

H3C WA6628E-T Access Point Installation Guide

New H3C Technologies Co., Ltd.
<http://www.h3c.com>

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Environmental protection

This product has been designed to comply with the environmental protection requirements. The storage, use, and disposal of this product must meet the applicable national laws and regulations.

Preface

This installation guide describes the installation procedure for the WA6628E-T access point.

This preface includes the following topics about the documentation:

- [Audience](#).
- [Conventions](#).
- [Documentation feedback](#).

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the WA6628E-T access points.

Conventions

The following information describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	Bold text represents commands and keywords that you enter literally as shown.
<i>Italic</i>	<i>Italic</i> text represents arguments that you replace with actual values.
[]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x y ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x y ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x y ... }*	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x y ...]*	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the New User window opens; click OK .
>	Multi-level menus are separated by angle brackets. For example, File > Create > Folder .

Symbols

Convention	Description
 WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
 CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
 IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
 TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

1	Preparing for installation	1-1
	Safety recommendations	1-1
	Site preparation	1-1
	Installation accessories	1-2
	Installation tools	1-2
2	Installing the AP	2-1
	Installation flowchart	2-1
	Pre-installation tasks	2-1
	Determining the installation position	2-1
	Mounting the AP	2-2
	Installation brackets	2-2
	Mounting the AP on a wall	2-3
	Mounting the AP in a rack	2-4
	Connecting the grounding cable	2-6
	Connecting RF cables	2-6
	Connecting an optical fiber	2-8
	Connecting an M12 cable	2-9
	Connecting the power cord	2-10
	Connecting the AP to the network	2-12
	Verifying network connectivity when the AP operates in fit mode	2-12
	Verifying network connectivity when the AP operates in fat mode	2-12
3	Accessing the AP	3-1
	Login from the console port	3-1
	Connecting the AP to a configuration terminal from the console port	3-1
	Setting parameters for the configuration terminal	3-2
	Logging in to the AP from the console port	3-2
	Login from the Web interface or through Telnet	3-2
4	Appendix A Technical specifications	4-1
5	Appendix B Ports and LEDs	5-1
	Ports	5-1
	LEDs	5-2
6	Appendix C Transceiver modules	6-5
	Views	6-5
	Specifications	6-5

1 Preparing for installation

Safety recommendations

⚠ WARNING!

Only professional technical engineers are allowed to install and remove the AP and its accessories. Read the safety instructions carefully before installing or servicing the AP.

To avoid possible bodily injury and equipment damage, read the following safety recommendations before installing the AP. Note that the recommendations do not cover every possible hazardous condition.

- To avoid bodily injury and device damage, take adequate safety measures.
- Place the AP in a dry, flat location and take anti-slip measures.
- Keep the AP clean and dust-free.
- Do not place the AP in a moist area and avoid liquid splashes.
- Keep the AP and installation tools away from walkways.
- Before installation, locate the emergency power switch in the equipment room so that you can cut off power immediately in case of an emergency.
- Before you install, remove, move, or service the AP, turn off power to the AP and remove the power cord and cables from the AP.
- When performing electrical operations, you must comply with local laws and regulations. The relevant staff must have corresponding qualifications.
- To avoid electric shocks, use a yellow-green grounding cable to ground the AP.
- Before connecting or disconnecting the power cord, you must disconnect power from the AP.
- Use a waterproof enclosure to protect the AP from water and other adverse environmental elements.

Site preparation

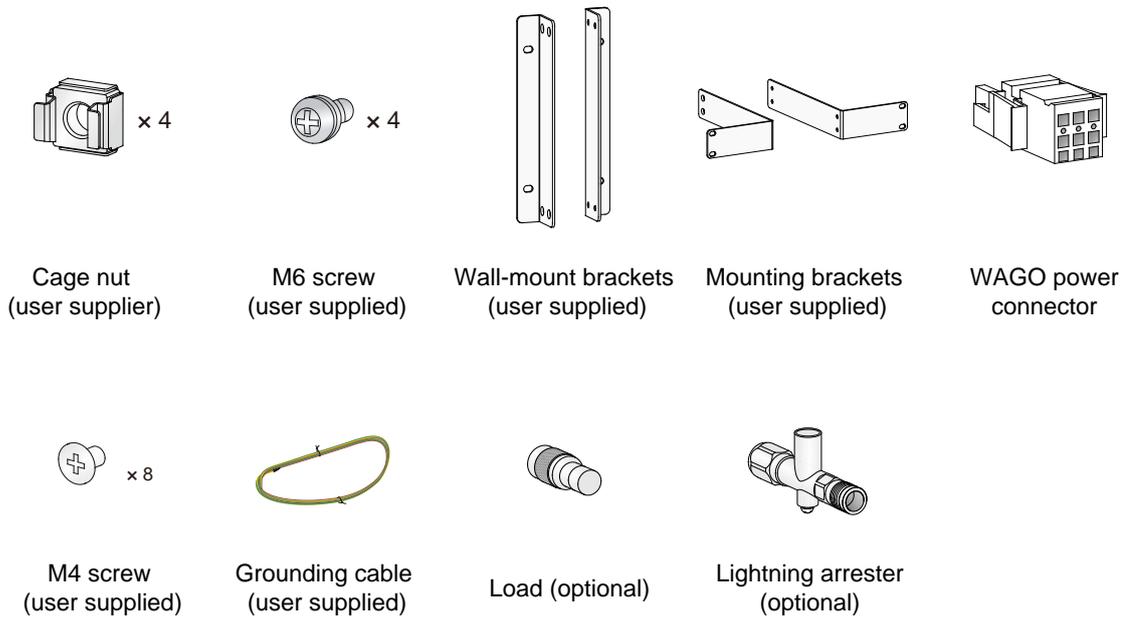
Before installing the AP, examine the installation site and make sure the AP will operate in a favorable environment. Make sure the temperature and humidity at the installation site meets the requirements in [Table1-1](#).

Table1-1 Temperature and humidity requirements

Item	Specification
Operating temperature	-40°C to +70°C (-40°F to +158°F)
Storage temperature	-40°C to +85°C (-40°F to +185°F)
Operating humidity (RH), noncondensing	5% to 95%

Installation accessories

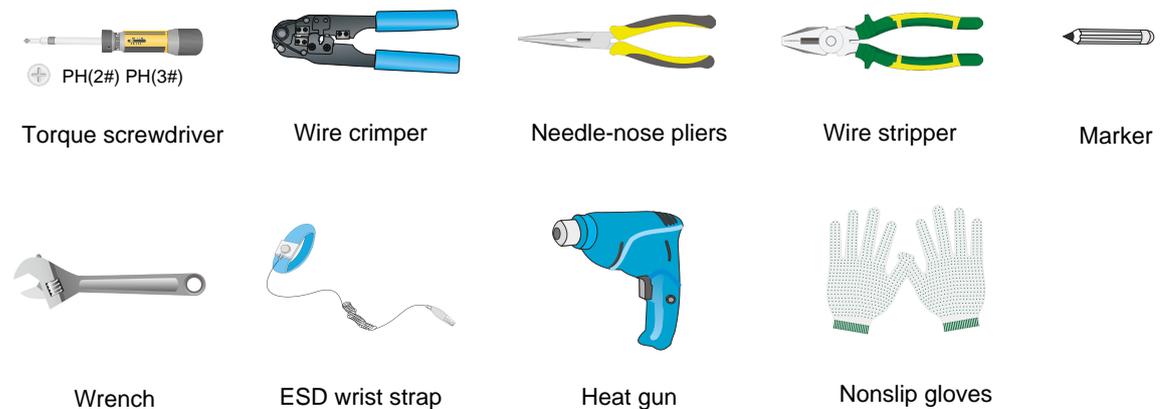
Figure1-1 Installation accessories



Installation tools

When installing the AP, you might need the following tools. Prepare the installation tools yourself as required.

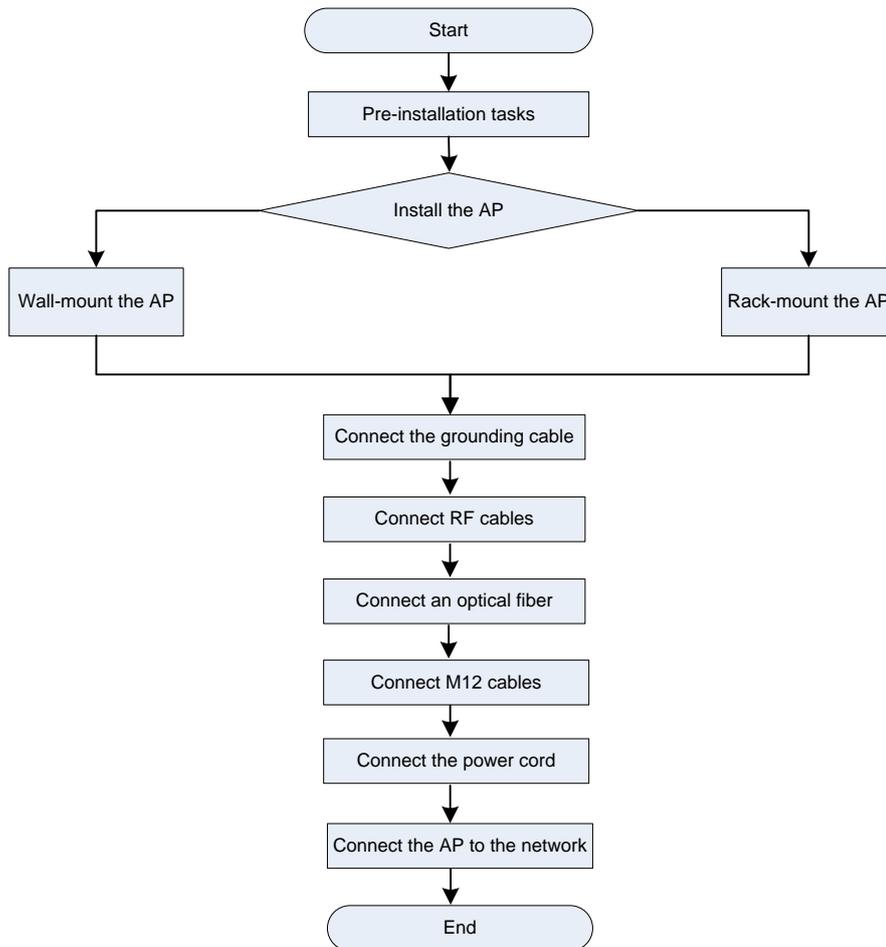
Figure1-2 Installation tools



2 Installing the AP

Installation flowchart

Figure2-1 Installation flowchart



Pre-installation tasks

Before installing the AP, perform the following tasks:

- Connect the AP to a power source and the network. Examine the LEDs to verify that the AP can operate correctly. For information about AP LEDs, see "Appendix B Ports and LEDs."
- Record the MAC address and serial number of the AP for future use.

Determining the installation position

When selecting an installation position for the AP, follow these guidelines:

- Keep the AP away from electronic equipment or devices (such as microwave ovens) that might generate radio frequency noise.

- Make sure the AP does not hinder people's daily work and life.
- Do not install the AP under water seeping, dripping, soaking, or condensing environment and prevent water droplets from flowing into the AP along cables.
- Install the AP in a location accessible only to professional technical engineers, and the installation and maintenance of AP must be performed by professional technical engineers.
- Ensure that the AP is installed in a weak electric box or device with a protection level of IP54 or higher.

Mounting the AP

The AP can be installed only indoors. You can mount the AP on a wall or in a rack.

Installation brackets

Wall-mount brackets are required for wall-mounting the AP. Mounting brackets are required for rack-mounting the AP.

No wall-mount brackets or mounting brackets are provided with the AP. Purchase or order the brackets yourself as required. See [Figure2-2](#) for the required dimensions of the wall-mount brackets and mounting brackets.

Figure2-2 Wall-mount brackets

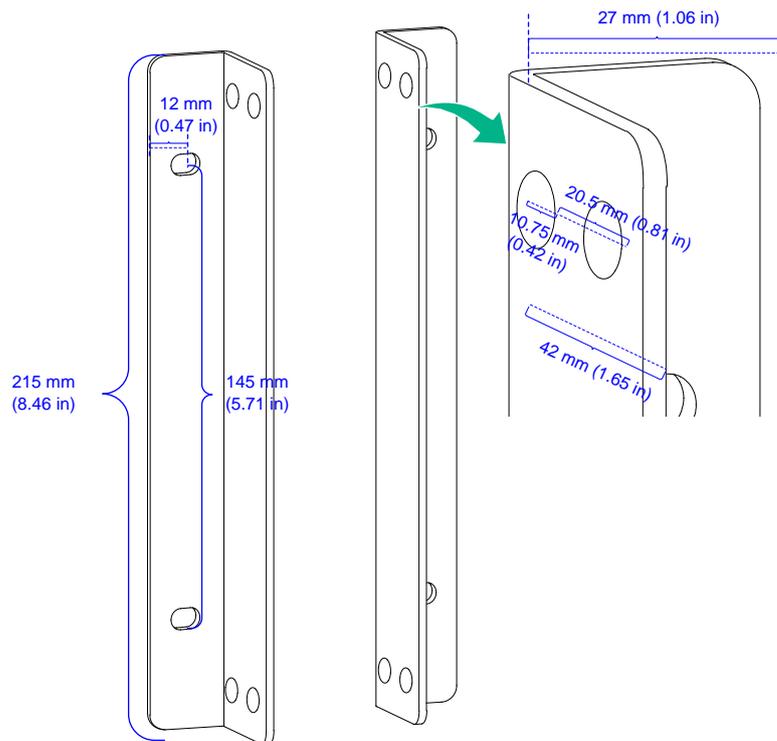
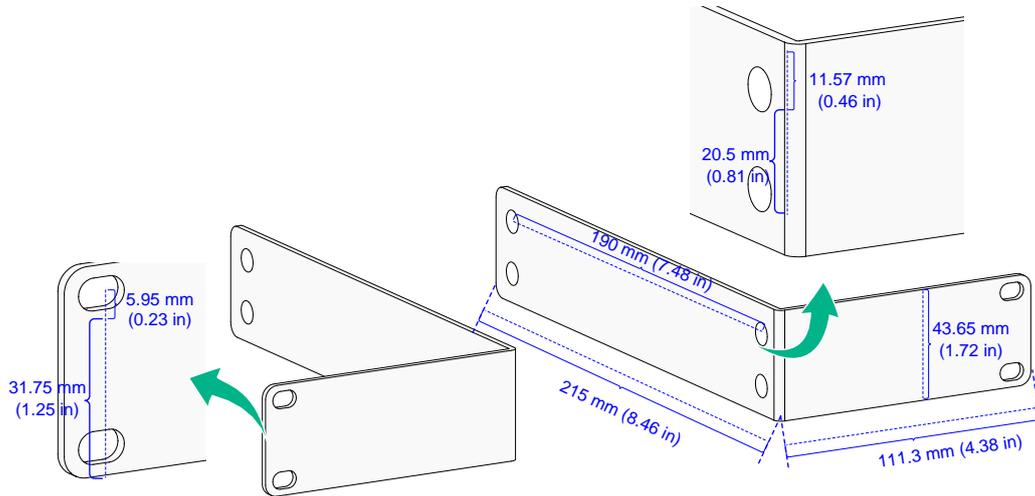


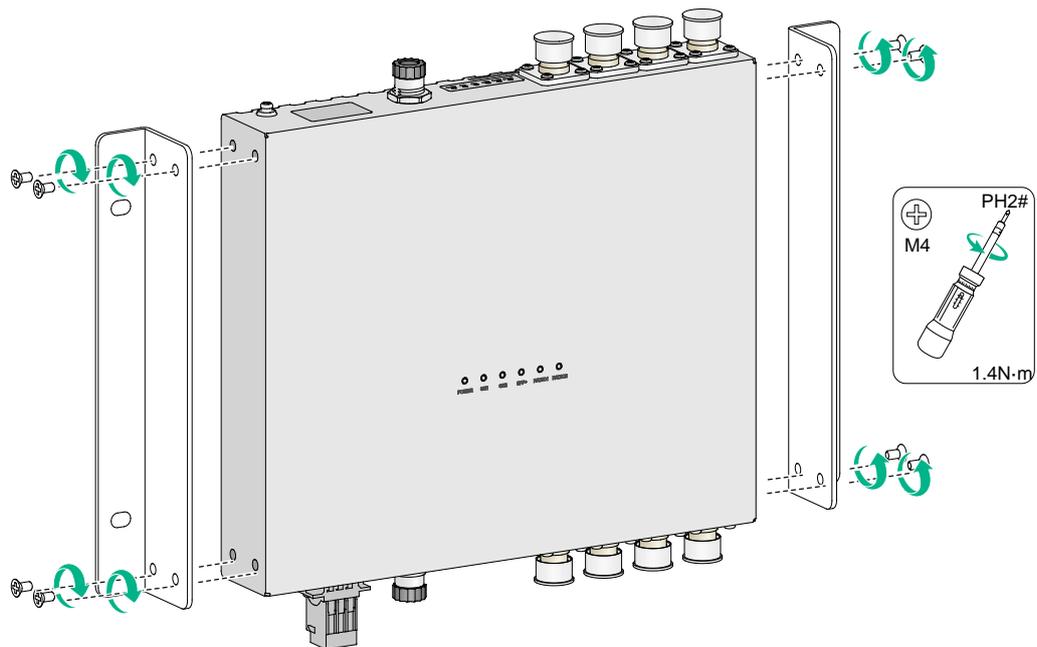
Figure2-3 Mounting brackets



Mounting the AP on a wall

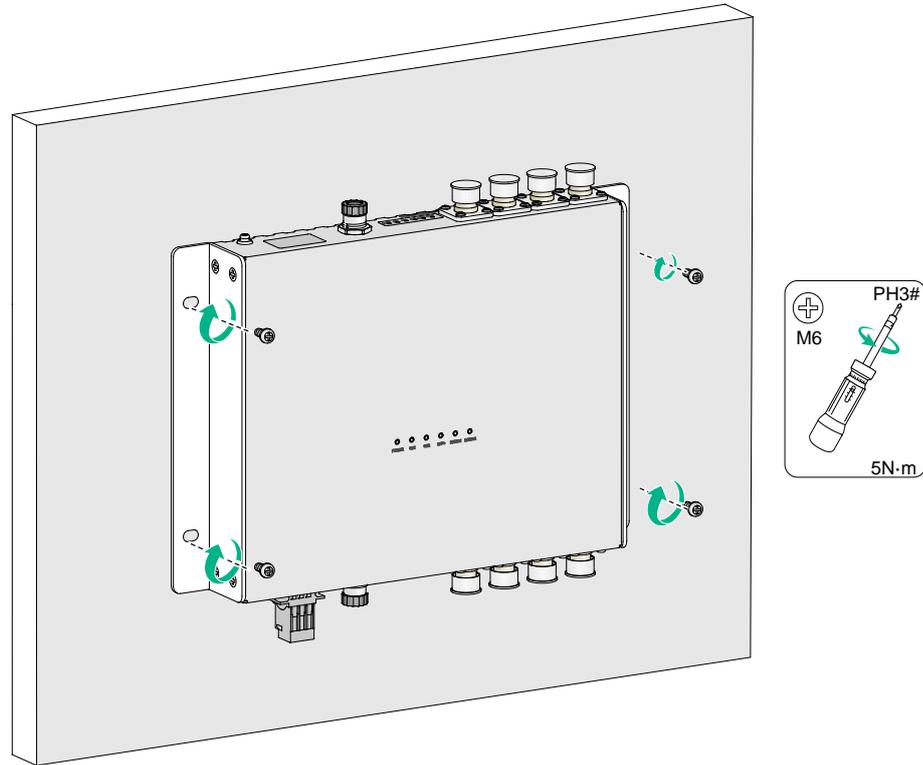
1. Use M4 screws to attach the wall-mount brackets to the AP and fasten the screws.

Figure2-4 Attaching the wall-mount brackets to the AP



2. Use M6 screws to attach the AP to a power distribution cabinet.

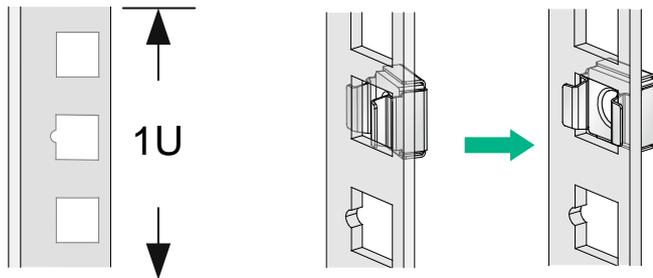
Figure2-5 Attaching the AP to a power distribution cabinet



Mounting the AP in a rack

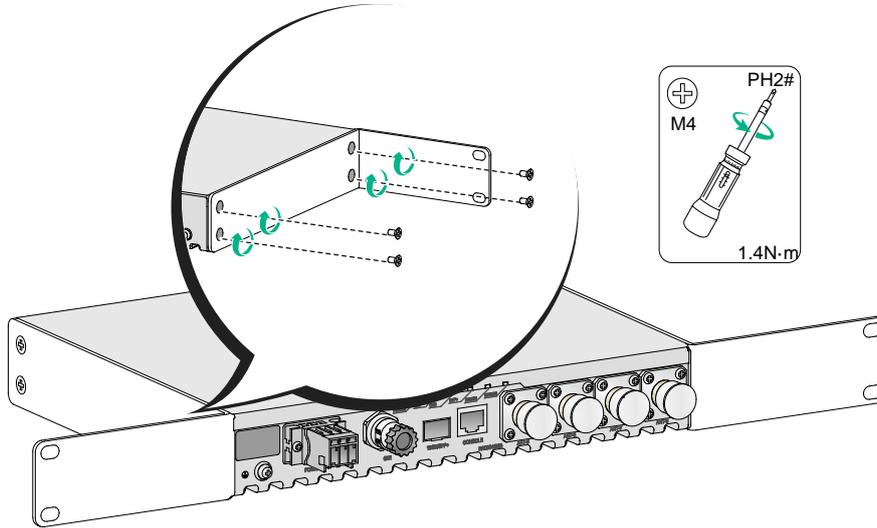
1. Wear an ESD wrist strap. Make sure the wrist strap makes good skin contact and is reliably grounded.
2. Make sure the rack is stable and reliably grounded.
3. Use the mounting brackets to mark the cage nut installation positions on the rack posts and then install cage nuts.

Figure2-6 Installing cage nuts



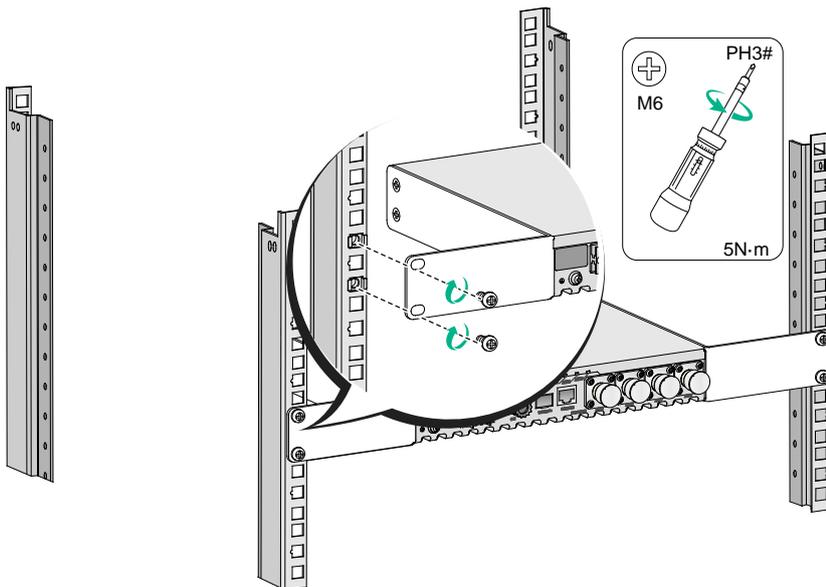
4. Use the M4 mounting bracket screws to attach the mounting brackets to the AP.

Figure2-7 Attaching mounting brackets to the AP



5. Supporting the bottom of the AP with one hand and holding the front of the AP with the other, gently push the AP into the rack. Then use M6 rack screws and cage nuts to attach the mounting brackets to the rack posts. Make sure the AP is attached securely to the rack.

Figure2-8 Mounting the AP in a rack



Connecting the grounding cable

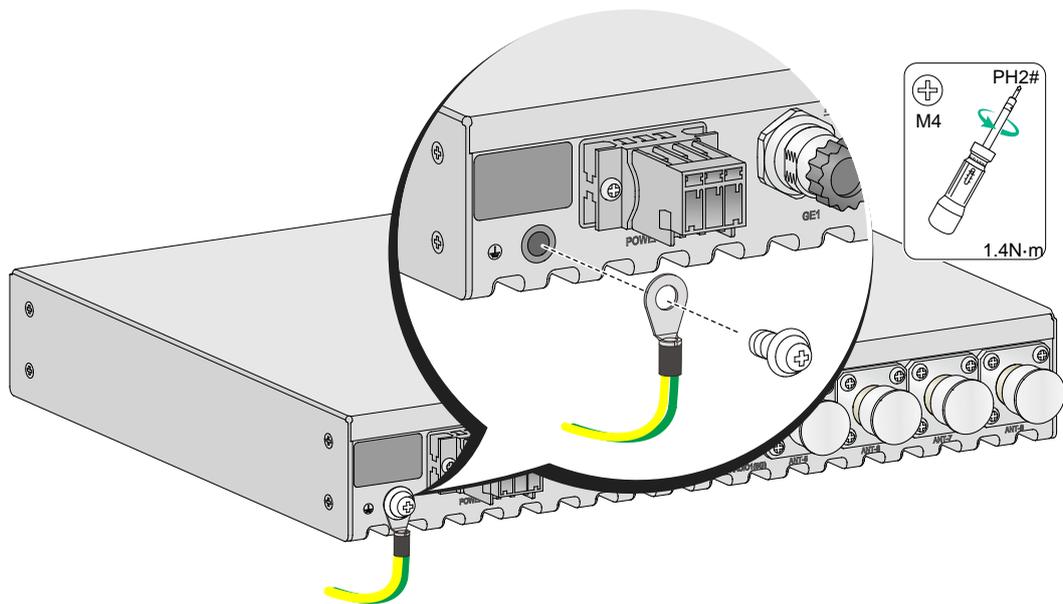
⚠ CAUTION:

- Correctly connecting the grounding cable is crucial to lightning protection and EMI protection. Before installing or using the AP, connect a grounding cable to the AP correctly.
- Connect the grounding cable to the engineering ground in the equipment room. Do not connect it to a fire main or lightning rod.
- Lightning arresters are not required for antenna ports if the AP is grounded reliably.

To connect the grounding cable to the AP:

1. Use a Phillips screwdriver to remove the grounding screw from the grounding hole in the rear panel of the AP.
2. Attach the grounding screw to the ring terminal of the grounding cable.
3. Use a Phillips screwdriver to fasten the grounding screw into the grounding hole.
4. Connect the other end of the grounding cable to the grounding cable in the train compartment or the power distribution cabinet.

Figure2-9 Connecting the grounding cable



Connecting RF cables

⚠ CAUTION:

- In areas where thunderstorms frequently occur, purchase and install lightning arresters for the antenna ports.
- Install lightning arresters for the antenna ports in sequence from left to right or from right to left.
- Lightning arresters are not required for the antenna ports if the AP is grounded reliably.



IMPORTANT:

Radio 1 operates in the 5 GHz band. Radio 2 can operate in either 2.4 GHz or 5 GHz band.



CAUTION:

To avoid device damage or bodily injury caused by excessive radiation exposure, make sure the antennas and RF cables comply with local regulations. As a best practice, purchase H3C recommended antennas and RF cables. To ensure correct operation of the AP, make sure the antennas and RF cables meet the following basic requirements:

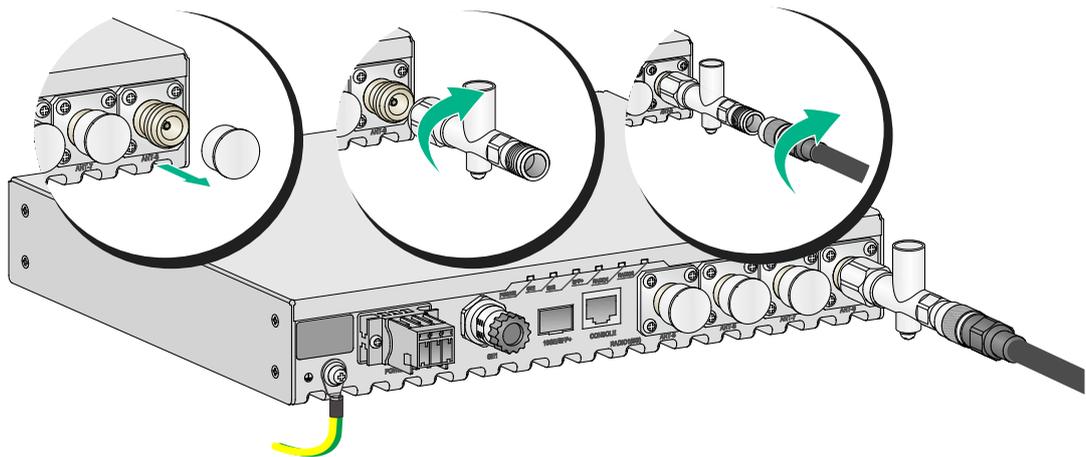
- The VSWR for RF cables is less than or equal to 1.4.
- The VSWR for antennas is less than or equal to 1.8.
- The maximum gain can ensure that the AP's EIRP complies with local regulations.

An RF cable is used to connect an antenna port to an external antenna.

To connect an RF cable:

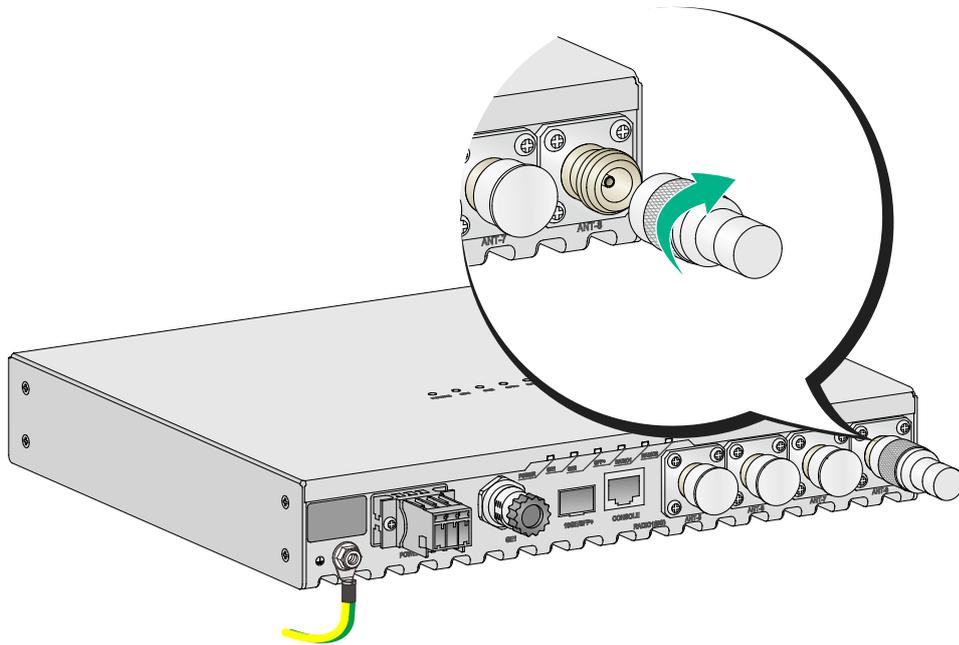
1. Remove the weatherproof cap from the antenna port on the AP.
2. Connect a lightning arrester to the antenna port.
3. Connect the RF cable to the lightning arrester.

Figure2-10 Connecting an RF cable



4. Install a load for each unused antenna port.

Figure2-11 Installing a load for an antenna port



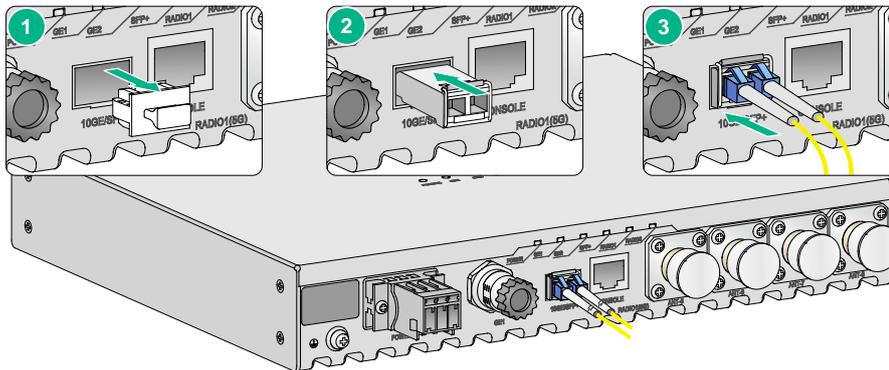
Connecting an optical fiber

To connect the fiber port on the AP to the network, first install a transceiver module in the fiber port and then connect an optical fiber to the transceiver module. The fiber port on the AP supports only optical fibers with an LC connector. No transceiver modules are provided with the AP. Purchase one as required. For more information about transceiver modules available for the AP, see "Appendix C Transceiver modules."

To connect an optical fiber:

1. Remove the dust plug from the fiber port.
2. Pull the bail latch on the transceiver module upwards to catch the knob on the top of the transceiver module. Take the transceiver module by its two sides and push the end without the bail latch gently into the port until it snaps into place.
3. Identify the Rx and Tx ports on the transceiver module. Use the optical fiber with LC connectors to connect the Rx port and Tx port on the AP to the Tx port and Rx port on the peer device, respectively.
4. Observe the port LED to verify link connectivity.
 - If the LED is on, the link is connected.
 - If the LED is off, the link is not connected. Identify the issue and resolve it.

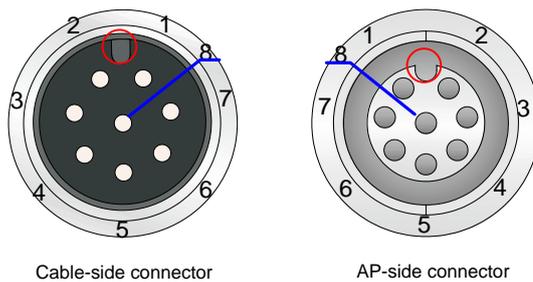
Figure2-12 Connecting an optical fiber



Connecting an M12 cable

Remove the dust plug from the M12 connector on the AP. Align the projection on the M12 cable connector with the groove on the AP-side connector and insert the cable connector into the AP. Then fasten the connector to secure it into place.

Figure2-13 Connecting an M12 cable



No M12 cable is provided with the AP, you can purchase or make an M12 cable yourself as required. [Table2-1](#) describes the M12 connector pinouts against the RJ-45 connector.

Table2-1 M12 connector pinouts against the RJ-45 connector

RJ45	Signal name	Cable color	M12
1	TD1+	Orange/White	6
2	TD1-	Orange	4
3	TD2+	Green/White	5
4	TD3+	Blue/White	7
5	TD3-	Blue	1
6	TD2-	Green	8
7	TD4+	Brown/White	2
8	TD4-	Brown	3

Connecting the power cord

⚠ WARNING!

- When connecting the power cord, first connect it to the AP, and then connect it to the power source.
- Verify that the local power source is reliably grounded each time before powering on the AP.

The AP supports AC or DC power input. See [Table2-2](#) for the power input specifications.

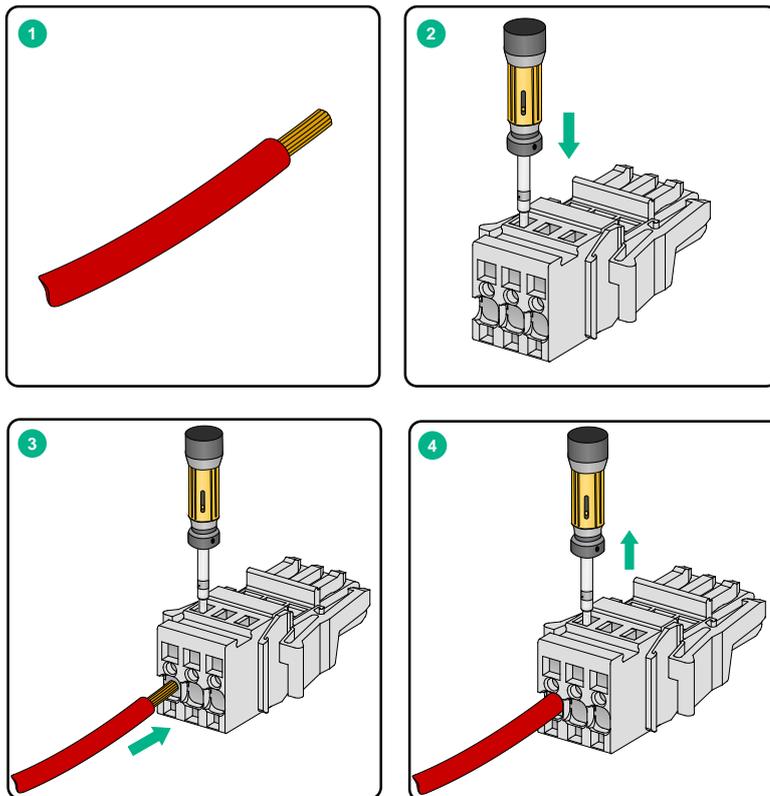
Table2-2 Power input specifications

Item	Specification
DC power input	70 V to 130 V
AC power input	100 V to 240 V @ 50/60 Hz

Connecting the power cord to a Wago connector

1. Strip 10 mm (0.39 in) of insulation off one end of the power cord.
2. Use a flathead screwdriver to press down the movable tab in the target hole.
3. Insert the power cord into the wire inlet.
4. Take away the flathead screwdriver.

Figure2-14 Connecting the power cord to a Wago connector

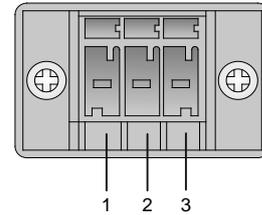
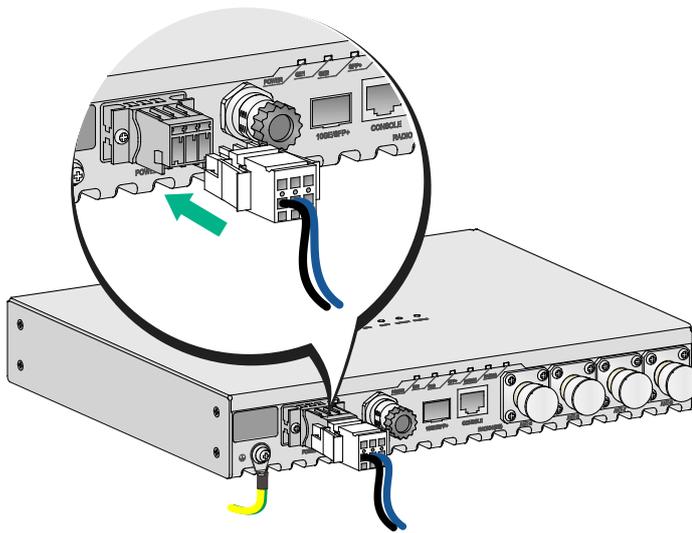


Connecting a DC power cord

1. Make sure the AP is reliably grounded.

2. Connect one end of the DC power cord to the power port on the AP and the other end to a local power source.

Figure2-15 Connecting a DC power cord



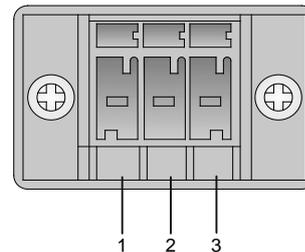
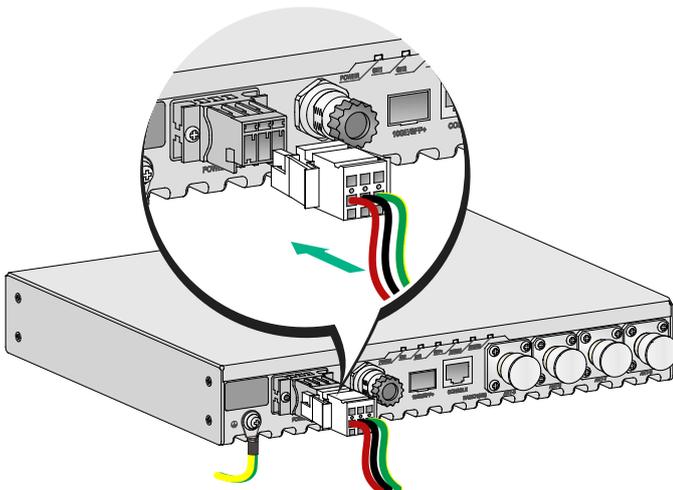
Power port on the AP

Pin No.	Name
1	Vin+
2	Vin-
3	PE

Connecting an AC power cord

1. Make sure the AP is reliably grounded.
2. Connect one end of the AC power cord to the power port on the AP and the other end to a local power source.

Figure2-16 Connecting an AC power cord



Power port on the AP

Pin No.	Name
1	L
2	N
3	PE

Verifying the power cord connection

Observe the LEDs on the AP to verify the power cord connection. For more information about the LEDs, see "Appendix B Ports and LEDs."

Connecting the AP to the network

For the AP to access the Internet or MAN, connect an Ethernet port on the AP to an Ethernet switch.

Verifying network connectivity when the AP operates in fit mode

When the AP operates in fit mode, all its settings are configured on the AC. Execute the **display wlan ap all** command on the AC. If the AP status in the command output is **R/M**, the AP has associated with the AC and connected to the network.

```
<AC> display wlan ap all
Total number of APs: 1
Total number of connected APs: 1
Total number of connected manual APs: 1
Total number of connected auto APs: 0
Total number of connected common APs: 1
Total number of connected WTUs: 0
Total number of inside APs: 0
Maximum supported APs: 3072
Remaining APs: 3071
Total AP licenses: 128
Remaining AP licenses: 127
```

AP information

```
State : I = Idle,      J = Join,      JA = JoinAck,      IL = ImageLoad
        C = Config,   DC = DataCheck, R = Run   M = Master, B = Backup
```

AP name	AP ID	State	Model	Serial ID
ap1	1	R/M	WA6628E-T	219801A2ES8209E00014

Verifying network connectivity when the AP operates in fat mode

When the AP operates in fat mode, use the **ping** command on it to ping the uplink network device. If the ping operation succeeds, the AP is connected to the network successfully.

3 Accessing the AP

! **IMPORTANT:**

The AP is typically installed on a high position. As a best practice, log in to and configure the AP before installing it.

This section applies only when the AP operates in fat mode. When the AP operates in fat mode, you can log in to the AP from the console port, Web interface, or through Telnet.

Before logging in to the device, you must obtain the AP's IP address. To access the AP for the first time, you must log in to the AP from the console port. Then you can configure other login methods.

Login from the console port

Prepare the following items for accessing the device through the console port:

- An 8-core console cable, with a crimped RJ-45 connector at one end, and a DB-9 connector at the other end.
- A configuration terminal. It can be a standard character terminal with an RS-232 port, or a PC.

Connecting the AP to a configuration terminal from the console port

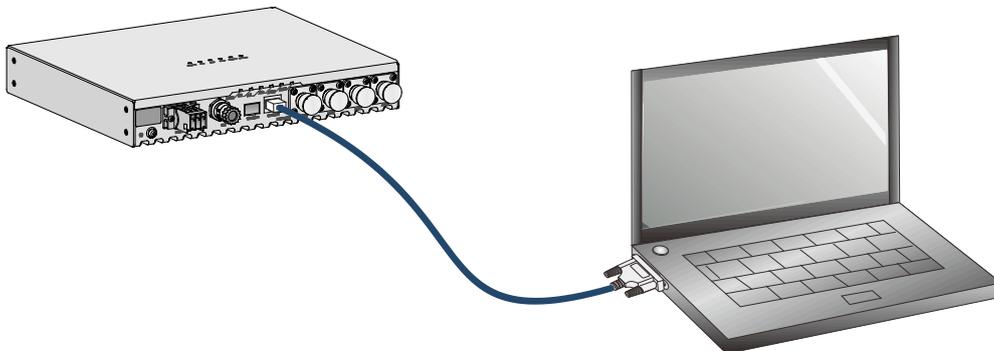
△ CAUTION:

- The serial ports on PCs do not support hot swapping. To connect a PC to an operating device, first connect the PC end. To disconnect a PC from an operating device, first disconnect the device end.
 - If the PC does not have an RS-232 port but a USB port, use a USB-to-RS-232 converter to connect the USB port to the console cable and install the corresponding driver on the PC.
-

To connect the AP to a configuration terminal from the console port:

1. Connect the DB-9 connector of the console cable to the serial port on the configuration terminal, for example, a PC.
2. Connect the RJ-45 connector of the console cable to the console port on the AP.

Figure3-1 Connecting the AP to a PC from the console port



Setting parameters for the configuration terminal

To configure and manage the AP from the console port, you must run a terminal emulator program, such as TeraTermPro, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9,600.
- **Data bits**—8.
- **Parity**—None.
- **Stop bits**—1.
- **Flow control**—None.

Logging in to the AP from the console port

Verify that the AP is connected correctly to the configuration terminal and the configuration terminal parameters are configured correctly. Then power on the AP. You can see the following information on the configuration terminal:

```
System is starting...
Booting Normal Extend BootWare.
.....
System application is starting...
Startup configuration file does not exist.
User interface con0 is available.
```

```
Press ENTER to get started.
```

Login from the Web interface or through Telnet

By default, you can log in to the device from the Web interface or through Telnet. The following default login information is defined for your login:

- **Username**—admin.
- **Password**—h3capadmin.
- **Management IP address of VLAN-interface 1**—192.168.0.50 with subnet mask 255.255.255.0. If the default IP address has been changed, contact the administrator to get the new IP address.

4 Appendix A Technical specifications

Table4-1 Technical specifications

Item	Specification
Dimensions (H x W x D)	40 x 260 x 210 mm (1.57 x 10.24 x 8.27 in)
Weight	2.4 kg (5.29 lb)
Antenna	External antenna
Power consumption	8 W to 40 W
Radios	2
Protocols and standards	IEEE802.11a/b/g/n/ac/ax

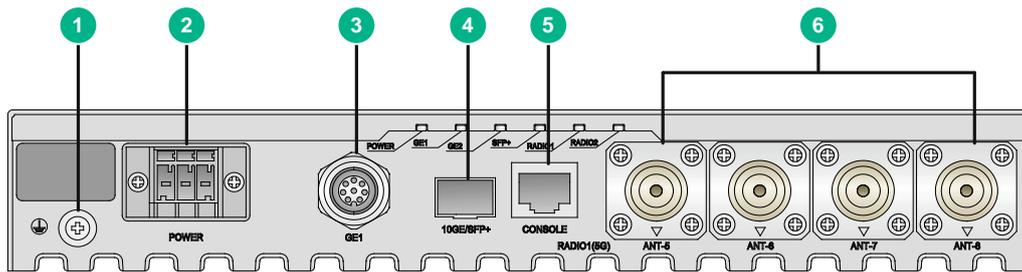
5 Appendix B Ports and LEDs

Ports

The AP provides the following ports:

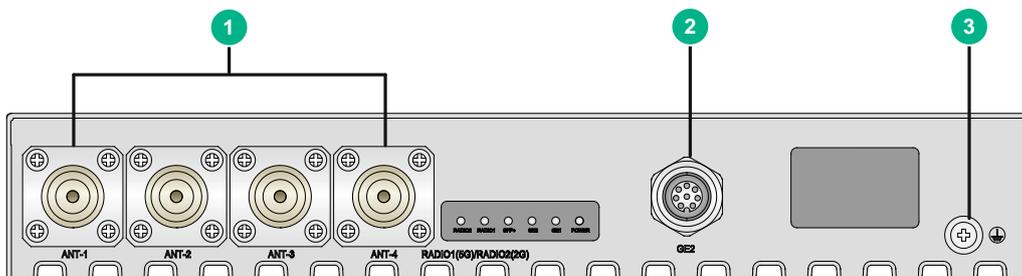
- One power port
- One 10 GE Ethernet fiber port
- Two 10/100/1000M Ethernet ports with an M12 connector
- One console port
- Four 5G antenna ports
- Four 2.4G/5G antenna ports

Figure5-1 Ports on the front panel of the AP



- | | |
|--|------------------|
| (1) Grounding screw | (2) Power port |
| (3) 10/100/1000M Ethernet port with an M12 connector | |
| (4) 10 GE Ethernet fiber port | (5) Console port |
| (6) 5G antenna port | |

Figure5-2 Ports on the rear panel of the AP



- | | |
|--------------------------|--|
| (1) 2.4G/5G antenna port | (2) 10/100/1000M Ethernet port with an M12 connector |
| (3) Grounding screw | |

Table5-1 Port descriptions

Port	Standards and protocols	Description
Console port	RS/EIA-232	Used only for device configuration and management by technical support.

Port	Standards and protocols	Description
GE1/GE2	<ul style="list-style-type: none"> IEEE802.3 IEEE802.3u 	<p>Used for connecting the AP to an uplink device for Internet or MAN access.</p> <p>It is represented by interface number GE1/0/1 and GE1/0/2 in the MAP file and GigabitEthernet 1 and GigabitEthernet 2 for configuration on the AC.</p>
10GE/SFP+	<ul style="list-style-type: none"> IEEE802.3 IEEE802.3u 	<p>Used for connecting the AP to an uplink device for Internet or MAN access.</p> <p>It is represented by interface number XGE1/0/1 in the MAP file and Ten-GigabitEthernet 1 for configuration on the AC.</p>
5G antenna port	<ul style="list-style-type: none"> IEEE802.11a IEEE802.11an IEEE802.11ac IEEE802.11ax 	Used for connecting to a 5G antenna.
2.4G/5G antenna port	<ul style="list-style-type: none"> IEEE802.11b IEEE802.11g IEEE802.11gn IEEE802.11gac IEEE802.11a IEEE802.11an IEEE802.11ac IEEE802.11ax 	Used for connecting to a 2.4G/5G antenna.
Power port	N/A	Used for receiving power from the local power source.

LEDs

Figure5-3 Front view of the AP

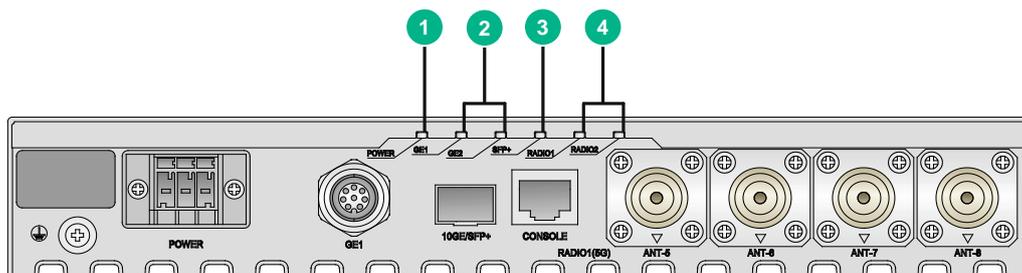


Figure5-4 Rear view of the AP

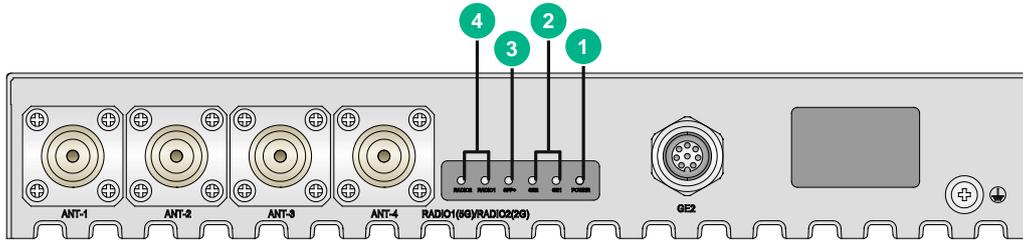
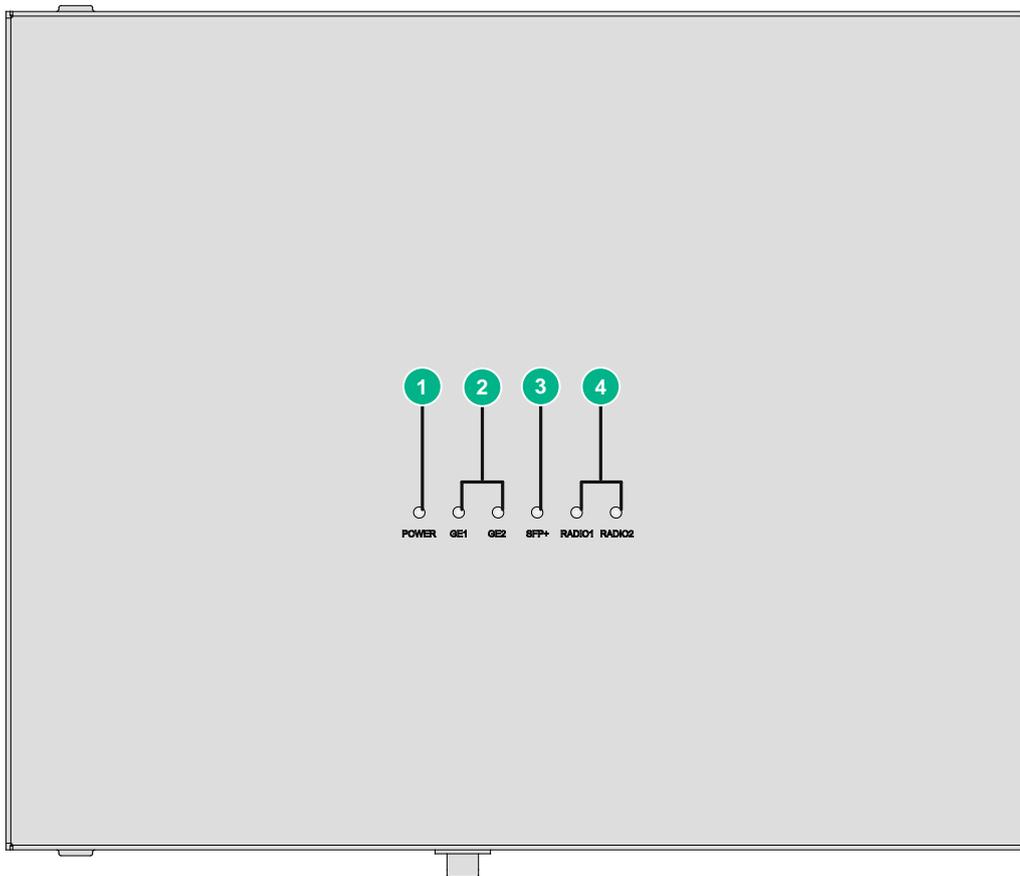


Figure5-5 Top view of the AP



- | | |
|------------------------|------------------------|
| (1) Power LED | (2) Ethernet port LEDs |
| (3) 10GE/SFP+ port LED | (4) Radio LEDs |

Table5-2 LED descriptions

LED	Status	Description	
POWER	Yellow	Steady on	The AP is initializing, or an initialization exception has occurred.
		Flashing at 2 Hz	The Ethernet interfaces are down and no mesh links are established.
	Green	Steady on	The AP has registered to an AC, but does not have any associated clients.

LED	Status		Description
		Flashing at 0.5 Hz	The AP has started up but has not registered to any AC.
		Flashing at 2 Hz	The AP is upgrading the image.
	Off		The AP has not been powered on or the LEDs on the AP have been turned off.
RADIO1	Green	Flashing at 1 Hz	The radio has associated clients.
	Off		The radio is disabled or the LED has been turned off.
RADIO2	Green	Flashing at 1 Hz	The radio has associated clients.
	Off		The radio is disabled or the LED has been turned off.
GE1/GE2	Yellow	Steady on	The port rate is negotiated to 100/10 Mbps.
		Flashing	The port is operating at 100/10 Mbps.
	Green	Steady on	The port rate is negotiated to 1000 Mbps.
		Flashing	The port is operating at 1000 Mbps.
	Off		No Ethernet ports are connected.
10GE/SFP+	Yellow	Steady on	The port rate is negotiated to 1000 Mbps.
		Flashing	The port is operating at 1000 Mbps.
	Green	Steady on	The port rate is negotiated to 10 Gbps.
		Flashing	The port is operating at 10 Gbps.
	Off		No 10 GE or SFP+ ports are connected.

6 Appendix C Transceiver modules

Views

You must use an SFP transceiver module and optical fiber with an LC connector to connect the fiber port on the AP.

Figure6-1 SFP transceiver module

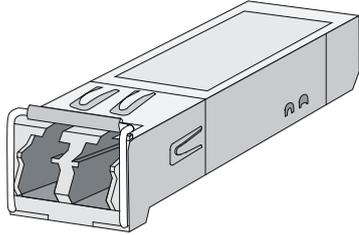
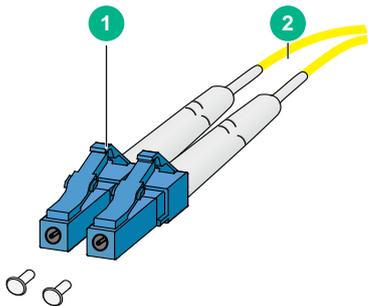


Figure6-2 Optical fibers with LC connectors



(1) LC connector

(2) Optical fiber

Specifications

Table6-1 SFP-XG-CPRI-IR-SM1310 transceiver module specifications

Item	SFP-XG-CPRI-IR-SM1310
Central wavelength	1310 nm
Max transmission distance	1.4 km (0.87 miles)
Data rate	4920 to 10310 Mb/s
Connector type	LC connector
Fiber mode	SMF
Fiber diameter	9/125 μ m
Output power	-8.2 to +0.5 dBm

Table6-2 SFP-XG-CPRI-LR-SM1310 specifications

Item	SFP-XG-CPRI-LR-SM1310
Central wavelength	1310 nm
Max transmission distance	10 km (6.21 miles)
Data rate	4920 to 10310 Mb/s
Connector type	LC connector
Fiber mode	SMF
Fiber diameter	9/125 μm
Output power	-8.2 to +0.5 dBm