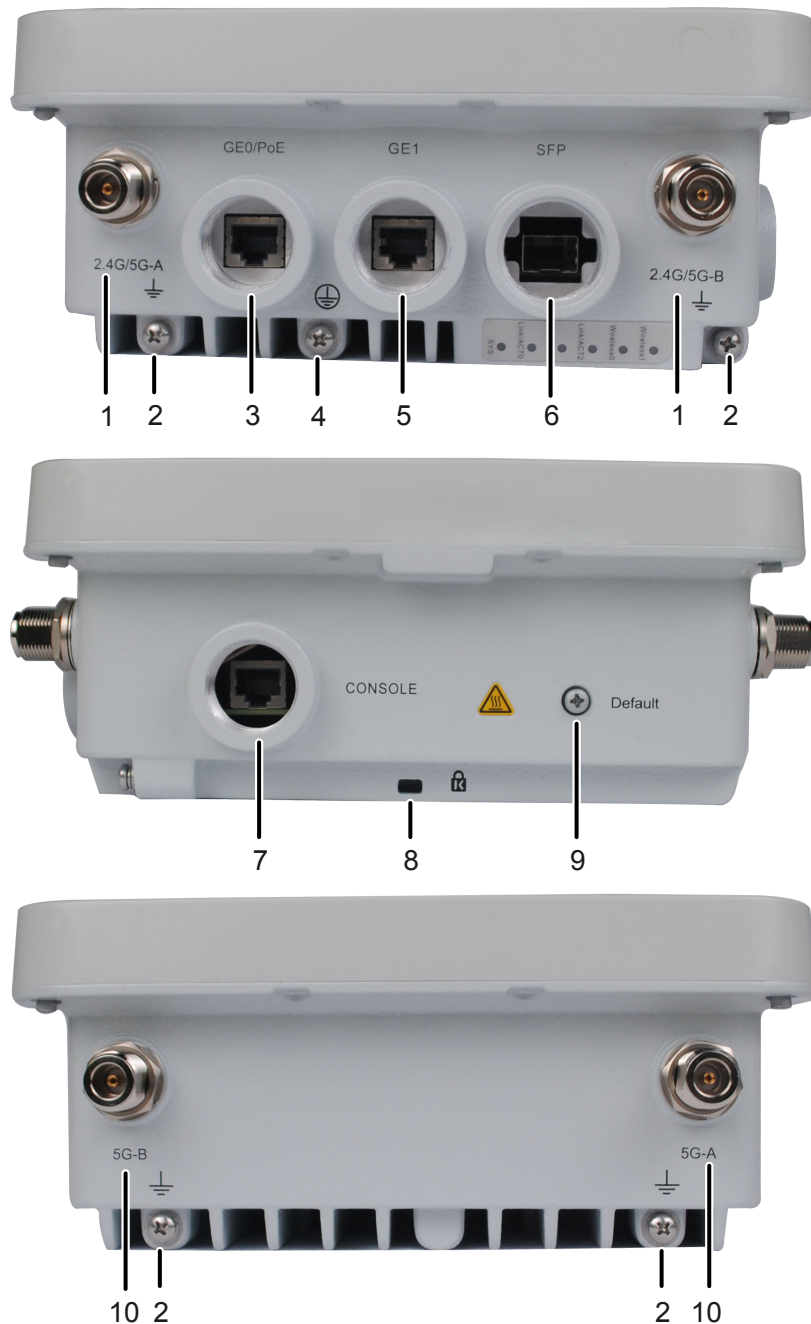
Figure 3-25 AP appearance

⚠ 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 AP.

Figure 3-26 Interfaces on the AP

1. 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 N-type female.

2. Ground screw for the surge protective device:Connects the AP to the ground point of an external surge protective device.

3. GE0/PoE: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

4. Device ground screw: Connects the device to a ground cable.

5. GE1: 10/100/1000M port that connects to the wired Ethernet.

6. SFP: Optical port that supports the 100M/1000M optical module.

7. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

8. Security slot: Connects to a security lock.

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

☐ **NOTE**

The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

10. 5G: Connects a 5 GHz antenna to the AP to send and receive wireless signals. The port type is N-type female.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

☐ **NOTE**

Indicator colors may vary slightly at different temperature.

Indicators of the same type have the same state meanings.
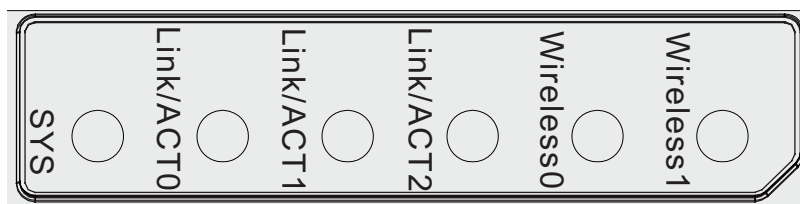
Table 3-21 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-22 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless indicators consist of Wireless0 and Wireless1, showing wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces respectively.

Table 3-23 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-24 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

　　　 NOTE

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.

- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.

  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.

  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.

  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-25 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 220 mm x 220 mm (3.94 in. x 8.66 in. x 8.66 in.)
	Weight	1.95 kg
	System memory	256 MB DDR3L
	FLASH	4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at
	Maximum power consumption	18 W **NOTE** 　The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C

Item		Description
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-26 Radio specifications

Item	Description
Antenna type	Outdoor external 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: 27 dBm (combined power) 5 GHz: 24 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*.
			
			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 400 Mbit/s ● 802.11ac: 6.5 to 867 Mbit/s		

3.3.5 Performance Specifications (AP8050DN and AP8150DN)

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**.

3.4 AP8050DN-S Product Description

3.4.1 Product Characteristics (AP8050DN-S)

Huawei AP8050DN-S is a dual-band wireless access point (AP) that supports 802.11ac Wave 2, 2 x 2 MU-MIMO, and two spatial streams. The AP is physically hardened and offers enhanced outdoor coverage performance. It can operate at both the 2.4 GHz and 5 GHz frequencies and support the wireless bridge function. It has a built-in Bluetooth and complies with IEEE 802.11a/b/g/n/ac. Its ability to operate at both 2.4 GHz and 5 GHz allows more access and provides gigabit-level wireless outdoor bandwidth. 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 meet outdoor network requirements. It is applicable to coverage scenarios (for example, densely-populated stadiums, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul).

- 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 5 kA surge protectors; no external surge protection device required, simplifying installation and reducing costs

- High-grade metal materials and an overall heat dissipation design, working temperature ranging from –40°C to +65°C, 6 kA or 6 kV surge protection capability on an Ethernet interface, and IP68 waterproof and dustproof, meeting industry-level requirements

- Built-in Bluetooth to extend Bluetooth-based 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

3.4.2 Usage Scenarios (AP8050DN-S)

The AP8050DN-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 3-27 Fit AP networking (AP mode)
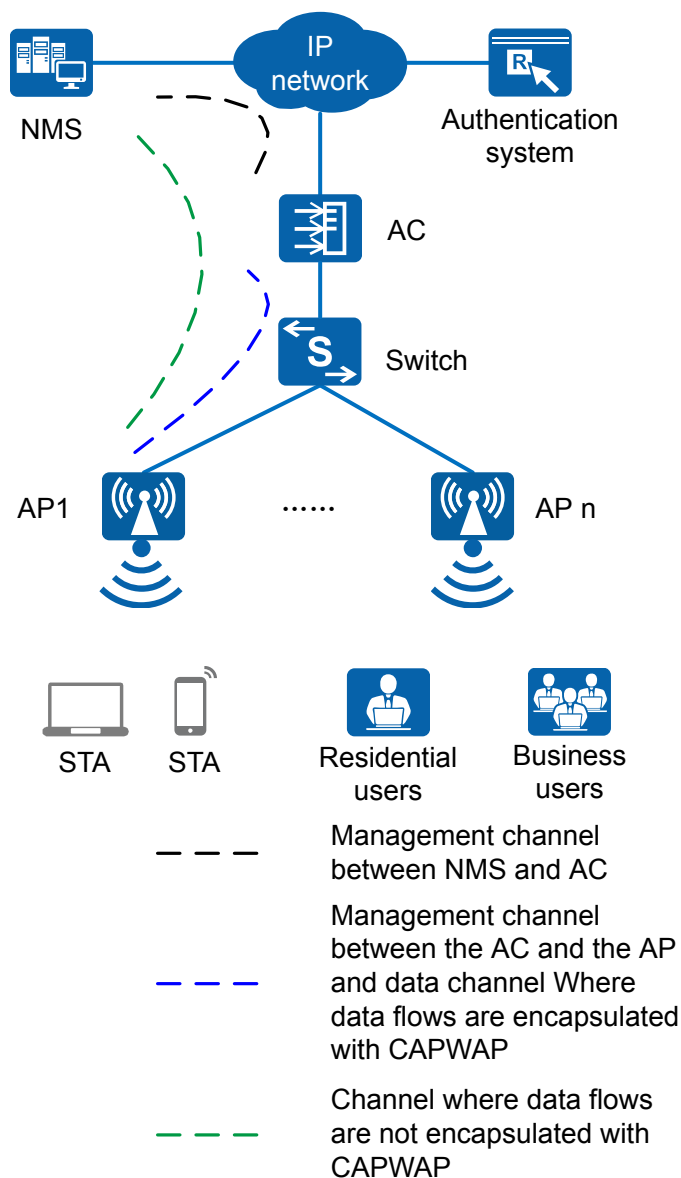
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

Figure 3-28 Fit AP networking (WDS mode: point-to-point)
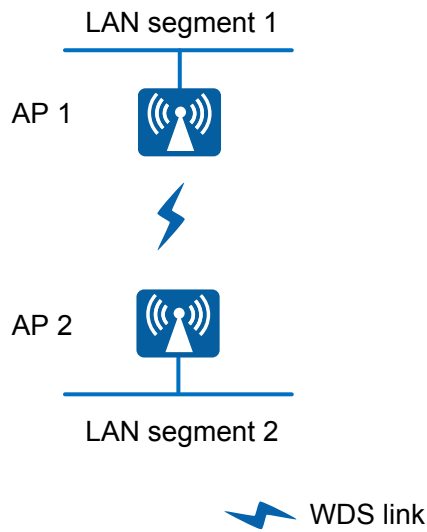
Figure 3-29 Fit AP networking (WDS mode: point-to-multipoint)
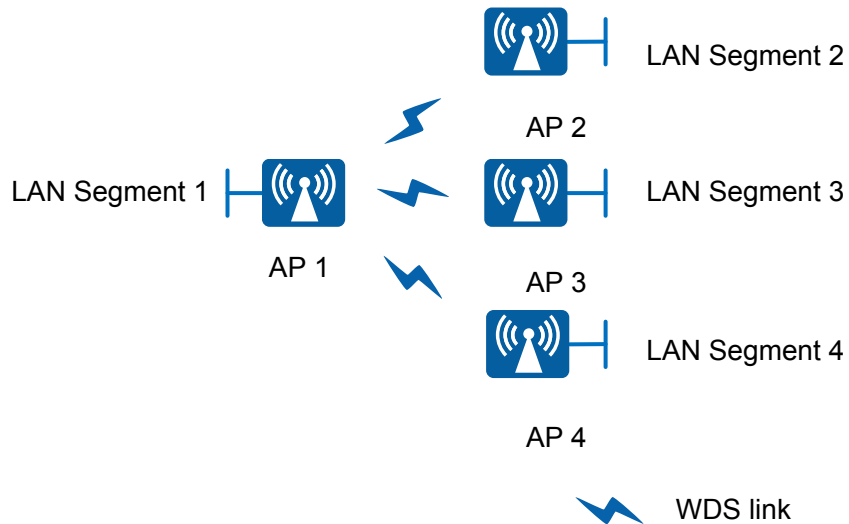
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 3-30 Fit AP mesh networking
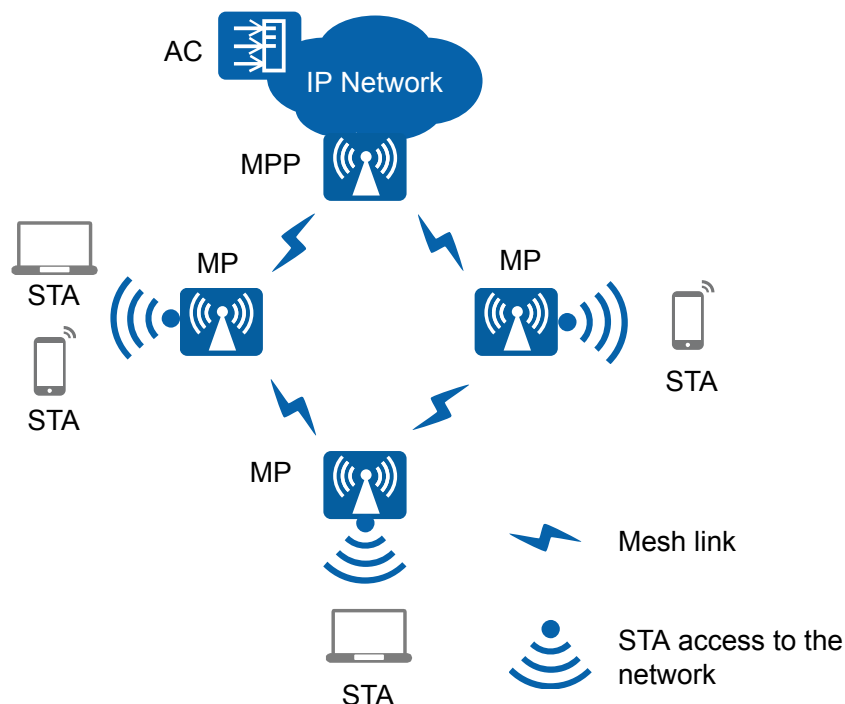
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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 3-31 Fat AP networking
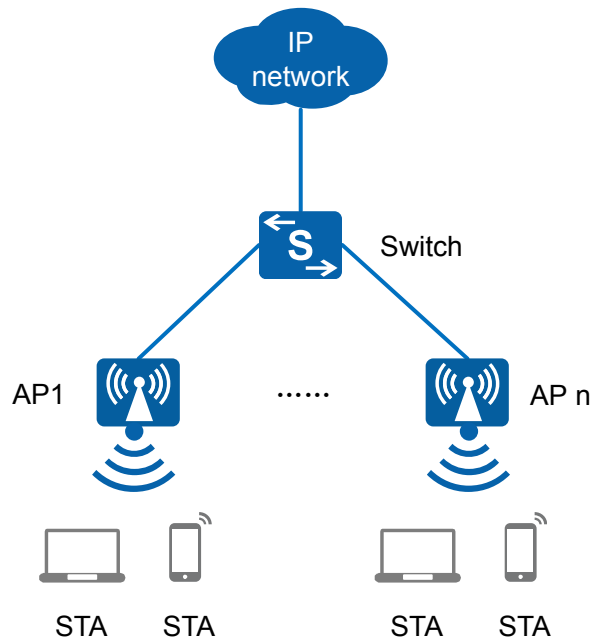
In this networking, the device functions as a Fat AP to implement functions such as user access, authentication, data security, service forwarding, and QoS.

Figure 3-32 Cloud AP networking
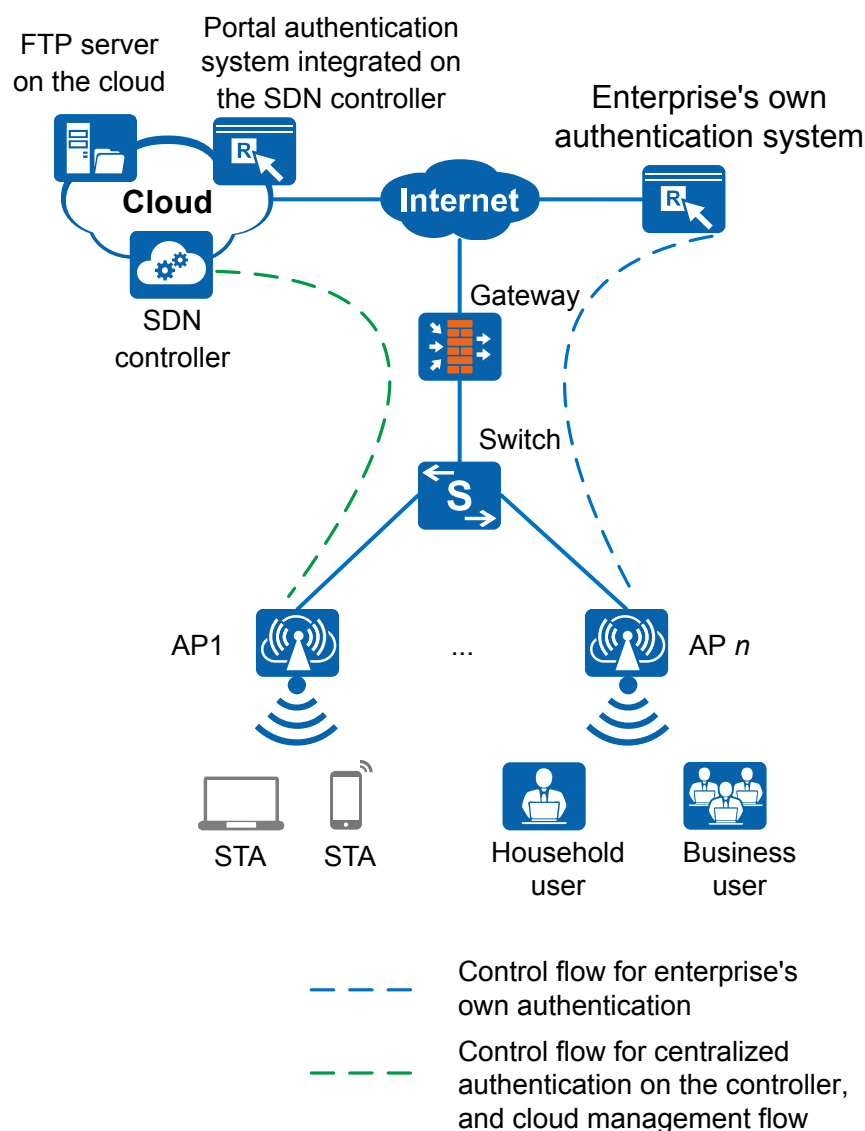
In this networking, the device functions as a cloud AP and works with the SDN controller on the same cloud for user access, AP going-online, authentication, routing, AP management, security, and QoS. An enterprise can choose to use the Portal authentication server integrated in the SDN controller or the authentication server deployed by itself.

3.4.3 Hardware Information (AP8050DN-S)

Appearance

Figure 3-33 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 3-33 AP 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 AP.

Figure 3-34 Interfaces on the AP

1. GE0/PoE: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. Device ground screw: Connects the device to a ground cable.

3. GE1: 10/100/1000M port that connects to the wired Ethernet.

4. SFP: Optical port that supports the 100M/1000M optical module.

5. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

6. Security slot: Connects to a security lock.

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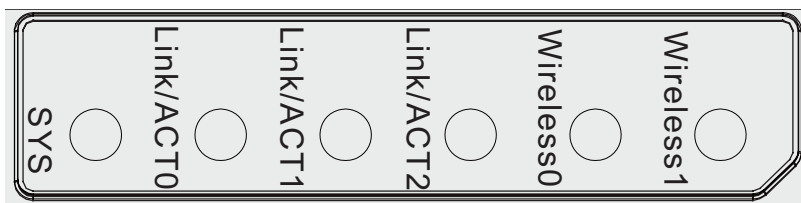
☐ NOTE

The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

📖 **NOTE**

Indicator colors may vary slightly at different temperature.

Indicators of the same type have the same state meanings.

Table 3-27 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-28 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless indicators consist of Wireless0 and Wireless1, showing wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces respectively.

Table 3-29 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-30 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

📖 **NOTE**

> When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:
>
> - If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.
>
> - If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.
>
>   - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.
>
>   - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.
>
>   - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.
>
> **wifi-light traffic**: allows the Wireless indicator to reflect the service traffic volume on the radio.
>
> When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-31 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 220 mm x 220 mm
	Weight	2 kg
	System memory	256 MB DDR3L
	FLASH	4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at
	Maximum power consumption	18 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C

Item		Description
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-32 Radio specifications

Item	Description
Antenna type	Built-in directional antenna ● Horizontal beamwidth: 60 degrees ● Vertical beamwidth: 30 degrees
Antenna gain	● 2.4 GHz: 10 dBi ● 5 GHz: 10 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: 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	**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 400 Mbit/s ● 802.11ac: 6.5 to 867 Mbit/s		

3.4.4 Performance Specifications (AP8050DN-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**.

3.5 AP8050TN-HD Product Description

3.5.1 Product Characteristics (AP8050TN-HD)

Huawei AP8050TN-HD is an 802.11ac Wave 2 wireless access point (AP) designed for high-density scenarios such as stadiums and outdoor courts. The AP 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; and the 5 GHz radios both support 2x2 MIMO and two spatial streams. The entire AP supports six spatial streams and a maximum rate of 2.134 Gbit/s. The ruggedized AP8050TN-HD provides excellent coverage performance, has built-in Bluetooth, and complies with 802.11a/b/g/n/ac. The AP8050TN-HD can provide services simultaneously on the 2.4 GHz and 5 GHz

frequency bands to support more access users and provide gigabit access for wireless users. 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. The AP8050TN-HD has built-in high-density smart antennas that provide more accurate coverage, applicable to high-density scenarios.
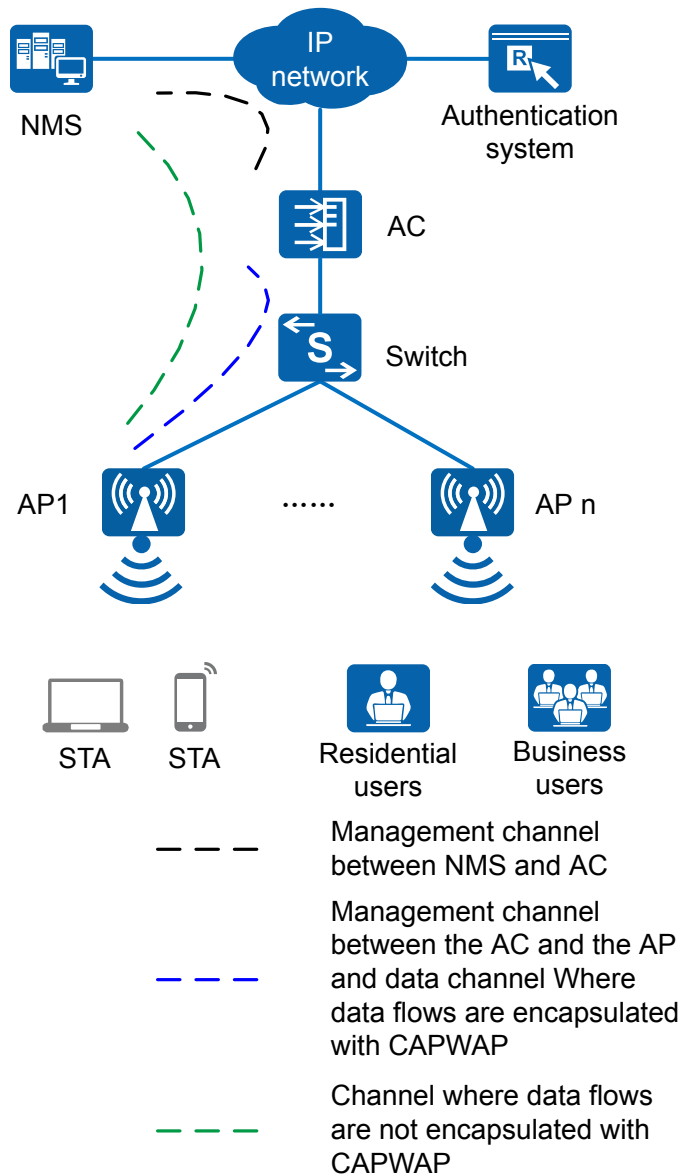
- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on both 2.4 GHz and 5 GHz frequency bands; 400 Mbit/s at 2.4 GHz; 867 Mbit/s+867 Mbit/s at 5 GHz; and 2.134 Gbit/s for the device.
- Built-in 5 kA surge protectors; no additional surge protection device required. This design simplifies installation and saves costs.
- Uses a metal shell and heat dissipation design, and provides 6 kA or 6 kV surge protection capability on an Ethernet interface, and IP68 rating, meeting industry-level use requirements.
- Provides a built-in Bluetooth module to extend Bluetooth-based applications.
- 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.

3.5.2 Usage Scenarios (AP8050TN-HD)

The AP8050TN-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.
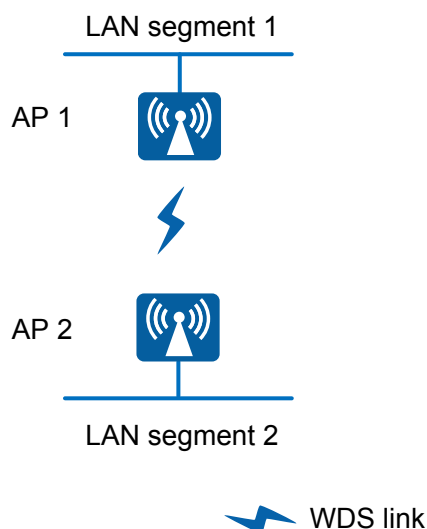
Typical networking modes are as follows:

Figure 3-35 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 3-36 Fit AP networking (WDS mode: point-to-point)

LAN segment 1

AP 1

AP 2

LAN segment 2

WDS link

Figure 3-37 Fit AP networking (WDS mode: point-to-multipoint)
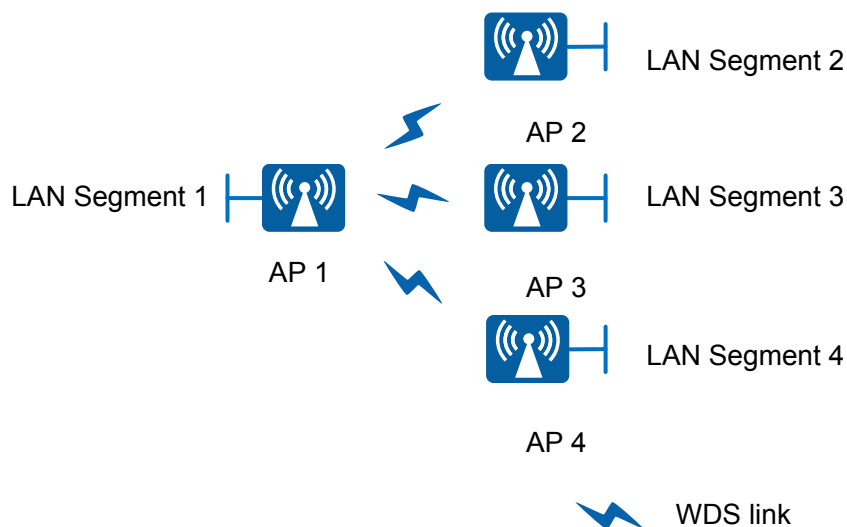
LAN Segment 2

AP 2

LAN Segment 1

LAN Segment 3

AP 1

AP 3

LAN Segment 4

AP 4

WDS link

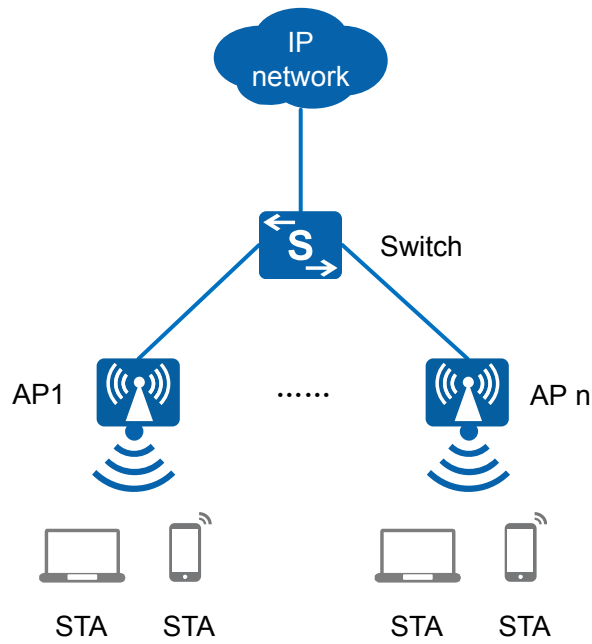In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting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

Figure 3-38 Fit AP mesh networking
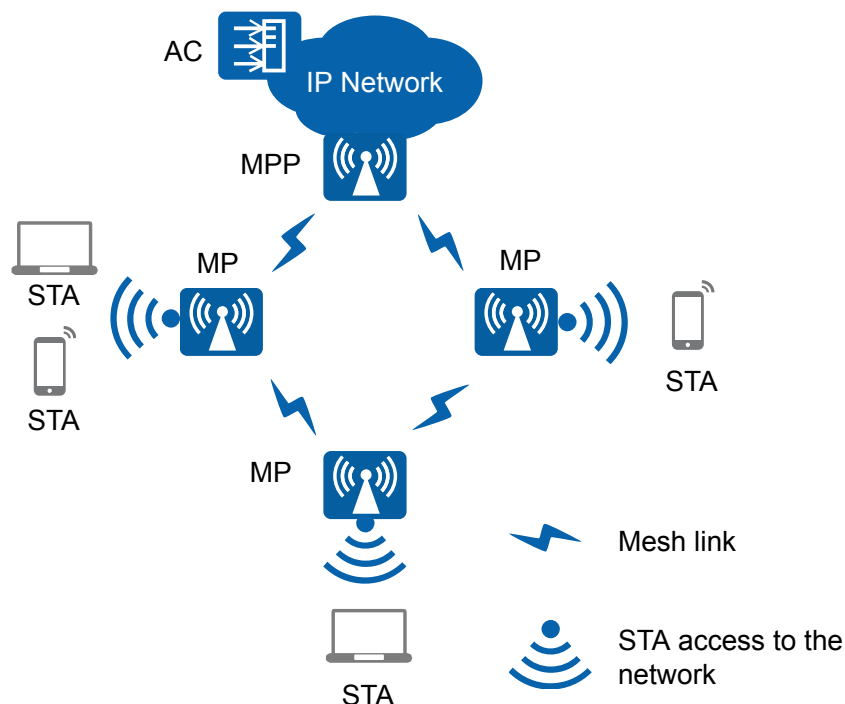
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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 3-39 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 3-40 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.

3.5.3 Hardware Information (AP8050TN-HD)

Appearance

Figure 3-41 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 3-41 AP 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 AP.

Figure 3-42 Interfaces on the AP

1. GE0/PoE: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. Device ground screw: Connects the device to a ground cable.

3. GE1: 10/100/1000M port that connects to the wired Ethernet.

4. SFP: Optical port that supports the 100M/1000M optical module.

5. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

6. Security slot: Connects to a security lock.

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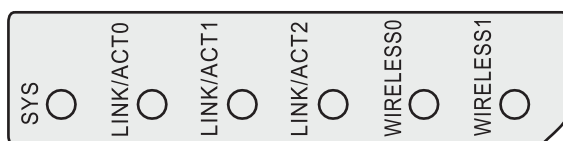
NOTE

The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

Indicator colors may vary slightly at different temperature.

SYS Indicator

Table 3-33 Descriptions about the SYS indicator

Indicat or	Name	Color	Status	Description
SYS	System indicato r	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.

Indicator	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.

Link/ACT Indicators

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing the link status of interfaces GE0/PoE, GE1, SFP respectively.

Table 3-34 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless Indicators

Wireless indicators consist of Wireless0 and Wireless1, showing the wireless link status of the 2.4/5 GHz and 5 GHz radio interfaces, respectively.

Table 3-35 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Color	Status	Description
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-36 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

☐☐ **NOTE**

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.

- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.

  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.

  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.

  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-37 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 320 mm x 320 mm
	Weight	3.23 kg
	System memory	512 MB DDR3L
	FLASH	4 MB NOR FLASH + 128 MB NAND FLASH
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at/af
	Maximum power consumption	802.3at power supply: 19.4 W 802.3af power supply: 12.95 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C

Item		Description
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-38 Radio specifications

Item	Description

Antenna type	Built-in directional antenna
	● 2.4 GHz:
	  – Horizontal beamwidth: 40 degrees
	  – Vertical beamwidth: 40 degrees
	● 5 GHz
	  – Horizontal beamwidth: 27 degrees
	  – Vertical beamwidth: 27 degrees

Antenna gain	● 2.4 GHz: 7 dBi ● 5 GHz (Radio 1): 9 dBi ● 5 GHz (Radio 2): 9 dBi
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 number of VAPs for each radio	16
Maximum transmit power	● 2.4 GHz: 21 dBm (combined power) ● 5 GHz (5150 MHz to 5350 MHz): 20 dBm (combined power) ● 5 GHz (5490 MHz to 5850 MHz): 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 (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	● 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		

3.5.4 Performance Specifications (AP8050TN-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**.

3.6 AP8082DN and AP8182DN Product Description

3.6.1 Product Characteristics (AP8082DN and AP8182DN)

Huawei AP8082DN and AP8182DN are latest-generation 802.11ac Wave 2 outdoor access points (APs) that support 4x4 MU-MIMO and four spatial streams and offer high flexibility with IEEE 802.11a/b/g/n/ac compliance. Both APs are physically hardened and feature enhanced outdoor coverage performance. The AP8082DN and AP8182DN can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users and provide gigabit access for wireless users in outdoor scenarios. The AP8082DN and AP8182DN 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 meet outdoor network requirements. They are recommended for use in coverage scenarios, for example, high-density stadiums, squares, pedestrian streets, and amusement parks.

- 802.11ac Wave 2 compliance, MU-MIMO, delivering services simultaneously on both 2.4 GHz and 5 GHz frequency bands; 800 Mbit/s at 2.4 GHz; 1.73 Gbit/s at 5 GHz; and 2.53 Gbit/s for the device.

- The AP8182DN supports 2.4G-to-5G radio switching. When working at dual 5 GHz frequency bands simultaneously, the AP8182DN provides a system rate of 3.46 Gbit/s.

- Built-in 5 kA surge protectors; no additional surge protection device required. This design simplifies installation and saves costs.

- Uses a metal shell and heat dissipation design, and provides 6 kA or 6 kV surge protection capability on an Ethernet interface, and IP68 rating, meeting industry-level use requirements.

- 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.
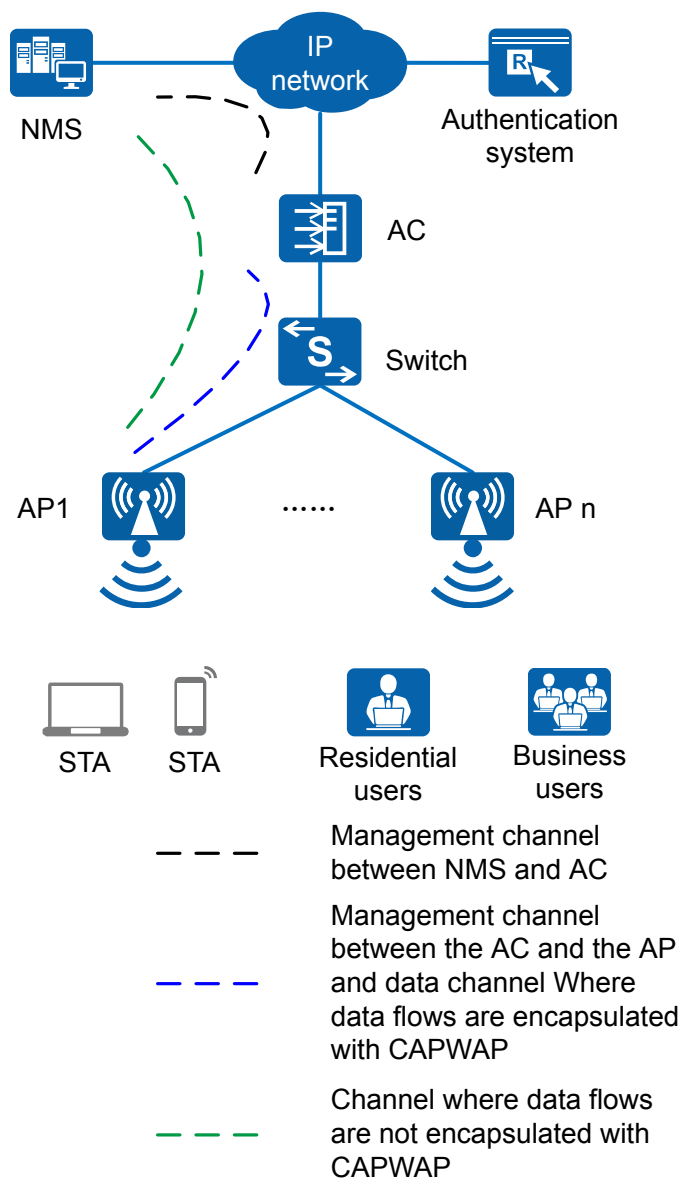
3.6.2 Usage Scenarios (AP8082DN and AP8182DN)

The AP8082DN and AP8182DN can work as a Fat AP, Fit AP, or cloud AP. They can switch flexibly among three working modes based on the network plan.

Typical networking modes are as follows:

Figure 3-43 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 3-44 Fit AP networking (WDS mode: point-to-point)
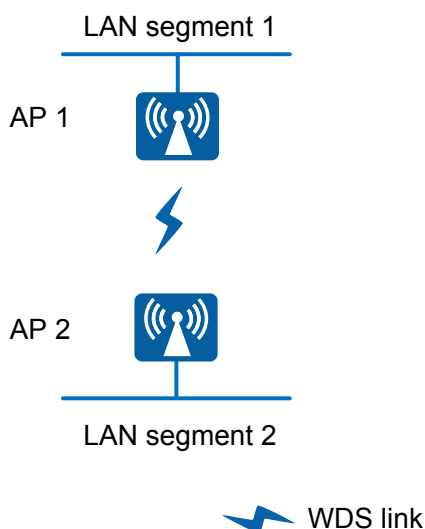
Figure 3-45 Fit AP networking (WDS mode: point-to-multipoint)
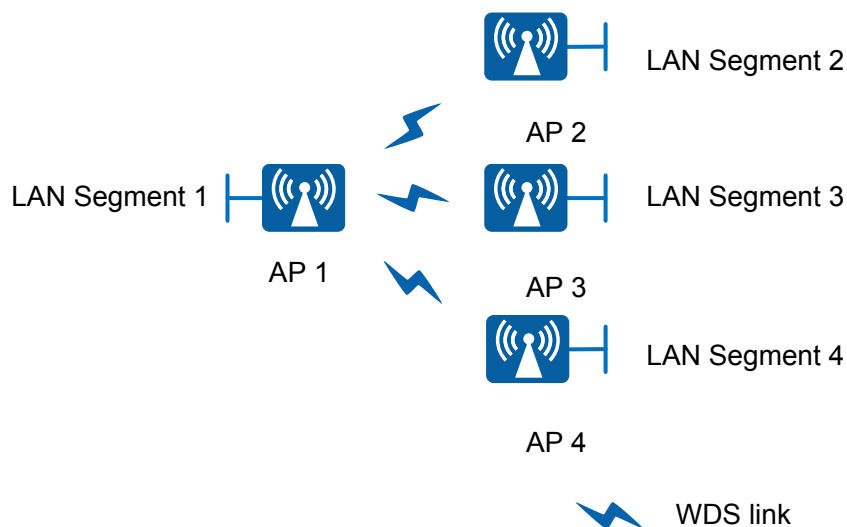
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 3-46 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 3-47 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 3-48 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.

3.6.3 Hardware Information (AP8082DN)

Appearance

Figure 3-49 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 3-49 AP 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 AP.

Figure 3-50 Interfaces on the AP

1. GE/PoE_OUT:10/100/1000M port that connects to the wired Ethernet and supports PoE output.

2. 5GE/PoE_IN: 100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.

3. Device ground screw: Connects the device to a ground cable.

4. Security slot: Connects to a security lock.

5. SFP: Optical port that supports the 100M/1000M optical module.

6. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

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

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

□ NOTE

Indicator colors may vary slightly at different temperature.
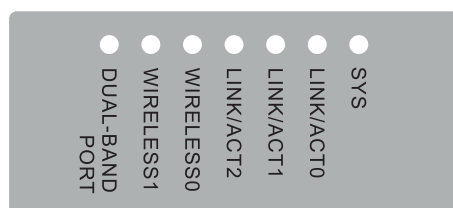
SYS Indicator

Table 3-39 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT Indicators

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing the link status of interfaces GE/PoE_OUT, 5GE/PoE_IN, SFP respectively.

Table 3-40 Description about the Link/ACT indicators

Type	Color	Status	Description
The AP serves as a PSE to supply	Green	Steady on	The Ethernet connection is normal, and no data is being transmitted. The PoE OUT function is available.

Type	Color	Status	Description
power to PDs through the PoE_OUT port.		Blinking	The Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted. The PoE OUT function is available.
	Yellow	Steady on	The Ethernet connection fails, and the PoE OUT function is unavailable.
		Off	The Ethernet connection fails, and the PoE OUT function is available.
		Blinking	The Ethernet connection fails, and the PoE OUT function is faulty.
The AP does not provide the PoE OUT function to supply power to PDs.	Green	Steady on	The Ethernet connection is normal, and no data is being transmitted.
		Blinking	The Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless Indicators

Wireless indicators consist of Wireless0 and Wireless1, showing the wireless link status of the 2.4/5 GHz and DUAL-BAND/5G radio interfaces respectively.

Table 3-41 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Color	Status	Description
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-42 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

☐ **NOTE**

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

● If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.

● If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.

  ● If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.

  ● If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.

  ● If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Basic Specifications

Table 3-43 Basic specifications

Item		Description
Technical specifications	Dimensions (length x diameter)	387 mm x Φ165 mm (15.24 in. x Φ6.50 in.)
	Weight	3.9 kg
	System memory	1 GB DDR4
	Flash	16 MB NOR Flash + 128 MB NAND Flash
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at/bt
	Maximum power consumption	● 802.3bt power supply: 45 W (excluding the output power of the PoE_OUT port, 5GE and SFP are mutually exclusive.) ● 802.3at power supply: 25.5 W (The PoE_OUT function and GE/POE_OUT ports are unavailable, 5GE and SFP are mutually exclusive.) **NOTE** ● The actual maximum power consumption depends on local laws and regulations. ● In 802.3at power supply mode, the radio power is reduced, and the 2.4 GHz radio works in 2x4 MIMO mode.
Environment specifications	Operating temperature	-60 m to +1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-44 Radio specifications

Item	Description		
Antenna type	AP8082DN: Built-in directional antenna • Horizontal beamwidth: 60 degrees • Vertical beamwidth: 30 degrees		
Antenna gain	• 2.4 GHz: 7 dBi • 5 GHz: 7 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	AP8082DN: • 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	**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	● 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 1733.3 Mbit/s

3.6.4 Hardware Information (AP8182DN)

Appearance

Figure 3-51 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 3-51 AP 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 AP.

Figure 3-52 Interfaces on the AP

1. GE/PoE_OUT:10/100/1000M port that connects to the wired Ethernet and supports PoE output.

2.   5GE/PoE_IN: 100M/1000M/2.5G/5G port that connects to the wired Ethernet and supports PoE input.

3.   Device ground screw: Connects the device to a ground cable.

4.   Security slot: Connects to a security lock.

5.   SFP: Optical port that supports the 100M/1000M optical module.

6.   CONSOLE: Connects to a maintenance terminal for AP configuration and management.

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

8.   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 N-type female.

9.   DUAL-BAND/5G: Connects a 2.4GHz/5GHz dual-band antenna or 5 GHz antenna to the AP to send and receive wireless signals.The port type is N-type female.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link/ACT indicator, and Wireless indicator. The following table describes indicators on AP.

NOTE

Indicator colors may vary slightly at different temperature.
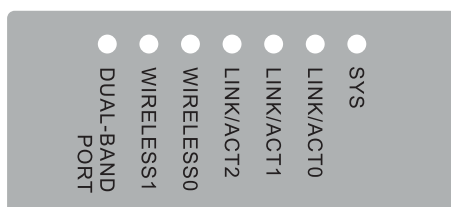
SYS Indicator

Table 3-45 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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.

Link/ACT Indicators

Link/ACT indicators consist of Link/ACT0, Link/ACT1, and Link/ACT2, showing the link status of interfaces GE/PoE_OUT, 5GE/PoE_IN, SFP respectively.

Table 3-46 Description about the Link/ACT indicators

Type	Color	Status	Description
The AP serves as a PSE to supply	Green	Steady on	The Ethernet connection is normal, and no data is being transmitted. The PoE OUT function is available.

Type	Color	Status	Description
power to PDs through the PoE_OUT port.		Blinking	The Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted. The PoE OUT function is available.
	Yellow	Steady on	The Ethernet connection fails, and the PoE OUT function is unavailable.
		Off	The Ethernet connection fails, and the PoE OUT function is available.
		Blinking	The Ethernet connection fails, and the PoE OUT function is faulty.
The AP does not provide the PoE OUT function to supply power to PDs.	Green	Steady on	The Ethernet connection is normal, and no data is being transmitted.
		Blinking	The Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Wireless Indicators

Wireless indicators consist of Wireless0 and Wireless1, showing the wireless link status of the 2.4/5 GHz and DUAL-BAND/5G radio interfaces respectively.

Table 3-47 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Color	Status	Description
Green/yellow	Blinking alternately	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-48 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

NOTE

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.
- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.
  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.
  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.
  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

When an AP functions as a Fat AP, the Wireless indicator of the AP cannot reflect the signal strength.

Dual-Band Port Indicator

The dual-band port indicator shows the wireless link status of 5 GHz radio interfaces.

Table 3-49 Description about the DUAL-BAND PORT indicator

Color	Status	Description
Green	Steady on	The dual-band port function is enabled, and the port is working on dual bands.
	Off	The dual-band port function is disabled, and the port is working on a single band.

Basic Specifications

Table 3-50 Basic specifications

Item		Description
Technical specifications	Dimensions (length x diameter)	387 mm x Φ165 mm (15.24 in. x Φ6.50 in.)
	Weight	3.9 kg
	System memory	1 GB DDR4
	Flash	16 MB NOR Flash + 128 MB NAND Flash
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at/bt
	Maximum power consumption	• 802.3bt power supply: 45 W (excluding the output power of the PoE_OUT port, 5GE and SFP are mutually exclusive.) • 802.3at power supply: 25.5 W (The PoE_OUT function and GE/POE_OUT ports are unavailable, 5GE and SFP are mutually exclusive.) **NOTE** • The actual maximum power consumption depends on local laws and regulations. • In 802.3at power supply mode, the radio power is reduced, and the 2.4 GHz radio works in 2x4 MIMO mode.

Item		Description
Environment specifications	Operating temperature	-60 m to +1800 m: -40°C to +65°C 1800 m to 5000 m: Temperature decreases by 1°C every time the altitude increases 300 m.
	Storage temperature	-40°C to +85°C
	Operating humidity	0% to 100% (non-condensing)
	IP rating	IP68
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-51 Radio specifications

Item	Description
Antenna type	Outdoor external 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	AP8182DN: ● 2.4 GHz: 28 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*. **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 800 Mbit/s ● 802.11ac: 6.5 to 1733.3 Mbit/s		

3.6.5 Performance Specifications (AP8082DN and AP8182DN)

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**.

3.7 AP8130DN-W Product Description

3.7.1 Product Characteristics (AP8130DN-W)

Table 3-52 Product characteristics

Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
AP8130DN-W	Dual band: ● 2.4 GHz ● 5 GHz The AP8130DN-W can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users. It supports 2.4G-to-5G switchover and works on dual 5 GHz frequency bands. The 4.9 GHz frequency band is contained in 5 GHz radios.	IEEE 802.11a/b/g/n/ac	Huawei AP8030DN-W, physically hardened, supports 3x3 MIMO and offers enhanced outdoor coverage performance. The AP can provide services simultaneously on the 2.4 GHz and 5 GHz frequency bands to support more access users. 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 requirements	Huawei AP8130DN-Ws comply with IP67 dustproof and waterproof protection standards, applicable to coverage scenarios (for example, squares, pedestrian streets, and amusement parks) and bridging scenarios (for example, wireless harbors, data backhaul, video surveillance, and train-to-ground backhaul). When working at the 4.9 GHz frequency band, the AP8130DN-W supports only backhaul scenarios.

| Product Model	Frequency Band	IEEE Standards Compliance	Positioning	Usage Scenario
			of outdoor deployment.	

3.7.2 Usage Scenarios (AP8130DN-W)

Typical networking modes are as follows:

Figure 3-53 Fit AP networking (AP mode)
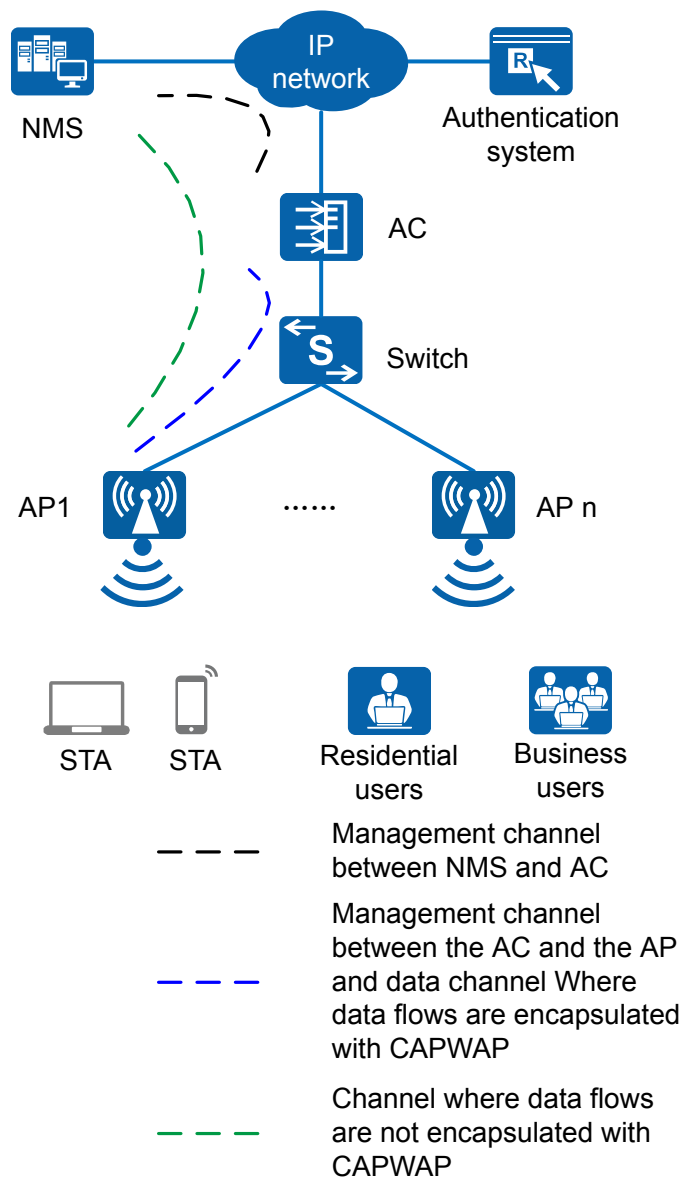
In this networking, the AP functions as a Fit AP. The AC is responsible for user access, AP going-online, AP management, authentication, routing, security, and QoS. For Huawei products that provide the AC function, see **Quick Reference for WLAN AP Version Mapping and Models**.

**Figure 3-54** Fit AP networking (WDS mode: point-to-point)
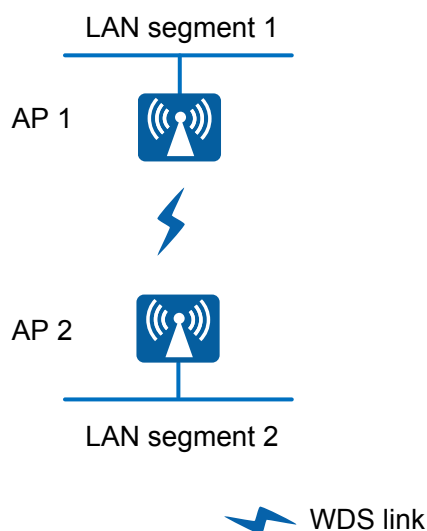
Figure 3-55 Fit AP networking (WDS mode: point-to-multipoint)
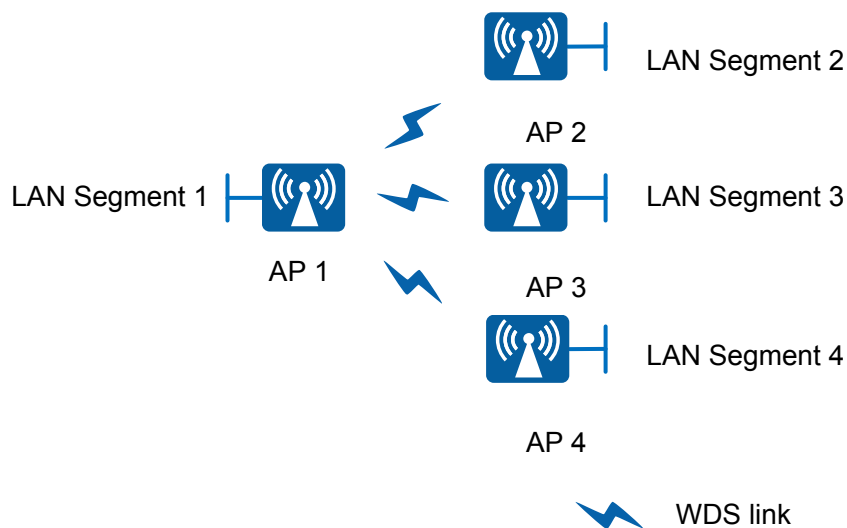
In this networking, the AP connects two or more independently wired or wireless LANs through wireless links to construct a network on which users can exchange data. In Wireless Distribution System (WDS) mode, the AP supports point-to-point (P2P) and point-to-multipoint (P2MP) networking modes. Supporting 5 GHz and 2.4 GHz frequency bands, the AP can implement wireless bridging and access functions.

Figure 3-56 Fit AP mesh networking
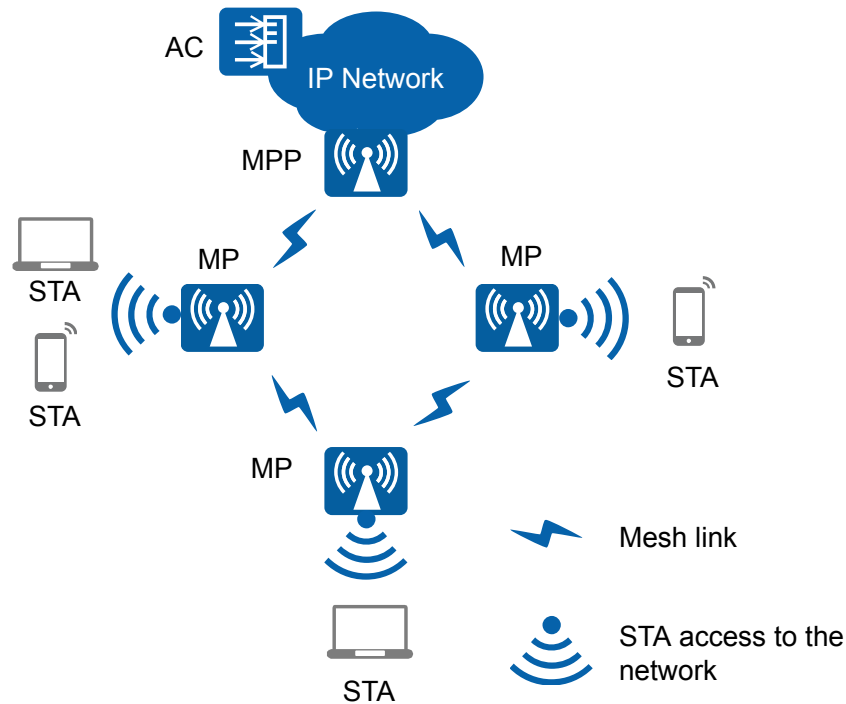
In this networking, APs function as mesh points (MPs) and are fully meshed to establish an auto-configured and self-healing wireless mesh network (WMN). APs with the gateway function can work as the mesh portal points (MPPs) through which the WMN can provide access to the Internet. Terminals connect 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.
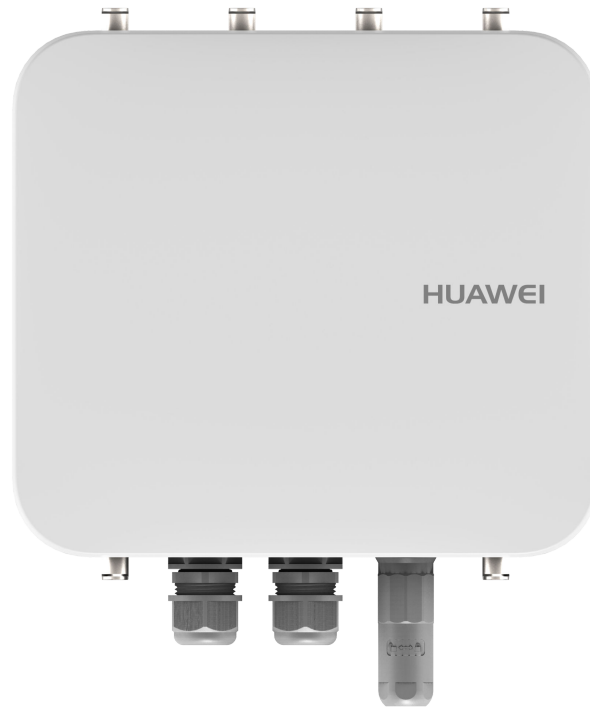
3.7.3 Hardware Information (AP8130DN-W)

Appearance

Figure 3-57 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 3-57 AP appearance
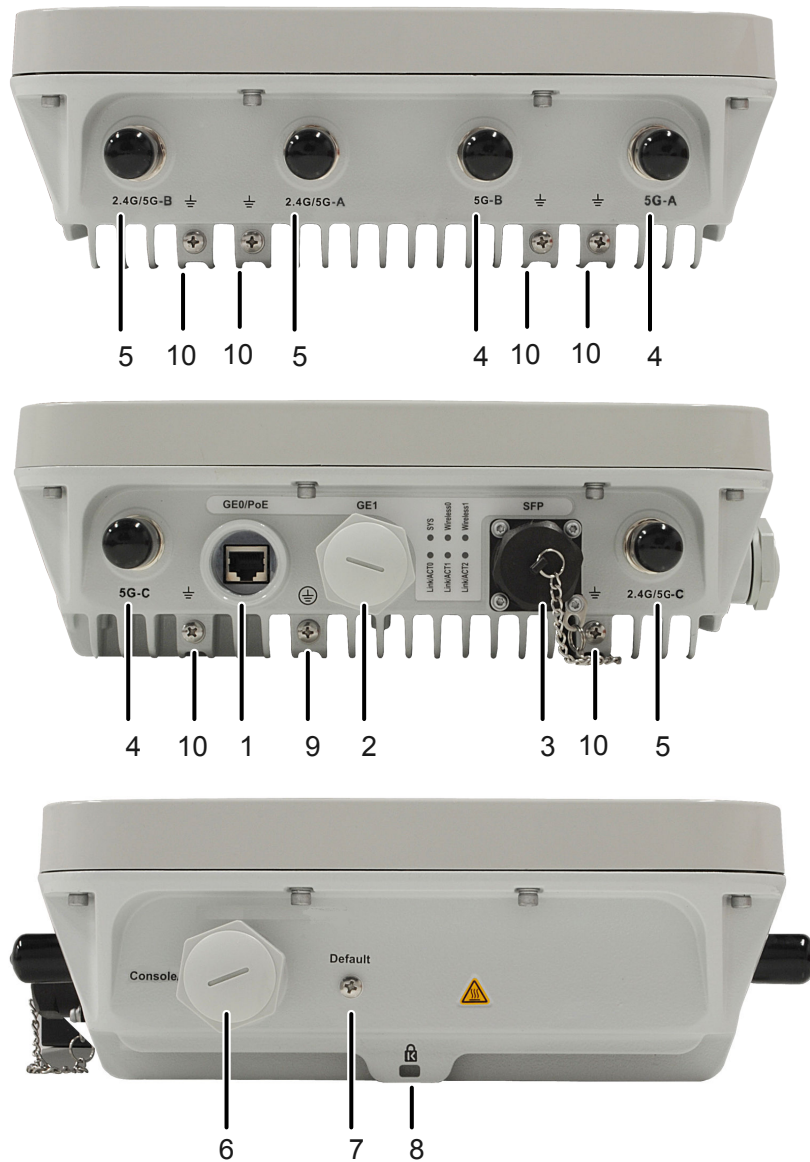

⚠ CAUTION

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 AP.

Figure 3-58 Interfaces on the AP

1. GE0/PoE interface: 10/100/1000M port that connects to the wired Ethernet and supports PoE input.

2. GE1 interface: 10/100/1000M port that connects to the wired Ethernet.

3. SFP: Optical port that supports the 100M/1000M optical module.

4. 5G: Connects a 5 GHz antenna to the AP to send and receive wireless signals. The port type is N-type female.

5. 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 N-type female.

6. CONSOLE: Connects to a maintenance terminal for AP configuration and management.

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

⎕ **NOTE**

> The Reset button is protected by a waterproof screw. Before pressing the Reset button, remove the waterproof screw. Keep the screw properly and install it again after pressing the Reset button.

8. Security slot: Connects to a security lock.

9. Device ground screw: Connects the device to a ground cable.

10. Ground screw for the surge protective device: Connects the AP to the ground point of an external surge protective device.

LED Indicators

The AP provides multiple indicators: SYS indicator, Link indicator, and Wireless indicator. The following table describes indicators on AP.

⎕ **NOTE**

> Indicator colors may vary slightly at different temperature.
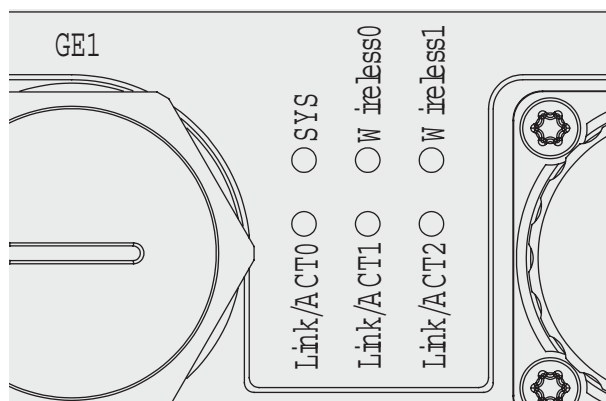
Table 3-53 Descriptions about the SYS indicator

Indicator	Name	Color	Status	Description
SYS	System 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 mode. The indicator remains in this state before the AP successfully goes online. • The AP works in Fit AP 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.

Table 3-54 Description about the Link/ACT indicators

Type	Color	Status	Description
LINK	Green	Steady on	The system is running properly, the Ethernet connection is normal, and no data is being transmitted.
ACT	Green	Blinking	The system is running properly, the Ethernet connection is normal, and the AP is transmitting data. The indicator blinks more quickly when more data is being transmitted.

Table 3-55 Description about the Wireless indicator in traffic volume mode

Color	Status	Description
Green/yellow	Off	Radios are disabled, and no STA is connected to the AP.
Green/yellow	Steady on	The AP has STAs connected to the 2.4 GHz radio or 5 GHz radio, but no data is being transmitted.
Green	Blinking	The AP has STAs connected to the 2.4 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Yellow	Blinking	The AP has STAs connected to the 5 GHz radio and is transmitting data. The indicator blinks more quickly when more data is being transmitted.
Green/yellow	Blinking alternatively	The AP has STAs connected to both the 2.4 GHz radio and 5 GHz radio. The indicator blinks more quickly when more data is being transmitted.

Table 3-56 Description about the Wireless indicator in signal strength mode

Color	Status	Description
Green/yellow	Off	The AP is not transmitting or receiving data or the signal strength is extremely low.
	Blinking once every 2s (0.5 Hz)	The AP is transmitting or receiving data normally, and the signal strength is low.
	Blinking once every 0.25 seconds (4 Hz)	The AP is transmitting or receiving data normally, and the signal strength is medium.
	Steady on	The AP is transmitting or receiving data normally, and the signal strength is high.

📖 **NOTE**

When the WDS/Mesh function is enabled on an AP, the blinking frequency of its Wireless indicator indicates the receive signal strength on the WDS/Mesh connection by default. After you connect an AP to a WDS/Mesh network, you can run the **wifi-light** { **signal-strength** | **traffic** } command on the AC to specify whether the Wireless indicator blinking frequency indicates the receive signal strength or service traffic rate.**wifi-light signal-strength**:

- If the Mesh function is enabled on the AP, the blinking frequency of the Wireless indicator reflects the weakest signal strength of all neighboring APs.
- If WDS is enabled on an AP, the blinking frequency of the Wireless indicator reflects the strength of signals received from a WDS AP.
  - If the AP works in leaf mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a middle AP.
  - If the AP works in middle mode, the blinking frequency of the Wireless indicator reflects the strength of signals received from a root AP.
  - If the AP works in root mode, the blinking frequency of the Wireless indicator reflects the weakest signal strength of middle APs.

wifi-light traffic: allows the Wireless indicator to reflect the service traffic volume on the radio.

Basic Specifications

Table 3-57 Basic specifications

Item		Description
Technical specifications	Dimensions (H x W x D)	100 mm x 290 mm x 260 mm
	Weight	4.0 kg
	System memory	● 256 MB DDR3 ● 64 MB Flash
Power specifications	Power input	PoE power supply in compliance with IEEE 802.3at
	Maximum power consumption	22.4 W **NOTE** The actual maximum power consumption depends on local laws and regulations.
Environment specifications	Operating temperature	-60 m to 1800 m: -40°C to +65°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	0% to 100% (non-condensing)
	IP rating	IP67

Item	Description	
	Wind resistance	Up to 149 MPH
	Atmospheric pressure	53 kPa to 106 kPa

Radio Specifications

Table 3-58 Radio specifications

Item	Description		
Antenna type	Outdoor external antenna		
Maximum number of users	≤ 256		
Maximum number of VAPs for each radio	16		
Maximum transmit power	• 2.4 GHz: 28 dBm (combined power) • 5 GHz: 26 dBm (combined power) **NOTE** The actual transmit power depends on local laws and regulations.		
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 – 20MHz: 13 – 40MHz: 6 – 80MHz: 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	• 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

3.7.4 Performance Specifications (AP8130DN-W)

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**.