

1.1.25 AC650-128AP

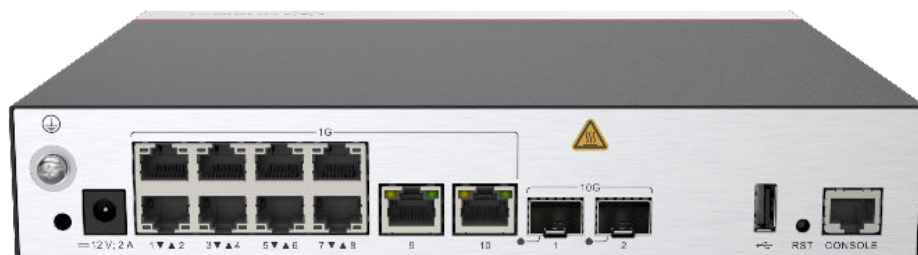
Overview

Table 1-121 Basic information about the AC650-128AP

Item	Details
Description	AC650-128AP mainframe (10*GE ports, 2*10GE SFP+ ports, with the AC/DC adapter)
Part Number	02355NCG
Model	AC650-128AP
First supported version	V200R022C10

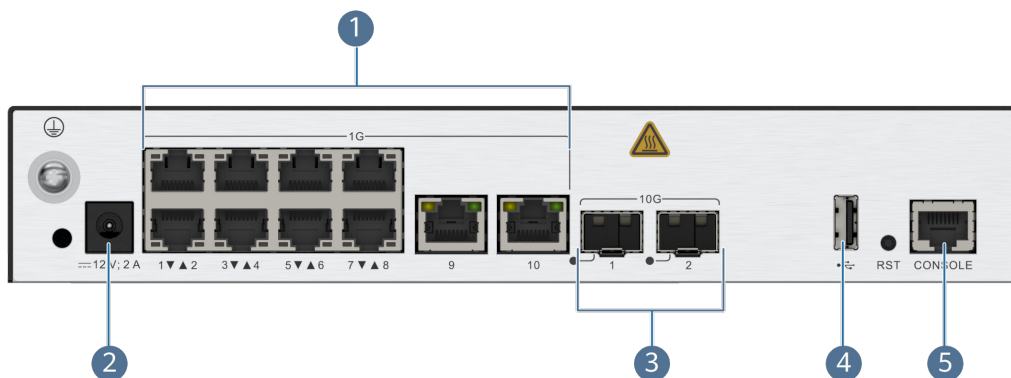
Appearance

Figure 1-73 Appearance of the AC650-128AP



Ports

Figure 1-74 Ports on the AC650-128AP



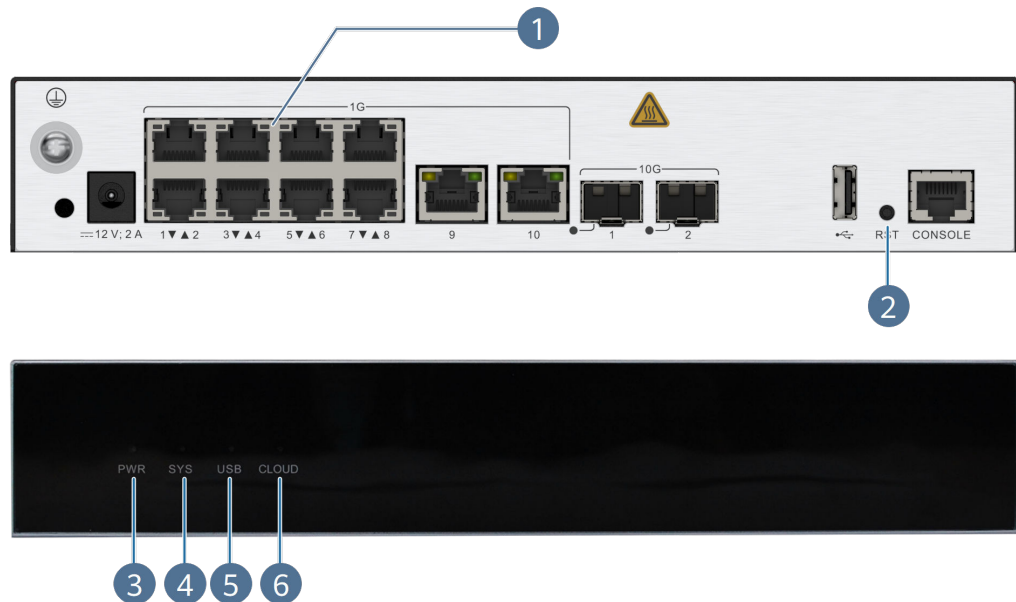
1	GE	2	DC 12V
3	10GE	4	USB
5	CONSOLE	-	-

Table 1-122 Ports on the AC650-128AP

Port	Connector Type	Description	Available Components
GE	RJ45	10 x 10/100/1000BASE-T Ethernet electrical ports	Network cable
10GE	SFP+	2 x 10GE SFP+ Ethernet optical ports	Optical module
DC 12V	DC connector	DC input connector	12 V DC power adapter
CONSOLE	RJ45	Console port	Console cable
USB	USB 2.0 Type A	USB port connecting to a USB flash drive or other storage device to extend the storage space.	USB storage device

Indicators and Buttons

Figure 1-75 Indicators and buttons on the AC650-128AP



1	Service port indicators	2	RST button
3	PWR indicator	4	SYS indicator
5	USB indicator	6	CLOUD indicator

Table 1-123 Indicators on the AC650-128AP

Silkscreen	Name	Color	Status	Description
PWR	Power module indicator	-	Off	The system is not powered on or there is an internal power supply failure.
		Green	Steady on	Power supply is normal.
SYS	System status indicator	-	Off	The system is not running.
		Green	Steady on	The system is being powered on or restarted.

Silkscreen	Name	Color	Status	Description
		Green	Blinking once every 0.25s (4 Hz)	The system is starting.
		Green	Slow blinking (0.5 Hz)	The system is running properly.
		Red	Steady on	The system is faulty.
USB	USB indicator	-	Off	No USB device is connected.
		Green	Steady on	A USB device is connected and working properly.
CLOUD	CLOUD indicator	-	Off	The device is not connected to a cloud management platform or the connection is interrupted.
		Green	Steady on	The connection to a cloud management platform is normal.
		Green	Blinking once every 0.25s (4 Hz)	The device is connecting to a cloud management platform.
-	GE electrical service port indicator	-	Off	The port is not connected or has been shut down.
		Green	Steady on	The link is established.

Silkscreen	Name	Color	Status	Description
		Yellow	Blinking	The port is sending or receiving data.
-	10GE optical service port indicator	-	Off	No link is established on the port.
		Green	Steady on	The link is established.
		Green	Blinking	The port is sending or receiving data.

Table 1-124 Buttons on the AC650-128AP

Silkscreen	Name	Description
RST	Reset button	<ul style="list-style-type: none"> Press the reset button for no more than 3 seconds to reset the device manually. Resetting the device will cause service interruption. Exercise caution when using this button. Press and hold down the reset button for more than 5 seconds to restore the factory settings and restart the device.

Technical Specifications

Table 1-125 Technical specifications of the AC650-128AP

Item	Specification
Installation Type	<ul style="list-style-type: none"> Rack Desk Wall

Item	Specification
Dimensions without packaging (H x W x D) [mm(in.)]	Basic: 43.6 mm x 250 mm x 210 mm (1.72 in. x 9.84 in. x 8.27 in.) Maximum: 43.6 mm x 250 mm x 215 mm (1.72 in. x 9.84 in. x 8.46 in.)
Weight without packaging [kg(lb)]	1.9kg
Storage	Nand FLASH 1GB
Console port	RJ45
Maximum power consumption [W]	23.58 W
Maximum heat dissipation [BTU/hour]	80.45 BTU/hour
Power supply mode	DC adapter
Service port surge protection	6 kV in common mode
Types of fans	None
Maximum number of physical ports on the entire device	2 x 10GE (SFP+) + 10 x GE (RJ45)
Long-term operating temperature [°C(°F)]	0°C to 45°C (32°F to 113°F) (If the altitude is in the range of 1800 m to 5000 m, the temperature decreases by 1°C or 1.8°F every time the altitude increases by 300 m.)
Storage temperature [°C(°F)]	-40°C to +70°C (-40°F to +158°F)
Long-term operating relative humidity [RH]	5% RH to 95% RH, non-condensing
Long-term operating altitude [m(ft.)]	-60 m to +5000 m (-196.85 ft to +16404.20 ft)
Atmospheric pressure [kPa]	53kPa - 106kPa ETSI 300 019-2-3
Ground	Ground
USB	1 x USB 2.0 (host type A) port
MTBF [year]	50 year
MTTR [hour]	2 hour

1.2 Installing a Wireless Access Controller

1.2.1 Preparing for Installation

1.2.1.1 Reading Carefully the Safety Cautions

Read and follow all the safety cautions and instructions on the chassis or described in this document to protect personal and equipment safety during installation, operation, and maintenance.

WARNING, CAUTION, and NOTE items in this document do not cover all the safety cautions and are only supplementary to the safety cautions.

Personnel who plan to install, operate, or maintain the device need to receive a thorough training, understand all necessary safety precautions, and be able to correctly perform all operations.

General Safety Guidelines

DANGER

In case of fire, immediately leave the building or equipment deployment site and press the fire alarm button or call the fire department. Never enter the building on fire again in any situation.

CAUTION

- Before performing any operation on a device, wear ESD clothing and ESD gloves or an ESD wrist strap. Remove conductive objects like jewelry and watches.
 - Connect the ground cable first after installing the device into a cabinet or rack. Do not remove the ground cable unless all the other cables and modules have been removed from the device.
-

Environmental Safety

DANGER

Do not place or operate the device in an environment with flammable or explosive gases or smoke.

CAUTION

- Keep the device away from water or damp to prevent damages to circuits.
 - The device heats during operation. The installation site must be well ventilated to ensure normal operation of the device.
-

Electric Safety

DANGER

- Direct contact with a high-voltage power source or indirect contact through damp objects can be fatal. Misoperations on high-voltage facilities may result in fire, electric shock, or other accident.
 - Power cables must be buried underground or routed indoors and cannot be led into the equipment room aerially.
 - Never install or remove the device or power cables while the power is on. The electric arc or spark generated between a power cable and conductor may cause fire or eye damage.
 - Do not turn on the power until you have finished installing the device and connecting cables. To protect personal and equipment safety, ground the device before powering it on.
 - Before connecting a power connector, ensure that the power source of the equipment room meets the input requirements of the power module.
 - The AC power cables of some models are delivered as accessories. They can only be used on the devices in the same package and cannot be used on any other device.
-

Laser Safety

CAUTION

- Invisible laser beams will cause eye damage. Do not look into open optical ports without eye protection.
 - After unplugging an optical fiber, cover the fiber connectors with dust caps.
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Mechanical Safety

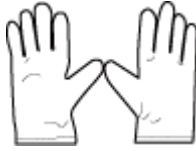



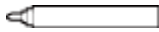




CAUTION

- Wear gloves to protect your hands from sharp edges when you are moving the chassis.
 - Before carrying a heavy object, use appropriate tools to protect yourself from bruise or sprain.
 - Before pulling the chassis out of the cabinet, check whether there are any unstable or heavy objects on the cabinet. Be careful not to make the objects fall, which may cause body injuries.
 - Do not drill holes on a cabinet without permission. Unqualified holes on a cabinet affect the electromagnetic filter performance of the cabinet and cause damages to the cables in the cabinet. In addition, metal scraps may fall into the cabinet when you are drilling holes, causing short circuit on printed circuit boards (PCBs).
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1.2.1.2 Preparing Installation Tools and Accessories

Table 1-131 lists the tools required for installing the series devices.

Table 1-131 Installation tools

Tool	Description	Picture
ESD gloves	Prevent electrostatic charges.	
ESD wrist strap	Prevents electrostatic charges. Wear the strap on your wrist and insert the other end into the ESD jack on the cabinet.	
Utility knife	Cuts cartons or paper.	
Measuring tape	Measures distances.	
Marker	Marks component installation positions and draws lines.	
Flat-head screwdriver (M4/M6)	Fastens or loosens small-sized screws and bolts. It is seldom used to fasten nuts.	
Phillips screwdriver (M4/M6)	Fastens or loosens small-sized screws and bolts. It is seldom used to fasten nuts.	
Diagonal pliers	Cuts insulation tubes and cable ties.	
Network cable tester	Tests network cable connectivity.	


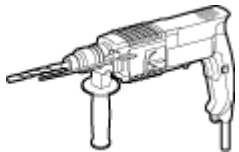



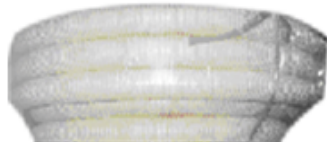
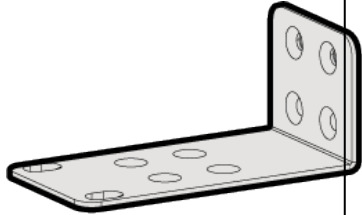
Tool	Description	Picture
Multimeter	Tests cabinet insulation, cable connectivity, and device electrical performance indicators including voltage, current, and resistance.	
Hammer drill (φ8)	Drills holes on a wall to install expansion screws when installing the device against the wall.	

Table 1-132 lists the installation accessories required for installing the series devices.

Table 1-132 Installation accessories

Accessory	Description	Picture
Cable ties	Bundles cables.	
Fiber binding tape	Bundles optical fibers.	
Insulation tape	Insulates power wires or other conductors.	
Corrugated tube	Protects optical fibers.	

Accessory	Description	Picture
Mounting brackets	Fixes the devices.	

1.2.1.3 Checking the Installation Position

Checking the Installation Site

The devices are used indoors. The requirements for the installation site are as follows:

- The devices must be installed in a clean, dry, well ventilated site with stable temperature. The installation site must be free from leaking or dripping water, heavy dew, and humidity.
- Dustproof measures must be taken in the site. Dust will cause static charges on the chassis and affect connections of metal connectors and joints. This shortens service life of the device and may cause failures of the device.
- The temperature and humidity in the site must be within acceptable ranges. For the operating temperature and relative humidity ranges required by the devices, see "Technical Specifications". If the relative humidity exceeds 70%, use dehumidifiers or air conditioners with dehumidification features.
- The installation site must be free from acidic, alkaline, and other types of corrosive gases.
- There should be sufficient space around the device for heat dissipation. Leave at least 50 mm clearance at two sides and rear of the device.

Checking the Cabinet or Rack

Requirements for the cabinet or rack are as follows:

- The device has an industry-standard width. It can be installed in a standard 19 inch cabinet or rack.
- The cabinet or rack must have reliable ground points to ground the device.
- A separately purchased non-standard cabinet or rack must have sufficient space for chassis installation and cabling.

Checking the Power Supply System

Requirements for the power supply system are as follows:

- The power supply system must be available in the equipment room before you install the device.
- The voltage provided to the device must be within the operating voltage. For the voltage range required by the device, see "Technical Specifications".

- The AC power cable must be connected to an AC power outlet that provides at least 10 A of output current. If a country-specific standard power outlet is used, connect the switch to the power outlet using an AC power cable complying with the local standards. If a C13 straight power outlet is used, connect the switch to the power outlet using an AC power cable with a C13 straight female connector and a C14 straight male connector.

1.2.2 Understanding Mounting Brackets and Installation Scenarios

Table 1-133 Mapping between AirEngine 9700-M/AirEngine 9700-M1 mounting brackets and scenarios

Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket
Cabinet or rack	310 mm to 351 mm	Front mounting bracket (standard)	Rear mounting bracket (standard)
	369 mm to 410 mm	(Mounting bracket A)	(Mounting bracket B)
	438 mm to 479 mm	(Mounting bracket A)	(Mounting bracket B)
	497 mm to 538 mm	(Mounting bracket A)	(Mounting bracket B)

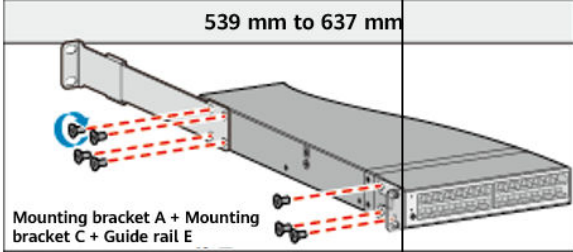
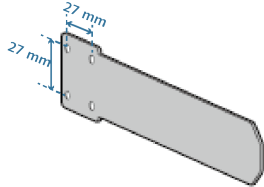
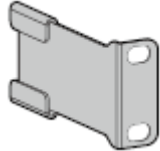
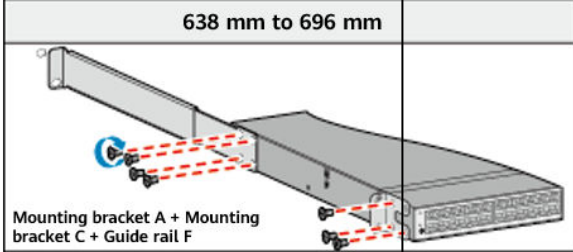
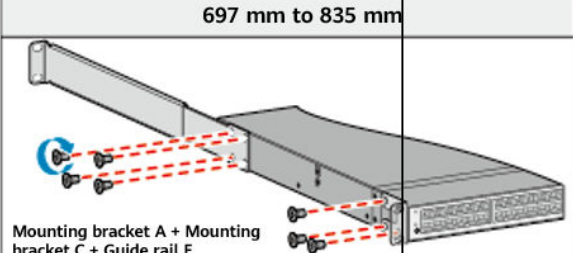
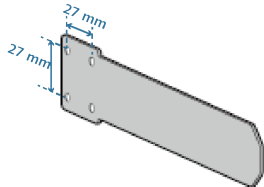
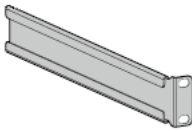
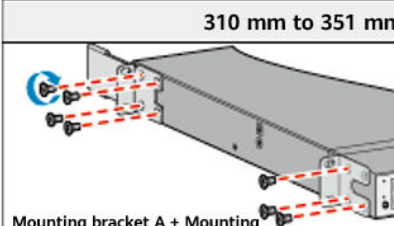
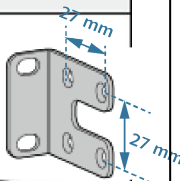
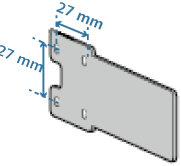
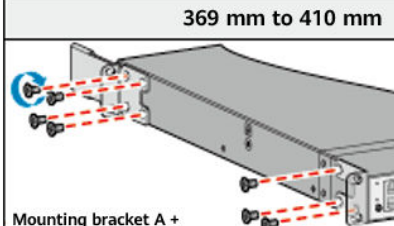
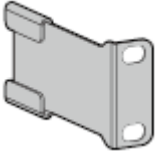
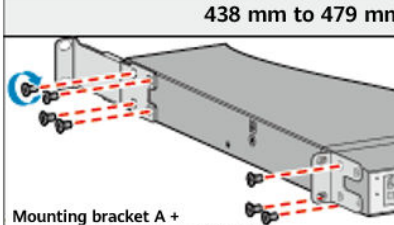
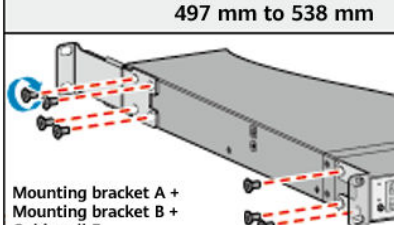
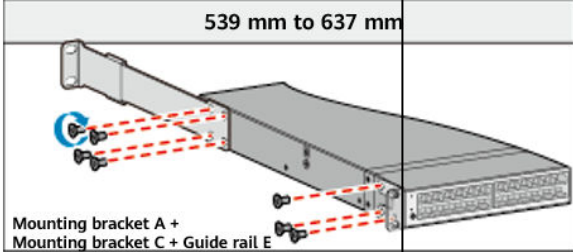
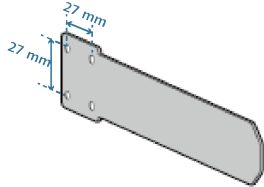
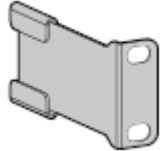
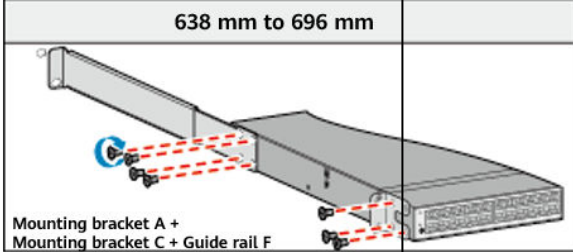
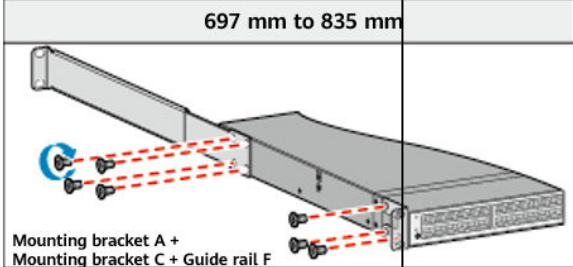
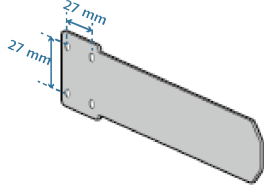
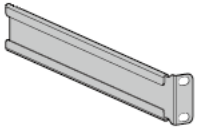
Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket
	<p>539 mm to 637 mm</p>  <p>539 mm to 637 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail E</p>		<p>Extended rear mounting bracket (optional, part number: 21240538)</p>  <p>(Mounting bracket C)</p>  <p>(Mounting bracket guide rail E)</p>
	<p>638 mm to 696 mm; 697 mm to 835 mm</p>  <p>638 mm to 696 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail F</p>  <p>697 mm to 835 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail F</p>		<p>Ultra-long rear mounting bracket (optional, part number: 21240537)</p>  <p>(Mounting bracket C)</p>  <p>(Mounting bracket guide rail F)</p>

Table 1-134 Mapping between AC6805/AirEngine 9700-H mounting brackets and scenarios

Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket/Adjustable Guide Rail
Cabinet or rack	310 mm to 351 mm; 369 mm to 410 mm; 438 mm to 479 mm; 497 mm to 538 mm	Front mounting bracket (standard)	Rear mounting bracket (standard)
	 <p>310 mm to 351 mm</p> <p>Mounting bracket A + Mounting bracket B + Guide rail E</p>	 <p>(Mounting bracket A)</p>	 <p>(Mounting bracket B)</p>
	 <p>369 mm to 410 mm</p> <p>Mounting bracket A + Mounting bracket B + Guide rail E</p>		 <p>(Mounting bracket guide rail E)</p>
	 <p>438 mm to 479 mm</p> <p>Mounting bracket A + Mounting bracket B + Guide rail E</p>		
 <p>497 mm to 538 mm</p> <p>Mounting bracket A + Mounting bracket B + Guide rail E</p>			

Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket/Adjustable Guide Rail
	<p>539 mm to 637 mm</p>  <p>539 mm to 637 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail E</p>		<p>Extended rear mounting bracket (optional, part number: 21240538)</p>  <p>(Mounting bracket C)</p>  <p>(Mounting bracket guide rail E)</p>
	<p>638 mm to 696 mm; 697 mm to 835 mm</p>  <p>638 mm to 696 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail F</p>  <p>697 mm to 835 mm</p> <p>Mounting bracket A + Mounting bracket C + Guide rail F</p>		<p>Ultra-long rear mounting bracket (optional, part number: 21240537)</p>  <p>(Mounting bracket C)</p>  <p>(Mounting bracket guide rail F)</p>

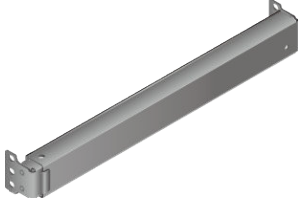
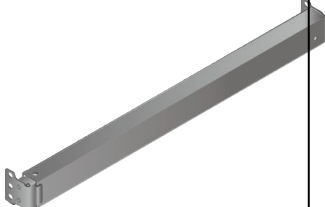
Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket/Adjustable Guide Rail
	370 mm to 585 mm		Adjustable guide rail (optional, part number: 21242247) 
	500 mm to 850 mm		Adjustable guide rail (optional, part number: 21242246) 

Table 1-135 Mapping between AC6508/AC6507S/AirEngine 9700S-S/AirEngine 9701-L/AirEngine 9701-L-T mounting brackets and scenarios

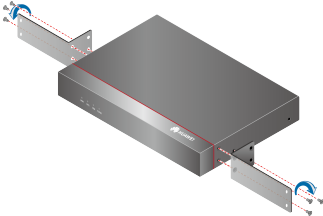
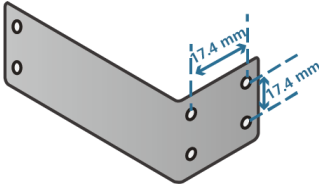
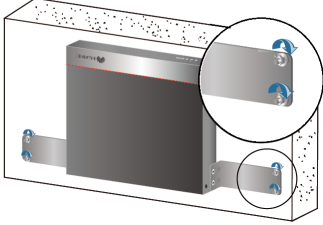
Scenario	Front Mounting Bracket	Rear Mounting Bracket
Cabinet or rack 	Optional (21240477) 	None
Wall mounting 		
Desktop or workbench	None	

Table 1-136 Mapping between AC6605 mounting brackets and scenarios

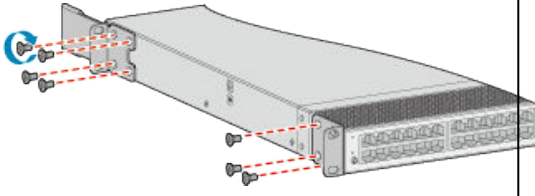
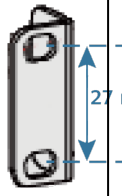
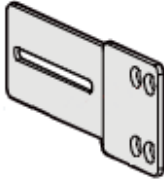
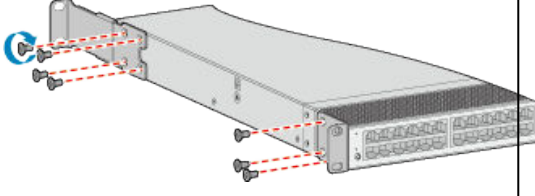
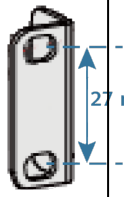
Scenario	Distance Between Front and Rear Mounting Rails	Front Mounting Bracket	Rear Mounting Bracket
Cabinet or rack	375 mm to 454 mm 	Standard 	Standard 
	507 mm to 566 mm 		
	-	Standard 	None
Desktop or work bench	-	None	None

Table 1-137 Mapping between AC6003/AC6005 mounting brackets and scenarios


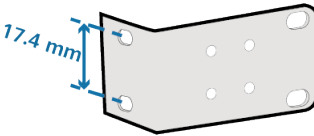
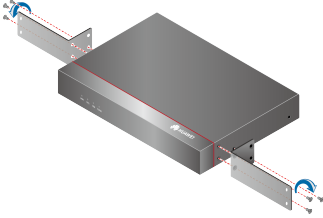
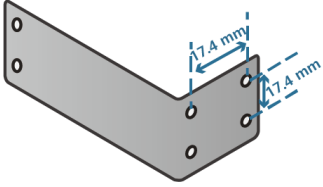
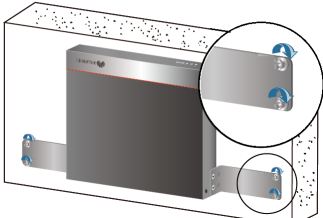
Scenario	Front Mounting Bracket	Rear Mounting Bracket
Cabinet or rack 	Standard 	None
Wall mounting		
Desktop or workbench	None	

Table 1-138 Mapping between AC650-32AP/AC650-64AP/AC650-128AP/AC650-256AP mounting brackets and scenarios

Scenario	Front Mounting Bracket	Rear Mounting Bracket
Cabinet or rack 	Optional (21240477) 	None
Wall mounting 		
Desktop or workbench	None	

1.2.3 AC Installation

1.2.3.1 Scenario 1: Installing a Device in a Cabinet or Rack

NOTICE

- There should be sufficient space around the device for heat dissipation. Leave at least 50 mm clearance at two sides and rear of the device.
- When fixing the chassis onto a cabinet or rack with mounting brackets, ensure that the mounting brackets are kept in a horizontal line in the mounting holes on the left and right mounting rails. If the mounting brackets are not in a horizontal line, do not install the chassis with force. Otherwise the chassis may be distorted.

Tools and Accessories

- ESD wrist strap or ESD gloves
- Phillips screwdriver
- Flat-head screwdriver
- Floating nuts

- M4 screws
- M6 screws
- Mounting brackets

Before installation, ensure that:

- The cabinet or rack is well fixed.
- The AC installation position in the cabinet or rack is determined and arranged properly.
- A minimum spacing of 1 U between devices mounted in the same cabinet or rack and 150 mm between devices mounted in different cabinets or rack are maintained.
- The AC to be installed is available and placed near the cabinet or rack for convenient movement.

Select proper mounting bracket installation combinations based on the distance between the front and rear mounting rails of the cabinet or rack. For details, see [1.2.2 Understanding Mounting Brackets and Installation Scenarios](#).

Installation Operations

Perform the operations based on the device models:

[Installation Procedure \(AC6003 and AC6005\)](#)

[Installation Procedure \(AC6605\)](#)

[Installation Procedure \(AC6805 and AirEngine 9700-H\)](#)

[Installation Procedure \(AirEngine 9700-M and AirEngine 9700-M1\)](#)

[Installation Procedure \(AC6508, AC6507S, AirEngine 9700S-S, AirEngine 9701-L, and AirEngine 9701-L-T\)](#)

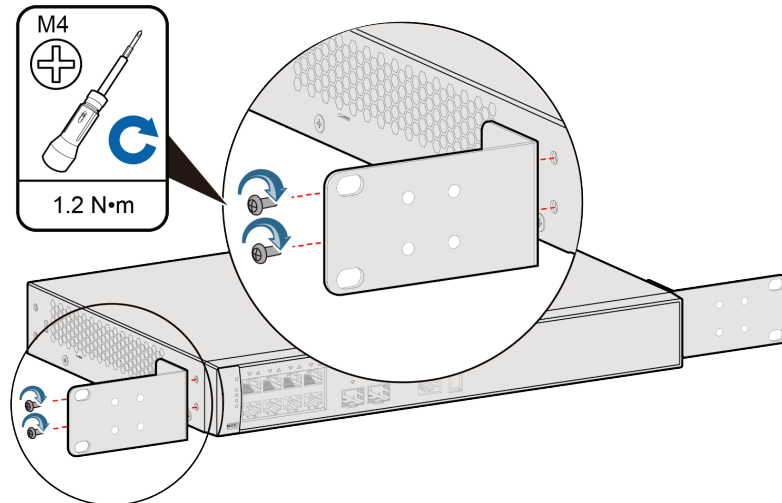
[Installation Procedure \(AC650-32AP, AC650-64AP, AC650-128AP, and AC650-256AP\)](#)

Installation Procedure (AC6003 and AC6005)

1. Install front mounting brackets. Install the front mounting brackets on two sides of the panel with interfaces.

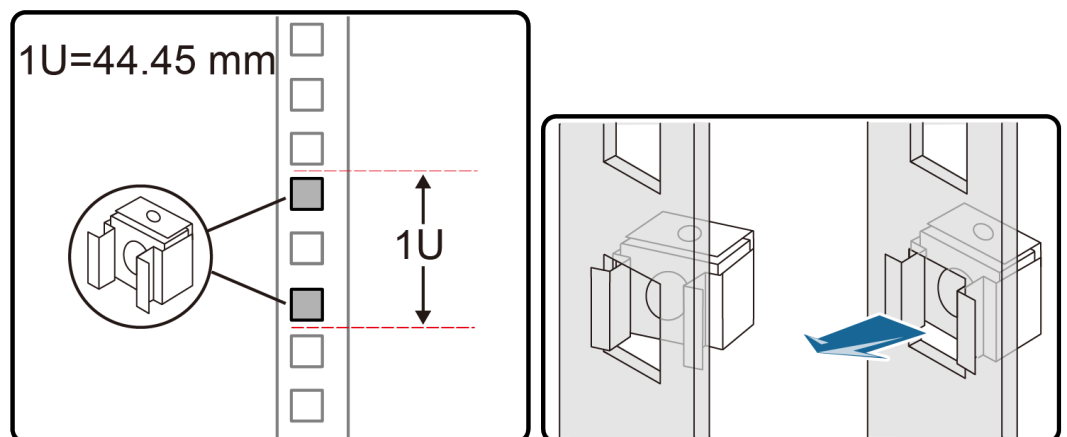
NOTE

The AC6003 and AC6005 series require only front mounting brackets which are delivered with the chassis.



2. Install floating nuts.

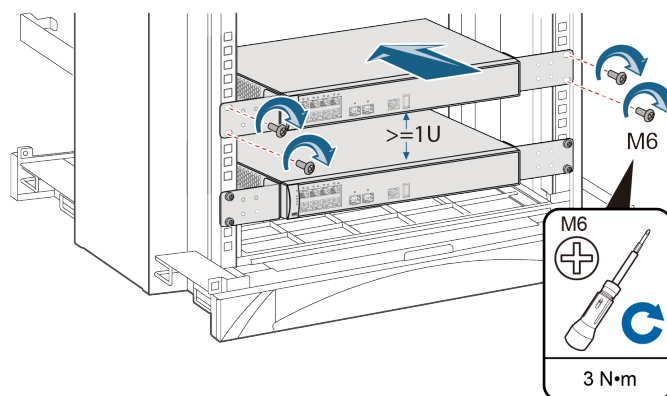
Install four floating nuts on the front mounting rails, two on each side. The AC6003 and AC6005 is 1 U high. Align the mounting holes on the mounting brackets with two holes with one hole between them on the mounting rails. Ensure that the floating nuts on both sides are aligned horizontally.



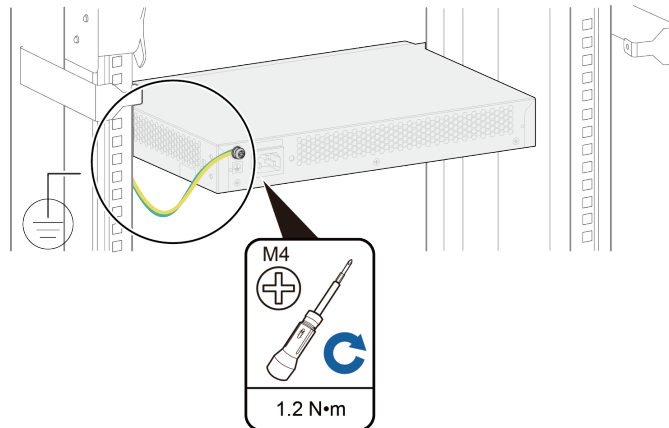
3. Mount the device in the cabinet or rack.

NOTICE

The distance between two devices must be at least 1 U.



4. Connect the M4 lug of the ground cable to the chassis and the M6 lug to the protection ground. The ground cable is in yellow and green.

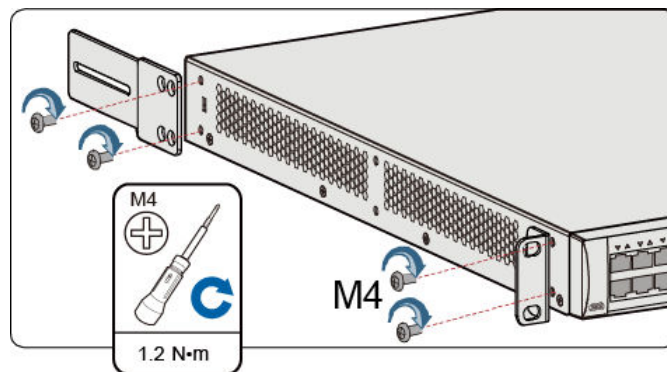


Installation Procedure (AC6605)

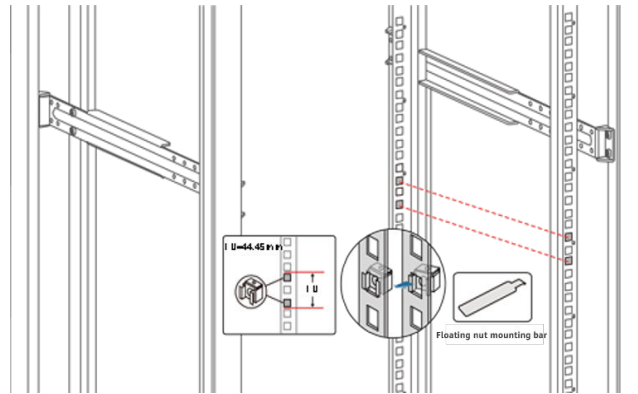
NOTE

You can install an AC6605 in a cabinet or rack in either of the following ways:

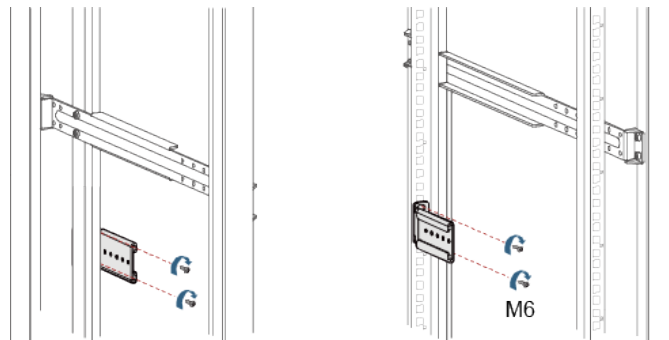
- Install front and rear mounting brackets to secure the chassis. The chassis does not need to be supported by guide rails or a tray. This method is used as an example to describe the installation procedure.
 - Use guide rails or a tray to support the chassis without the mounting brackets. The guide rails or a tray must be ordered individually.
1. Install two front mounting brackets and two rear mounting brackets on the chassis. It is recommended that you install the front mounting brackets on two sides of the panel with interfaces, and install the rear mounting brackets on two sides of the panel with power modules.



2. Install floating nuts.
 - Install four floating nuts on the front mounting rails, two on each side. The AC6605 chassis is 1 U high. Align the mounting holes on the mounting brackets with two holes with one hole between them on the mounting rails.
 - Install four floating nuts on the rear mounting rails, two on each side. The floating nuts on the rear mounting rails must be on the same horizontal line with the floating nuts on the front mounting rails.

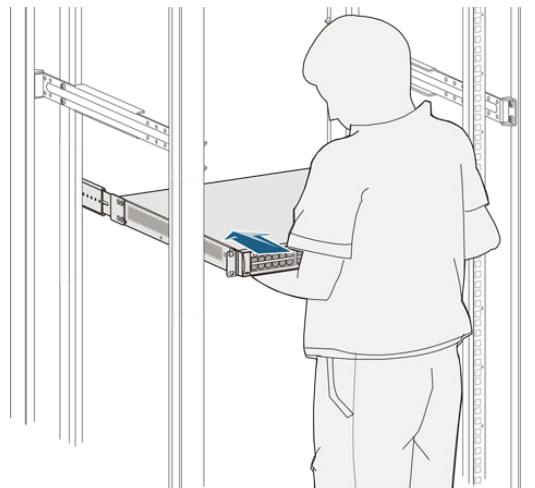


3. Install guide rails for the rear mounting brackets on the rear mounting rails.

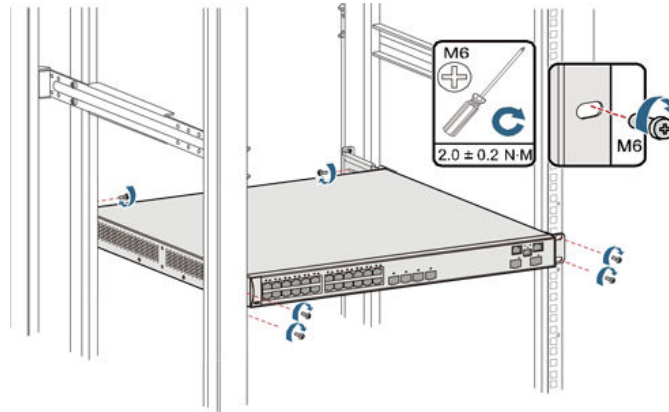


When the device is installed in a cabinet or rack, the installations of the rear guide rails vary according to the distance between the front and rear mounting rails. For details, see [Table 1-136](#).

4. Hold the bottom of the chassis and move the chassis into the cabinet or rack. Align the rear mounting brackets with their guide rails and gently slide the brackets into the guide rails.



5. Hold the bottom of the chassis with one hand and fix the front mounting brackets onto the front mounting rails with a screwdriver. Then fix the rear mounting brackets onto the rear guide rails.



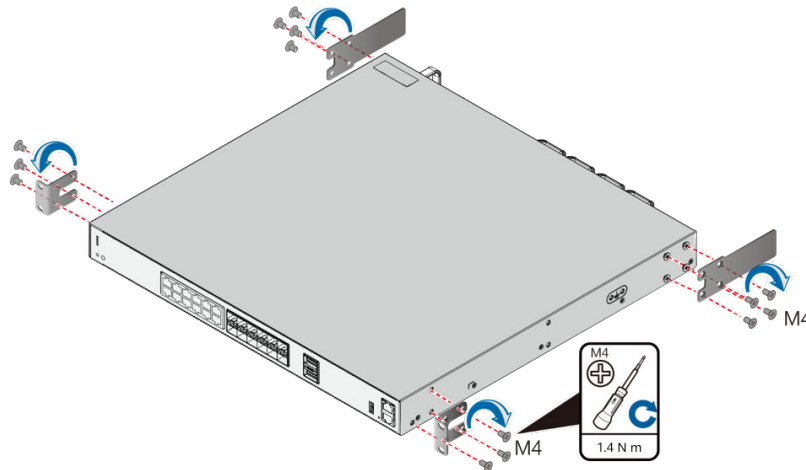
Installation Procedure (AC6805 and AirEngine 9700-H)

NOTE

You can install an AC6805 in a cabinet or rack in either of the following ways:

- Install front and rear mounting brackets to secure the chassis. The chassis does not need to be supported by guide rails or a tray. This method is used as an example to describe the installation procedure.
 - Use guide rails or a tray to support the chassis without the mounting brackets. The guide rails or a tray must be ordered individually.
1. Install two front mounting brackets and two rear mounting brackets on the chassis. It is recommended that you install the front mounting brackets on two sides of the panel with interfaces, and install the rear mounting brackets on two sides of the panel with power modules.

Figure 1-79 Installing mounting brackets on the AC



2. Install floating nuts.
 - Install four floating nuts on the front mounting rails, two on each side. The chassis is 1 U high. Align the mounting holes on the mounting brackets with two holes with one hole between them on the mounting rails.
 - Install four floating nuts on the rear mounting rails, two on each side. The floating nuts on the rear mounting rails must be on the same horizontal line with the floating nuts on the front mounting rails.

Figure 1-80 Installation positions of floating nuts

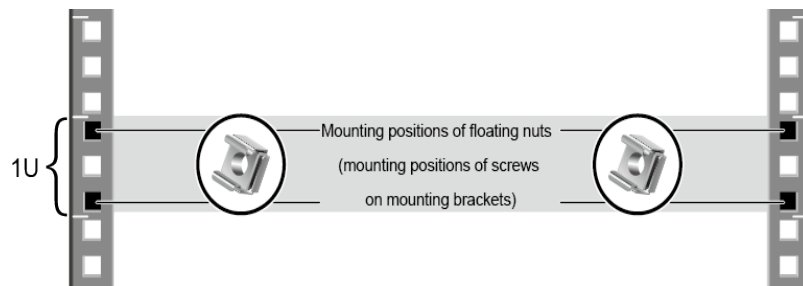
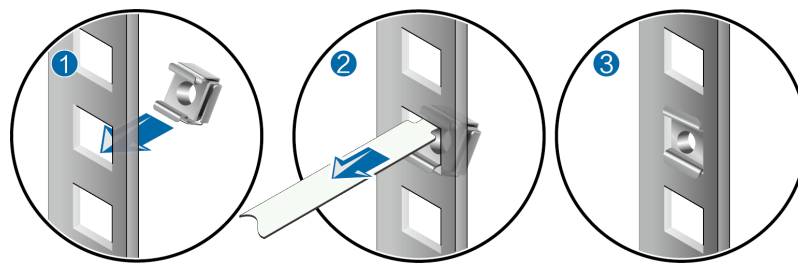
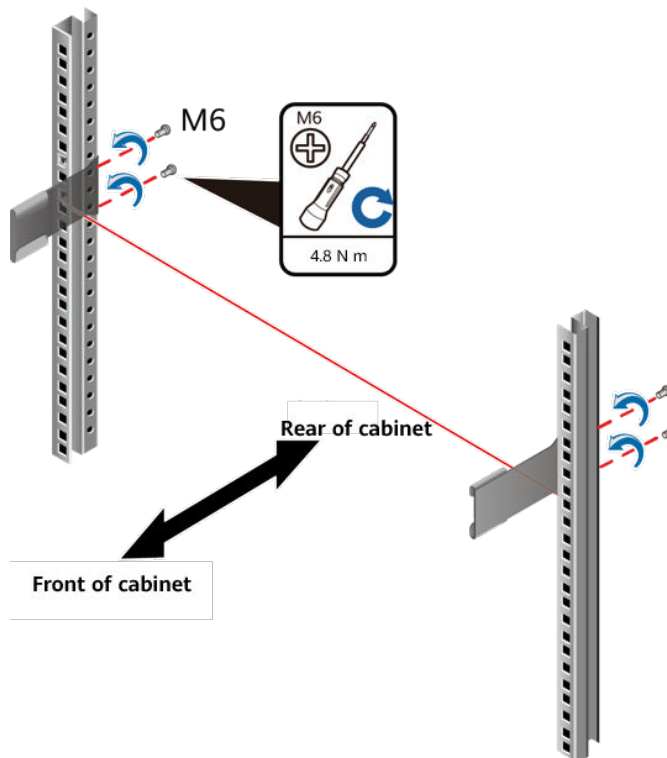


Figure 1-81 Installing floating nuts

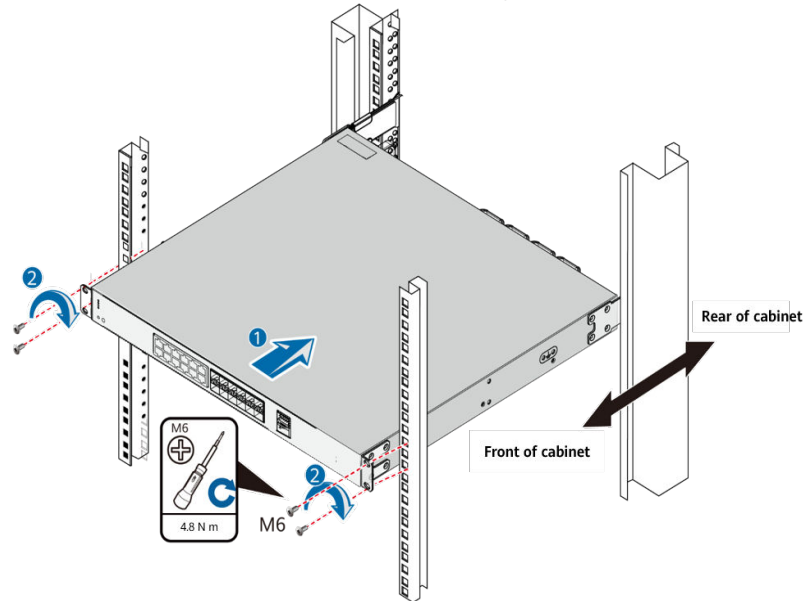


3. Install guide rails for the rear mounting brackets on the rear mounting rails.



When the device is installed in a cabinet or rack, the installations of the scalable rear mounting brackets and adjustable guide rails vary according to the distance between the front and rear mounting rails. For details, see [Table 1-134](#).

4. Hold the bottom of the chassis with one hand and slide the device along the rear guide rails by aligning the rear mounting brackets with the guide rails. Use a screwdriver with the other hand to fix the front mounting brackets onto the front mounting rails. Then fix the rear mounting brackets to the rear guide rails.



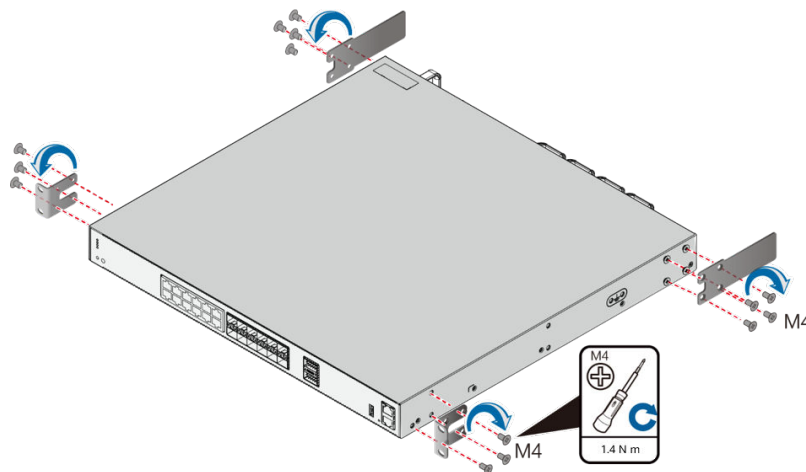
Installation Procedure (AirEngine 9700-M and AirEngine 9700-M1)

NOTE

When installing the AirEngine 9700-M/AirEngine 9700-M1 in a cabinet or rack, you can:

- Install front and rear mounting brackets to secure the chassis. The chassis does not need to be supported by guide rails or a tray. This method is used as an example to describe the installation procedure.
 - Use guide rails or a tray to support the chassis without the mounting brackets. The guide rails or a tray must be ordered individually.
1. Install two front mounting brackets and two rear mounting brackets on the chassis. It is recommended that you install the front mounting brackets on two sides of the panel with interfaces, and install the rear mounting brackets on two sides of the panel with power modules.

Figure 1-82 Installing mounting brackets on the AC



2. Install floating nuts.
 - Install four floating nuts on the front mounting rails, two on each side. The chassis is 1 U high. Align the mounting holes on the mounting brackets with two holes with one hole between them on the mounting rails.
 - Install four floating nuts on the rear mounting rails, two on each side. The floating nuts on the rear mounting rails must be on the same horizontal line with the floating nuts on the front mounting rails.

Figure 1-83 Installation positions of floating nuts

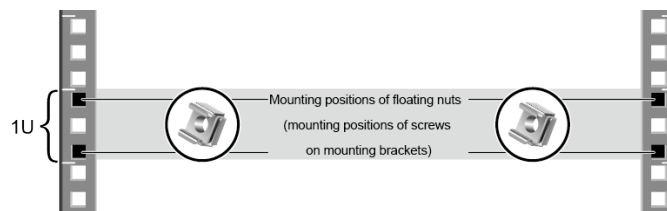
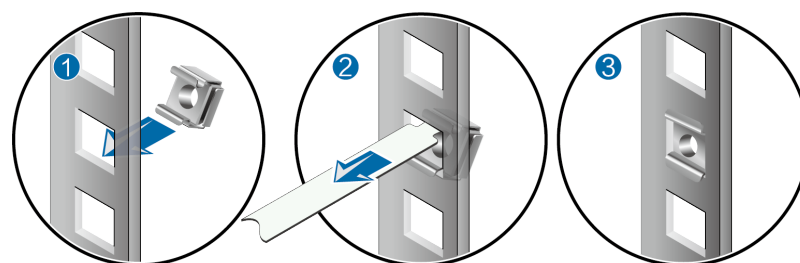
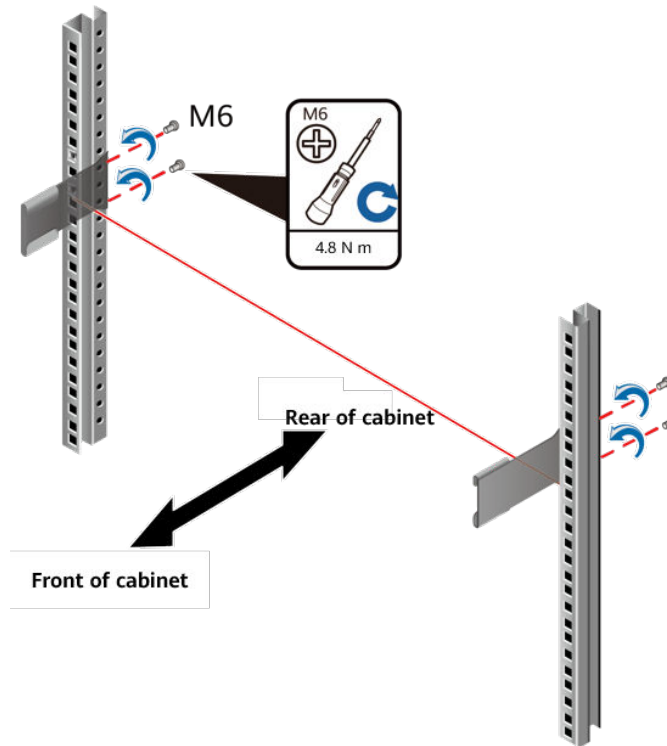


Figure 1-84 Installing floating nuts

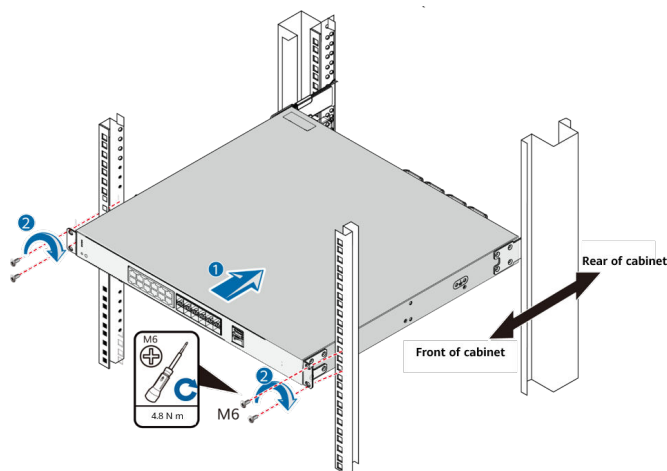


3. Install guide rails for the rear mounting brackets on the rear mounting rails.



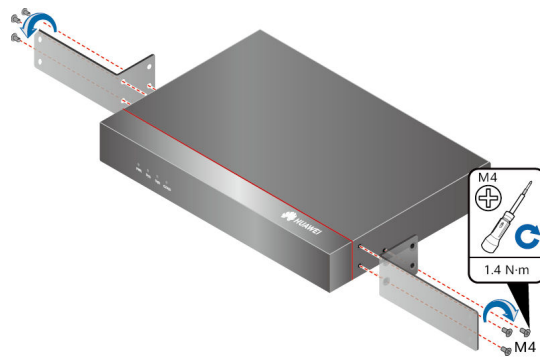
When the device is installed in a cabinet or rack, the installations of the scalable rear mounting brackets and adjustable guide rails vary according to the distance between the front and rear mounting rails. For details, see [Table 1-133](#).

4. Hold the bottom of the chassis with one hand and slide the device along the rear guide rails by aligning the rear mounting brackets with the guide rails. Use a screwdriver with the other hand to fix the front mounting brackets onto the front mounting rails. Then fix the rear mounting brackets to the rear guide rails.



Installation Procedure (AC6508, AC6507S, AirEngine 9700S-S, AirEngine 9701-L, and AirEngine 9701-L-T)

1. Use a Phillips screwdriver to fix the mounting brackets to both sides of the chassis with M4 screws.



2. Install two floating nuts on each front mounting rail. Leave a mounting hole between the two floating nuts on the same mounting rail.

Figure 1-85 Installation positions of floating nuts

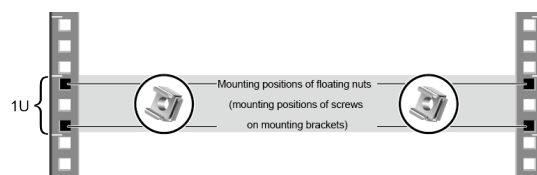
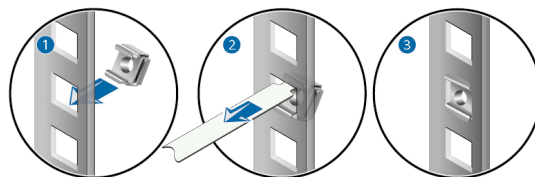
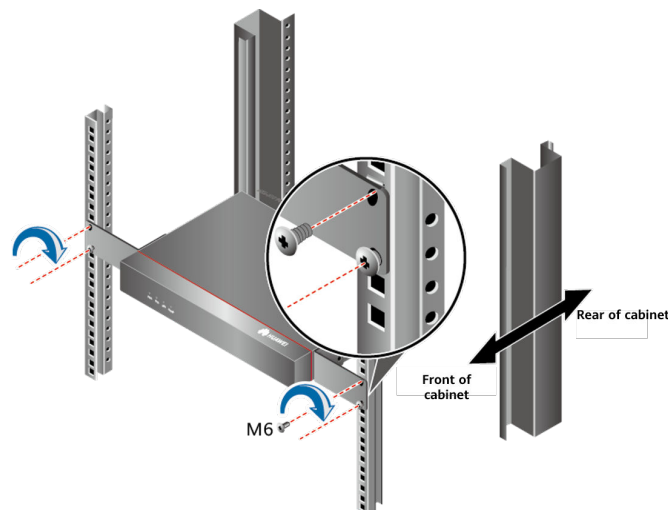


Figure 1-86 Installing floating nuts



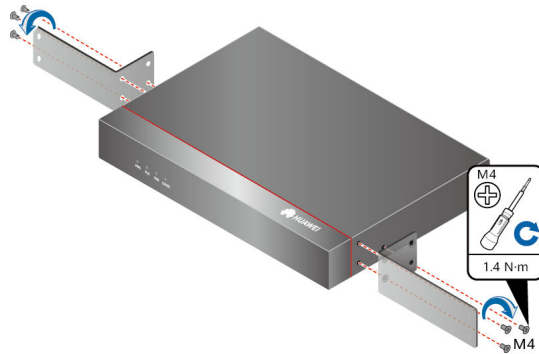
3. Mount the device into the cabinet or rack.
 - a. Lift the device and move it into the cabinet or rack. Align the mounting holes on the mounting brackets with the floating nuts.
 - b. Use a Phillips screwdriver to install M6 screws and secure the mounting brackets of the device onto the mounting rails of the cabinet or rack, as shown in [Figure 1-87](#).

Figure 1-87 Mounting the device into a cabinet or rack



Installation Procedure (AC650-32AP, AC650-64AP, AC650-128AP, and AC650-256AP)

1. Use a Phillips screwdriver to fix the mounting brackets to both sides of the chassis with M4 screws.



2. Install two floating nuts on each front mounting rail. Leave a mounting hole between the two floating nuts on the same mounting rail.

Figure 1-88 Installation positions of floating nuts

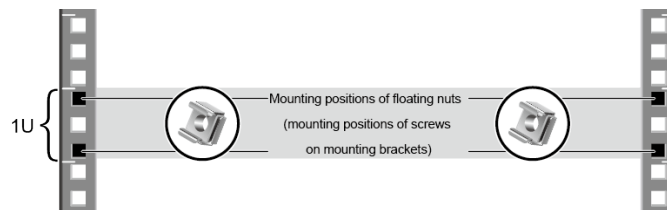
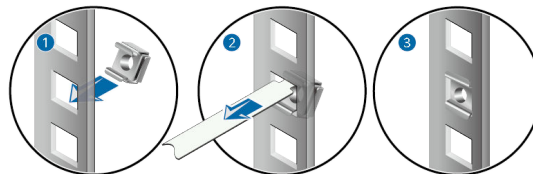
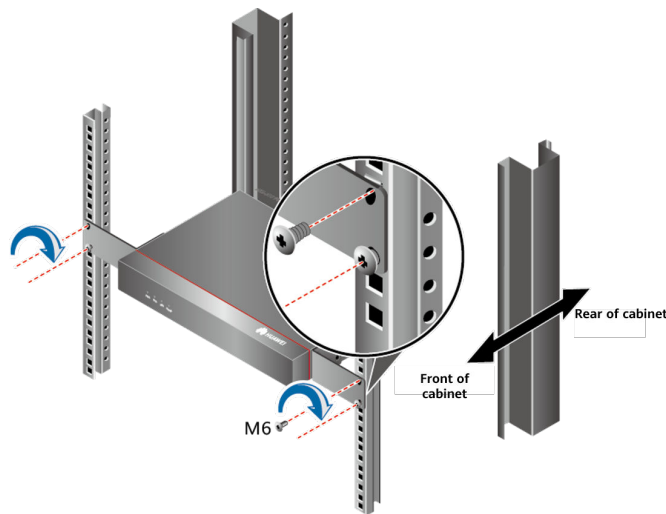


Figure 1-89 Installing floating nuts



3. Mount the device into the cabinet or rack.
 - a. Lift the device and move it into the cabinet or rack. Align the mounting holes on the mounting brackets with the floating nuts.
 - b. Use a Phillips screwdriver to install M6 screws and secure the mounting brackets of the device onto the mounting rails of the cabinet or rack, as shown in [Figure 1-90](#).

Figure 1-90 Mounting the device into a cabinet or rack



1.2.3.2 Scenario 2: Installing a Device on a Desk

NOTICE

- Ensure that the desk is flat and properly grounded.
 - Do not place other objects on the device.
-

Tools and Accessories

- ESD wrist strap or ESD gloves
- Rubber pads
- Security lock (optional, purchased separately)

NOTE

The rubber pads are included in the installation accessory package delivered with the device.

Procedure

Step 1 Wear an ESD wrist strap or ESD gloves.

Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Attach the rubber pads to the bottom of the device.

Slowly turn the device upside down, and then attach four rubber pads in the imprinted round areas at the bottom of the chassis. See (a) in [Figure 1-91](#).

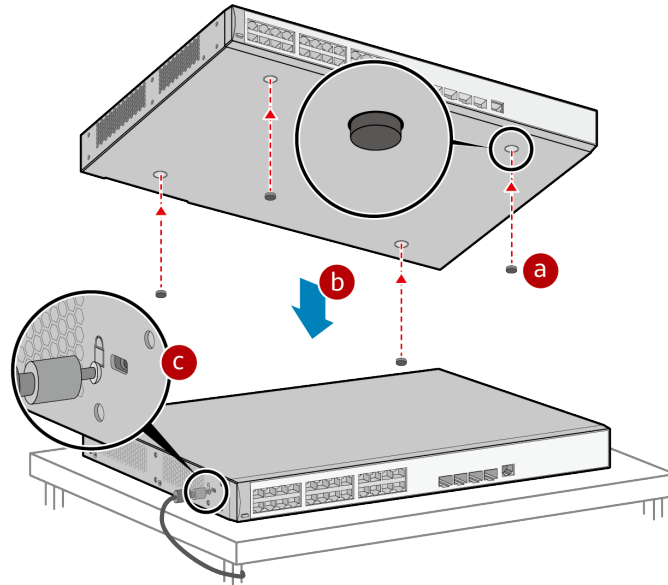
Step 3 Place the device on the desk.

Turn the chassis over and gently place the chassis on the desk. See (b) in [Figure 1-91](#).

Step 4 (Optional) Install the security lock.

The device provides a security slot on the left side. Users can use the security lock to fix the device on a desk. See (c) in [Figure 1-91](#).

Figure 1-91 Installing the device on a desk



----End

1.2.3.3 Scenario 3: Installing the Device on a Wall

NOTICE

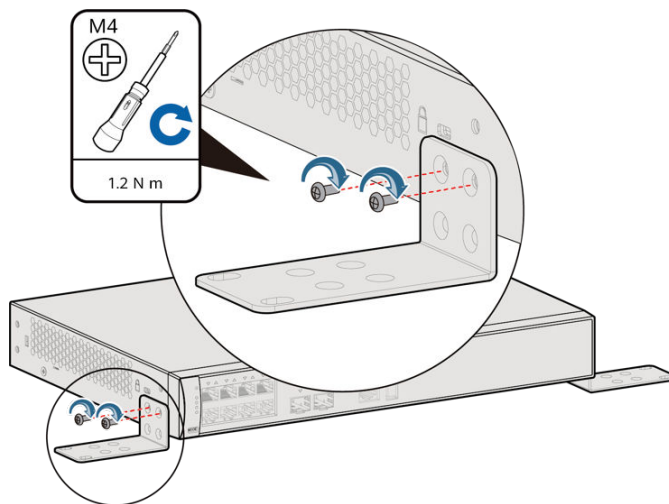
- When mounting a device on the wall, do not attach rubber pads to the device. If the rubber pads have been attached, remove them.
- Before drilling holes on a wall, make sure that no power cable is routed in the wall. Otherwise, power cables in the wall may cause personal injury.
- Ensure that there are no flammable or explosive materials near the device and no obstructions within 100 mm around the device.
- Use a ladder if necessary when mounting the device on the wall.
- A wall for installing the device needs to meet the following requirements:
 - The wall can bear the weight of four times the total weight of the device and mounting bracket without damage. When the total weight of the device and mounting bracket is less than 1.25 kg, the load-bearing capability of the wall must be greater than or equal to 5 kg.
 - When the tightening torque of a screw reaches 3.5 N·m, the screw still properly works, without crack or damage on the wall.

Tools and Accessories

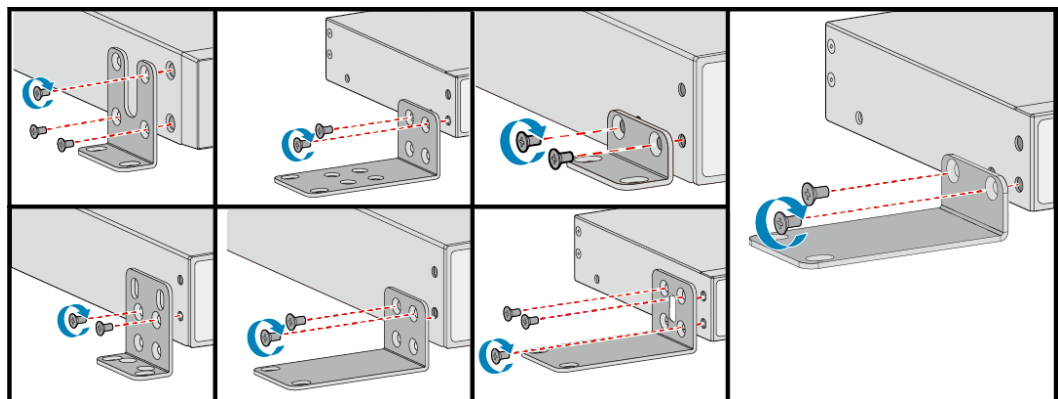
- ESD wrist strap or ESD gloves
- Phillips screwdriver
- Flat-head screwdriver
- Marker
- Ruler
- Hammer drill
- M4 screws
- Expansion bolts
- Mounting brackets
- Vacuum cleaner
- Hammer

Procedure

Step 1 Fix mounting brackets to both sides of the panel with interfaces using M4 screws.



Mounting brackets and installations differ depending on AC models. The installations of different mounting brackets are shown in the following figure.



Step 2 Use a marker to mark the drilling positions according to the size of the device and positions of the mounting brackets, see [Figure 1-92](#). You are advised to install the

device at a position that is 1700 mm higher above the floor but lower than 2500 mm to facilitate maintenance and observation of indicators, see [Figure 1-93](#).

 **NOTE**

- The wall must be a bearing wall. Otherwise, the wall is not suitable for mounting.
- The device is installed at an appropriate height to ensure that the indicators can be observed easily.

Figure 1-92 Marking the drilling positions

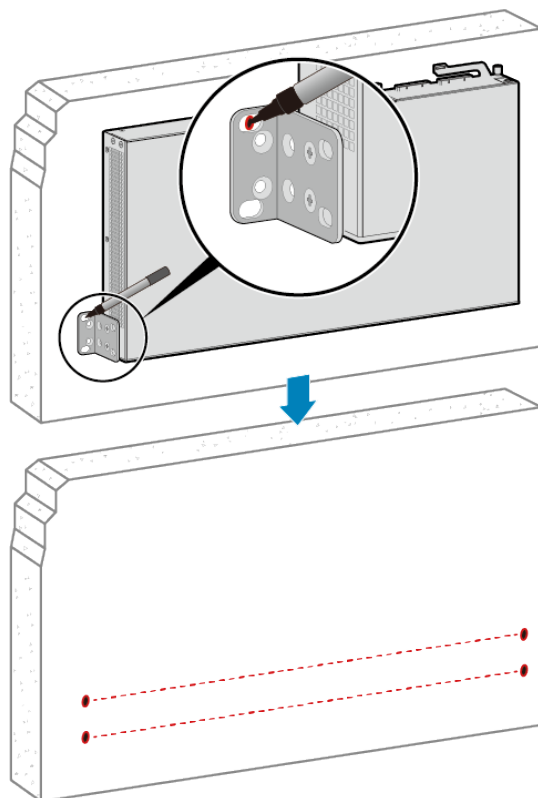
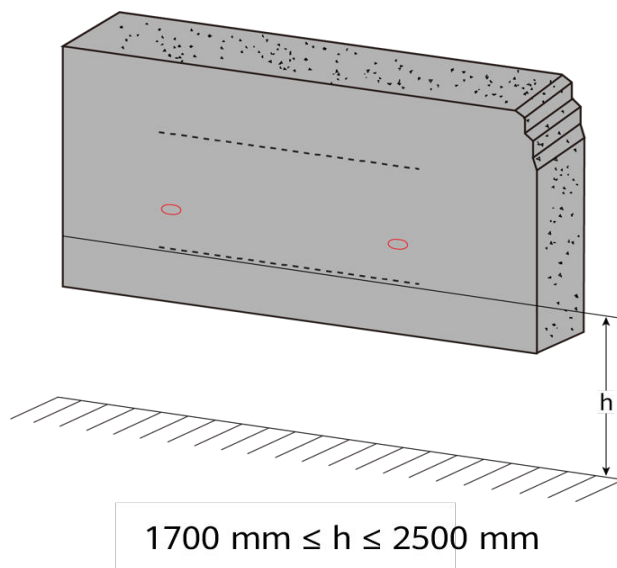
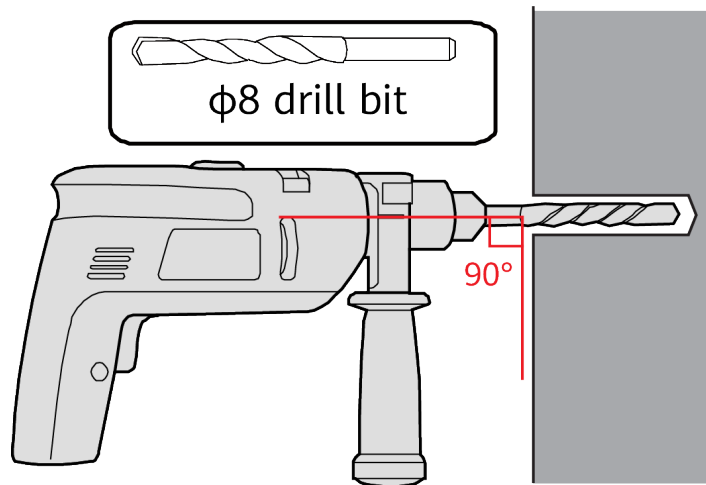


Figure 1-93 Installation height

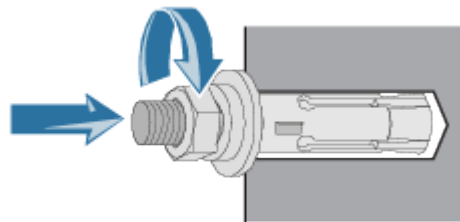


Step 3 Install expansion bolts in the wall.

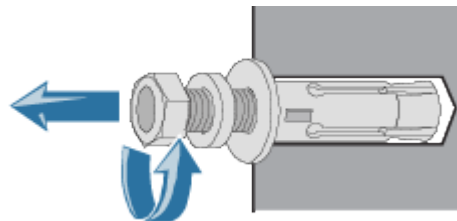
1. Use a $\phi 8$ drill bit to drill holes in the marked positions.



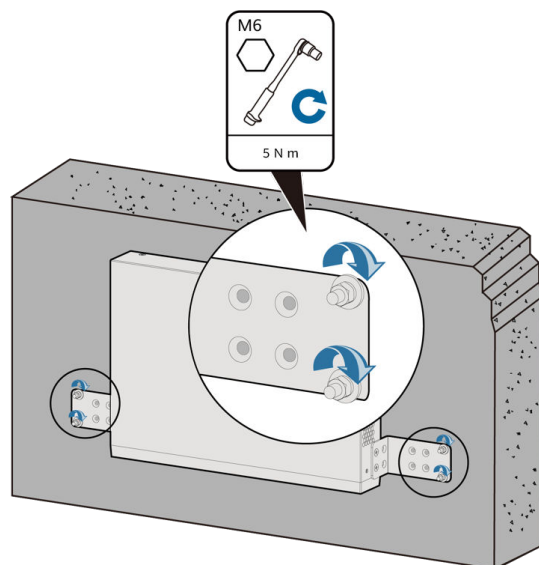
2. Insert expansion bolts into the holes and screw the nuts to fasten the expansion bolts.



3. Remove the nut, flat washer, and spring washer.



Step 4 Install the device on the wall.



----End

1.2.4 Connecting the Cable

1.2.4.1 Connecting Power Cables

Context

NOTICE

- Power cables must be buried underground or routed indoors and cannot be led into the equipment room aerially.
 - To protect personal safety, do not install power cables while the power is on.
 - Do not turn on the power until you have finished installing the device and connecting cables.
 - Each device has an AC power cable delivered as an accessory. The AC power cable can only be used on the device in the same package and cannot be used on any other device.
-

Tools and Accessories

- ESD wrist strap or ESD gloves
- Phillips screwdriver
- AC power cables
- (Optional) AC terminal locking latch

NOTE

The AC power cable parameters vary in different countries or regions. The figures in this section are provided only for reference. The AC terminal locking latch is not delivered with the switch and needs to be purchased separately if needed.

Procedure

Step 1 Wear an ESD wrist strap or ESD gloves.

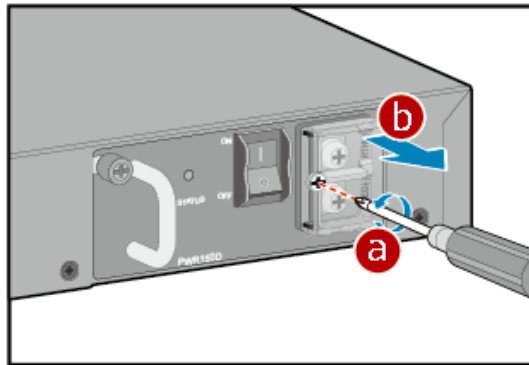
Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Turn off the external power supply system.

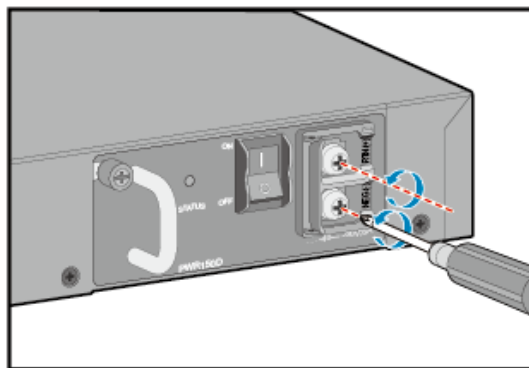
Step 3 Connect the power cables.

DC power input

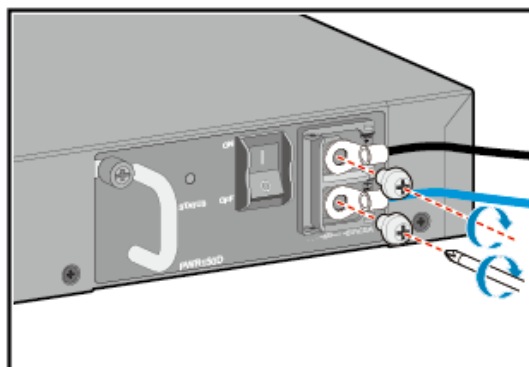
1. Use the Phillips screwdriver to loosen the screw on the protection cover of the DC terminals and remove the protection cover.



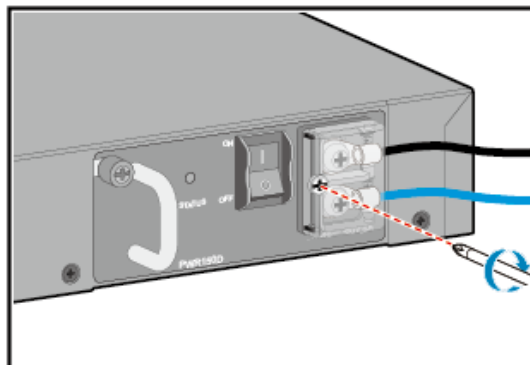
2. Use the Phillips screwdriver to remove the screws on the two DC terminals.



3. Use the screws you just removed to secure the DC power cables by attaching the OT terminals of the power cables to the DC power module. The black cable is the -48 V return ground cable and must be connected to the RTN(+) terminal on the DC power module. The blue cable is the -48 V power cable and must be connected to the NEG(-) terminal on the DC power module.

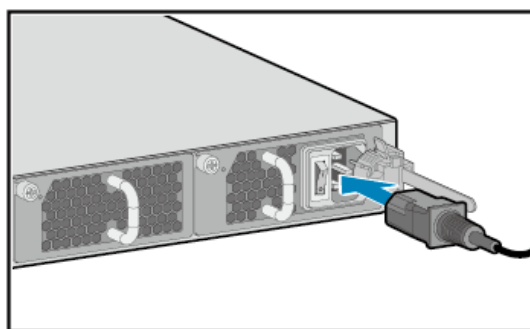


4. Use a Phillips screwdriver to fasten the screw on the DC terminal protective cover.

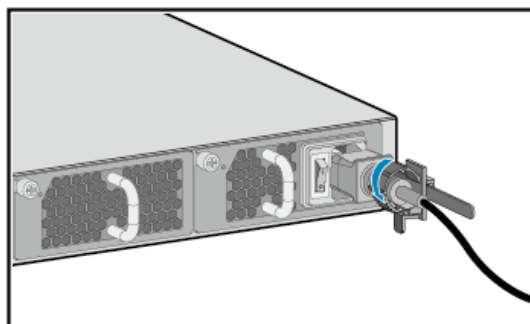


AC power input

1. Insert the plug of the AC power cable into the power socket on the AC power module.



2. Lock the AC power cable with the AC terminal locking latch.



3. Connect the other end of the AC power cable to the external AC power supply system.

Power supply via a DC power adapter

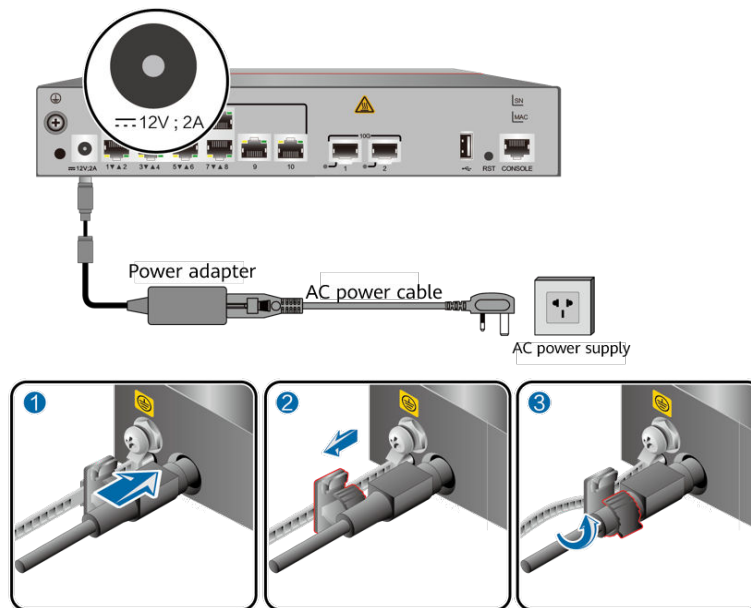
1. Insert the cable-retention clip into the jack next to the power socket, and see step (1) in the figure.
2. Connect the power adapter to the AC.
 - a. Insert the plug of the AC power cable into the socket of the power adapter.
 - b. Insert the tuning fork plug of the power adapter into the power socket on the AC rear panel and adjust the cable-retention clip to an appropriate position.

- c. Use the cable-retention clip to bundle the cable of the power adapter and adjust the cable-retention clip to fasten the cable, and see step (2) and step (3) in the figure.
- d. Plug the other end of the AC power cable to the AC power socket or the output of the AC power supply device.

 **NOTE**

Some AC models do not have a power switch. The switch of the power supply determines whether to power on the AC immediately.

Figure 1-94 Connecting the power adapter to the AC



----End

Follow-up Procedure

Complete a post-installation check before powering on the AC. For details, see [1.2.5 Verifying the Installation](#).

1.2.4.2 Connecting Signal Cables

Context

 **CAUTION**

Invisible laser beams will cause eye damage. Do not look into open optical ports without eye protection.

NOTICE

- Keep signal cables more than 10 cm away from power cables.
- To prevent damages to wires in cables or fibers, do not overbend cables, especially optical fibers.
- Protect optical fibers in a cabinet with a corrugated pipe. Ensure that the bend radius of an optical fiber is at least 20 times larger than the fiber diameter. In most cases, the bend radius of optical fibers should be no less than 40 mm.
- Before connecting an optical fiber, check whether its connector is contaminated. If so, use an air-laid cotton or a fiber cleaner to clean the fiber connector.

Tools and Accessories

- ESD wrist strap or ESD gloves
- Network cables or optical fibers
- Cable ties
- Fiber binding tape
- Diagonal pliers

Operation Suggestions

Pay attention to the following points when binding cables or optical fibers:

- Cables or optical fiber must be bundled at equal intervals. Bundle cables or optical fibers in a cabinet at less than 250 mm intervals.
- Do not bundle cables especially optical fibers too tight.
- Cover idle fiber connectors with dust caps and cover idle optical ports with dust plugs.
- Wrap redundant optical fibers, power cables, and network cables neatly so that you can find required cables easily during maintenance.
- Cable connectors made onsite must be securely attached, reliable, neat, and comply with related regulations.

When a large number of cables need to be connected, arrange the cables in the cabinet, and then install cable connectors. [Figure 1-95](#) shows connected cables and optical fibers.

Figure 1-95 Cables and optical fibers in a cabinet

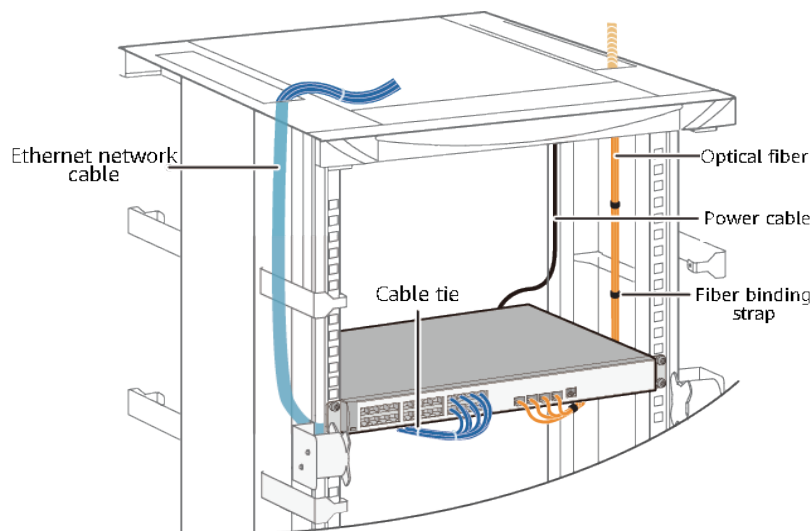
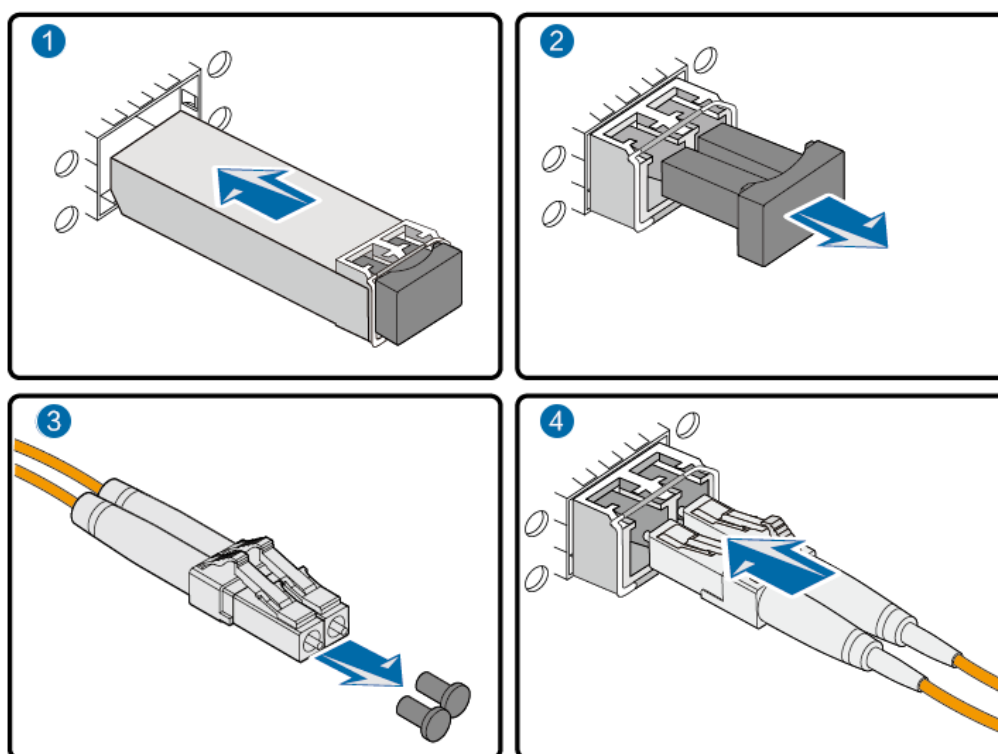


Figure 1-96 shows the connection of optical fibers.

Figure 1-96 Connecting optical fibers



NOTE

- Pay attention to interface identifiers and make sure that the cable is connected to the correct interface, preventing damage to the interface module or the device.
- This figure is only for reference. The actual layout of cables and optical fibers in a cabinet depends on the installation scenario and interface usage.

1.2.4.3 Connecting the Ground Cable

Context

Grounding is a key step in device installation. The ground cable of a device must be correctly connected to protect the device from lightning, electromagnetic interference, and electrostatic charges.

The ground cable can be connected to a ground point on the cabinet/rack or a ground bar, depending on the situations in the installation site. The following procedure connects the ground cable to a ground point on the cabinet/rack.

NOTE

If a cabinet or rack has anti-rust coating, scrape off the paint around the ground point to ensure reliable grounding.

Tools and Accessories

- ESD wrist strap or ESD gloves
- Phillips screwdriver
- Ground cable (one for each device)
- M4 screw (already installed on the ground point on the device)
- M6 screw (one, separately purchased)
- Multimeter

NOTE

The ground cable is included in the installation accessory package delivered with the device.

Procedure

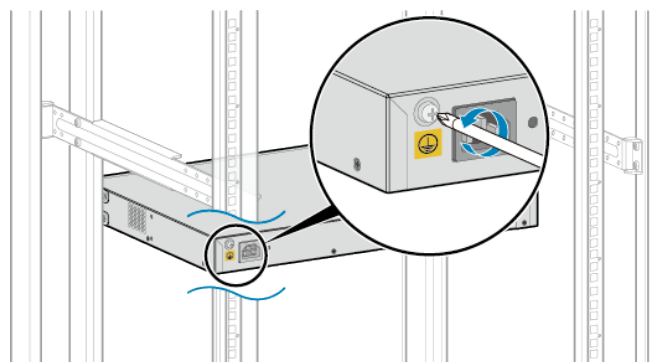
Step 1 Wear an ESD wrist strap or ESD gloves.

Ensure that the ESD wrist strap is grounded and in a close contact with your wrist.

Step 2 Remove the M4 screw from the ground point on the device.

Loosen the M4 screw counterclockwise with the Phillips screwdriver, as shown in [Figure 1-97](#). Keep the M4 screw for later use.

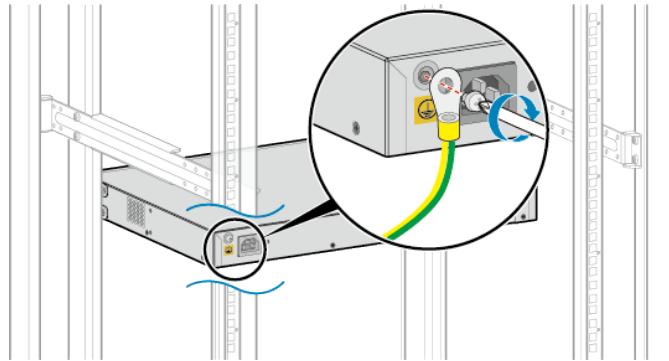
Figure 1-97 Removing the M4 screw



Step 3 Connect the ground cable to the ground point on the device.

Fix the M4 lug (with a smaller hole) of the ground cable to the ground point on the device with the M4 screw you removed in step 2, and use the Phillips screwdriver to fasten the M4 screw clockwise with a torque of 1.4 N·m. See [Figure 1-98](#).

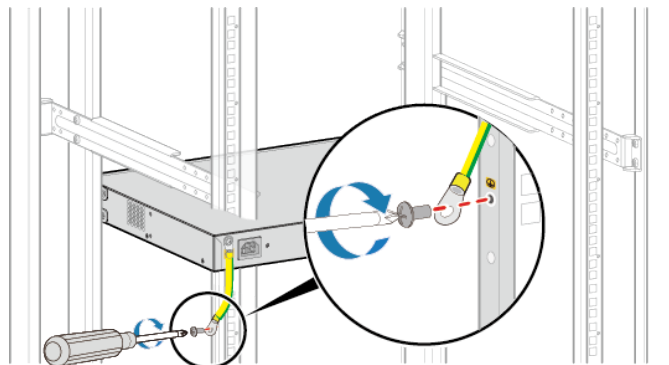
Figure 1-98 Connecting a ground cable to the ground point on the device



Step 4 Connect a ground cable to the ground point on the cabinet.

Connect the M6 lug (with a larger hole) of the ground cable to the ground point on the cabinet, desk, or wall. Tighten the M6 screw with a torque of 4.8 N·m. See [Figure 1-99](#).

Figure 1-99 Connecting the ground cable to the ground point on the cabinet



NOTE

If the device is installed on a desk, refer to steps 1 to 3 to install the ground cable on the device, and then connect the other end of the ground cable to the nearby ground point on the wall.

----End

1.2.5 Verifying the Installation

Table 1-139 shows the items to be checked after AC installation is complete.

Table 1-139 Post-installation checklist

No.	Check Item	Check Method
1	The installation position of the AC meets the requirement in the associated engineering design document.	Observe
2	The surfaces of the AC are clean and smooth, free from fingerprints, stains, and scratches.	Check
3	Components are correctly installed in a cabinet. No component is loose or damaged.	Check
4	All screws are correctly tightened.	Check
5	There are no objects on the chassis.	Check
6	There is at least 50 mm clearance on the left and right sides of the chassis for heat dissipation.	Measure
7	Signal cables are not damaged or broken and have no splices.	Check
8	Signal cable connectors are clean, intact, and correctly connected. Wires of each signal cable are securely clamped in the connectors.	Check
9	Each signal cable has labels attached at both ends, with clear text facing the same direction.	Check
10	The power cables and ground cable are all copper wires, and are not spliced or damaged.	Observe
11	Power cables and ground cables are routed in compliance with the engineering design document, meeting power distribution requirements.	Check
12	The power cables and ground cable are securely connected in compliance with regulations. Ground cable lugs are protected with spring washers on flat washers.	Check
13	Power cables and ground cables are separated from signal cables.	Check
14	The power cables and ground cable are routed straightly and bundled neatly. Sufficient slack is left at the bent part of the cables.	Check

No.	Check Item	Check Method
15	Optical fibers routed out of the cabinet are protected. For example, they are routed in a corrugated pipe or trough.	Check
16	The bend radius of optical fibers is 20 times larger than their diameter. Generally, the bend radius is greater than 40 mm.	Measure
17	Optical fibers are properly arranged and bundled using cable ties with suitable force.	Check
18	No signal cables are routed near the heat vents on the cabinet.	Observe
19	Cables in the cabinet do not cross each other and cables outside the cabinet are bundled.	Check

After an AC is powered on, observe indicators on the AC to determine the system running status. For details, see the indicator description.

 **NOTE**

Do not frequently power on and off the device.