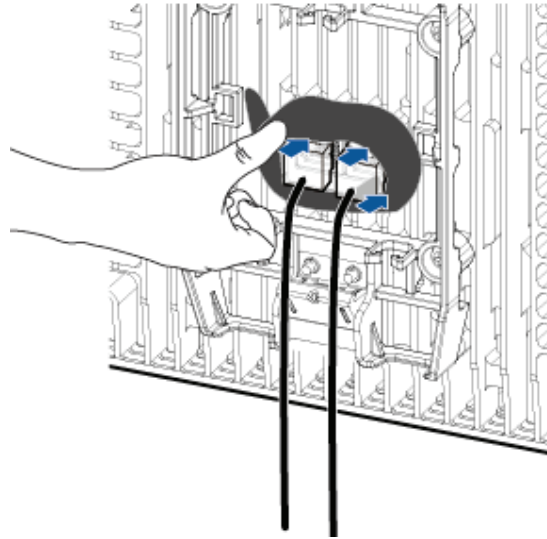


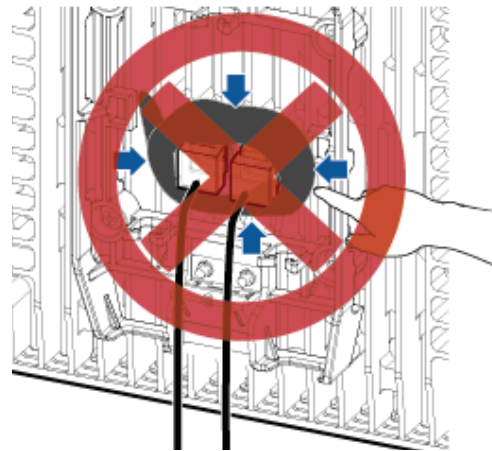
Figure 8-50 Sealing the connector external side



NOTE

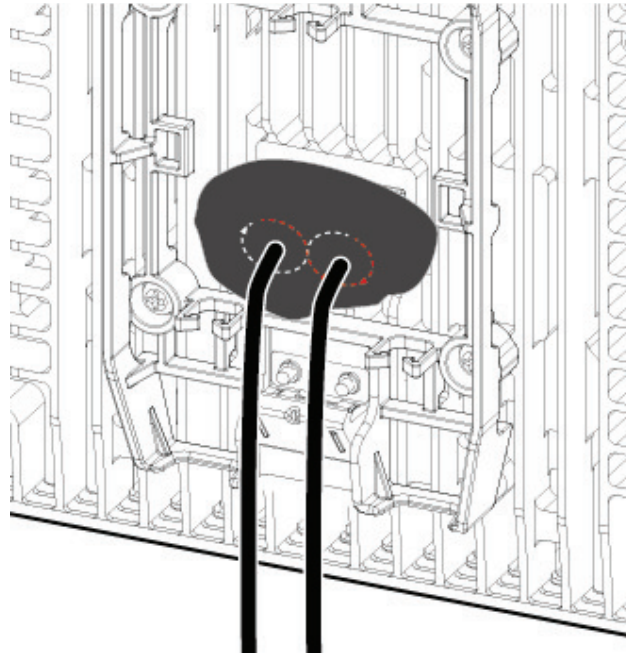
Compress the mastic cement downwards along the connector external side. Do not press the mastic cement towards the connector. This operation may damage the connector clip and make it unable to hold the connector, causing cable disconnection, as shown in [Figure 8-51](#).

Figure 8-51 Correct and incorrect ways for sealing the connector



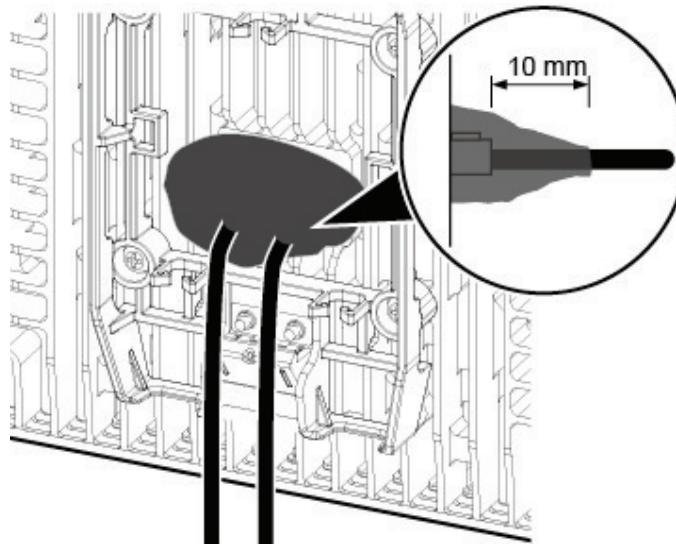
4. Shape the mastic cement around the cables in a repeating 8 manner, as shown in [Figure 8-52](#).

Figure 8-52 Shaping the mastic cement between cables



5. Compress and flatten the mastic cement until the Ethernet ports are fully covered and sealed. Nip the mastic cement from the connector side upwards along the cables until 10 mm high, as shown in [Figure 8-53](#). This ensures that the mastic cement envelop does not crack in case the cable is bent.

Figure 8-53 Fully sealed Ethernet ports



----End

Follow-up Procedure

1. Route the cable, and then use a cable tie to bind the cable. For details, see [8.4.1 Requirements for Cable Layout](#).

2. Label the installed cable. For details, see section [15.4 Attaching an L-Shaped Label](#).

8.4.6 Installing a pRRU3911 Ethernet Cable

This section describes how to install a pRRU3911 Ethernet cable.

Prerequisites

- The Ethernet cable must be of Category 5e (enhanced) or higher. In addition, its cross-sectional area must be 24 AWG or larger and frame spread rating must be CM or higher.
- The Ethernet cables can be straight-through cables.
- With the internal PoE module providing power, the maximum length of an Ethernet cable is 100 m. With the Extender, the distance of the pRRU3911 and RHUB can be extended by the Extender up to a total distance of 200 m.
- Ethernet cables are not delivered, and they must be prepared onsite. You need to use a network cable tester to test the Ethernet cable connection.

Context

The Ethernet cable has the following functions:

- Provides power supply for the pRRU3911 when the cable connects the CPRI_E0 port on the pRRU3911 to the RHUB.
- Transmits CPRI signals between an RHUB and a pRRU3911.

Procedure

Step 1 Make the Ethernet cables.

1. Assemble an RJ45 connector and an Ethernet cable by following instructions in *Assembling the Unshielded RJ45 Connector and the Ethernet Cable*, *Assembling the Shielded RJ45 Connector and the Ethernet Cable*.

NOTE

Follow pin assignment instructions described in section *Ethernet Cable* in *DBS3900 LampSite Hardware Description* to assemble the RJ45 connector and the Ethernet cable. Otherwise, the transmission signal quality deteriorates and CPRI links may be disconnected.

2. Check whether the made RJ45 connector is qualified by following instructions in *Checking the Appearance of Metal Contact Strips*.
3. To complete the assembly of the other end, repeat [Step 1.1](#) and [Step 1.2](#).
4. Check whether the touch points on the connectors at both ends are normally conducted and well contacted and whether the connections are correct by following instructions in *Testing the Connection of Assembled Cables of Installation Reference*.

Step 2 Install an Ethernet cable between an RHUB and a pRRU3911.

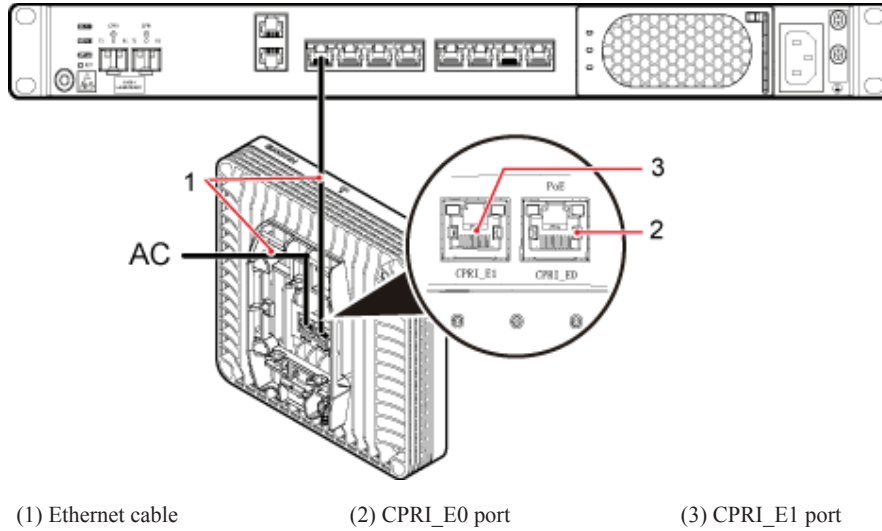
Step 3 Connect the RJ45 connector at one end of the Ethernet cable to the CPRI_E0 port on the pRRU3911 panel.

Step 4 **Optional:** Connect the RJ45 connector at the other end of the Ethernet cable to the output port of the Extender. Then, connect the RJ45 connector at one end of another Ethernet cable to the input port of the Extender.

In this scene, the Ethernet cable is divided into two parts, one between the RHUB and the Extender and the other between the Extender and the pRRU3911.

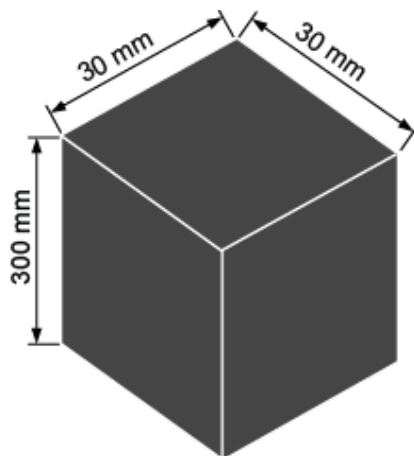
- Step 5** Connect the RJ45 connector at the other end of the Ethernet cable to any port ranging from CPRI_E0 to CPRI_E7 on the RHUB panel based on the engineering design, as shown in [Figure 8-54](#).

Figure 8-54 Installing an Ethernet cable



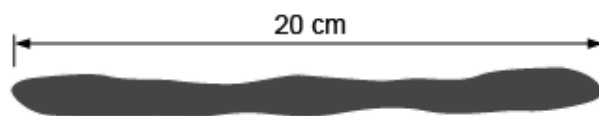
- Step 6 Optional:** If the Wi-Fi daughter board is used, install the Ethernet cable to connect the AC and the pRRU3911.
1. Remove the dustproof cap from the CPRI_E1 port.
 2. Connect an RJ45 connector of the Ethernet cable to the CPRI_E1 port on the pRRU3911.
 3. Connect the other RJ45 connector of the Ethernet cable to the transmission port on the AC based on the engineering design requirements. See [Figure 8-54](#).
- Step 7 Optional:** If the pRRU3902 is installed in a place with water dripping risks, seal its Ethernet ports with mastic cement.
1. Take about 40 g mastic cement, as shown in [Figure 8-55](#).

Figure 8-55 Mastic cement cube



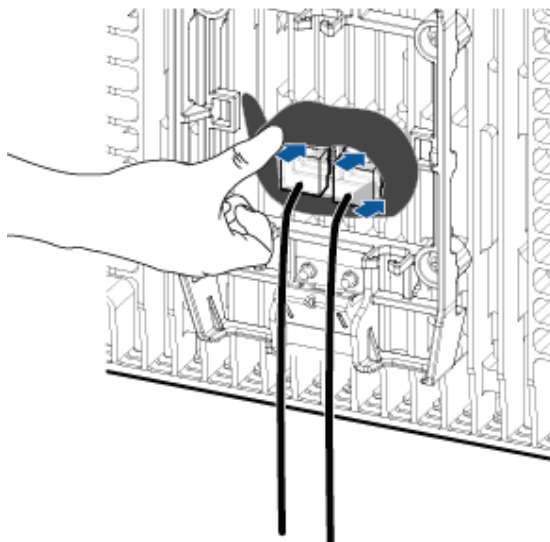
2. Flatten the mastic cement into a 20 cm strip, as shown in [Figure 8-56](#).

Figure 8-56 Flattening the mastic cement into a strip



3. Shape the mastic cement strip around the Ethernet ports from outside the connector clips. Ensure the external sides of the connectors are fully sealed, as shown in [Figure 8-57](#).

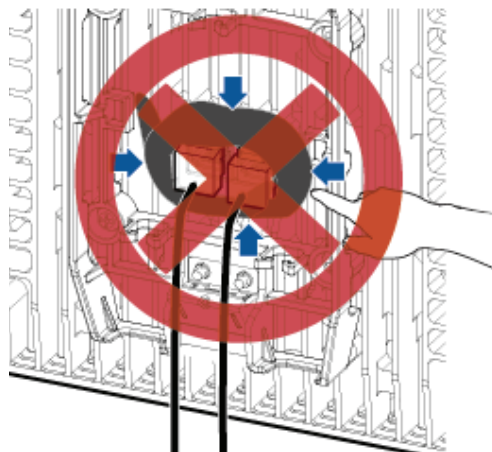
Figure 8-57 Sealing the connector external side



NOTE

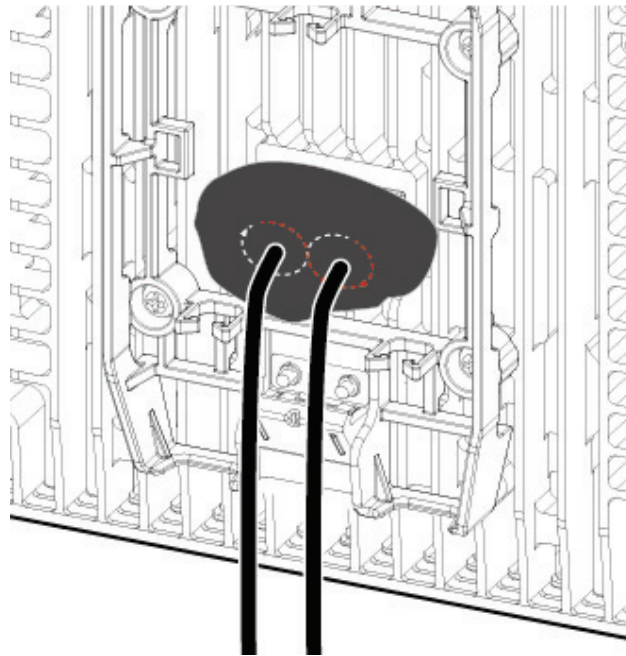
Compress the mastic cement downwards along the connector external side. Do not press the mastic cement towards the connector. This operation may damage the connector clip and make it unable to hold the connector, causing cable disconnection, as shown in [Figure 8-58](#).

Figure 8-58 Correct and incorrect ways for sealing the connector



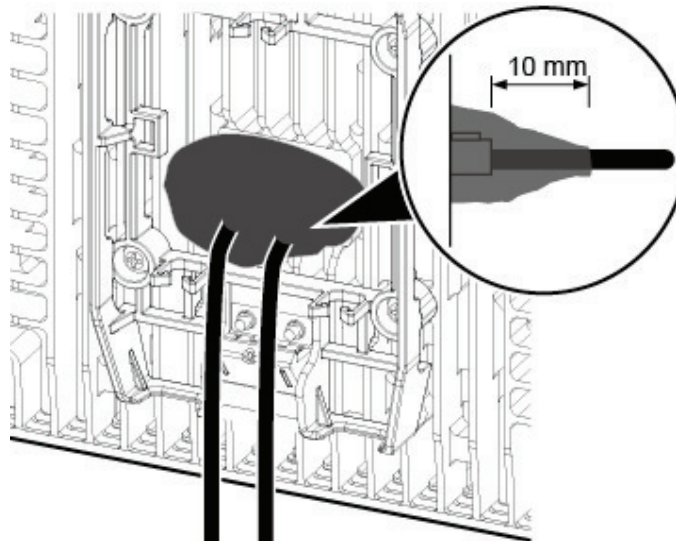
4. Shape the mastic cement around the cables in a repeating 8 manner, as shown in [Figure 8-59](#).

Figure 8-59 Shaping the mastic cement between cables



5. Compress and flatten the mastic cement until the Ethernet ports are fully covered and sealed. Nip the mastic cement from the connector side upwards along the cables until 10 mm high, as shown in [Figure 8-60](#). This ensures that the mastic cement envelop does not crack in case the cable is bent.

Figure 8-60 Fully sealed Ethernet ports



---End

8.4.7 Installing a pRRU3902 RF Jumper (Optional)

The RF Jumpers transmit radio frequency signals between pRRU3902 with external antennas and the combiners. Only the pRRU3902 using external antennas can be configured with an RF Jumper.

Context

- An RF jumper delivered is 50 cm at most.
- If the RF jumper is provided by the customer, the jumper must not be lower than the RG316 specifications. In addition, the jumpers can be used after they are checked by Huawei engineers.
- pRRU3902s can be connected to external whip antennas or external remote antennas (through pRRU3902 RF jumpers). Whip antennas are delivered optionally. RF jumpers are not delivered.
- For details about the cable connections in the different scenarios, see [8.4.3 Cable Connections](#). The installation of RF jumper cables are the same. The following section describes the connections between antenna and pRRU3902 in the indoor scenario as an example.
- In the outdoor scenario, RF surge protector is needed to provide surge protection for the RF ports. For details about the installation of RF surge protector, see [13 \(Optional\) Installing the RF Surge Protector and Cables](#).

Procedure

- Step 1** Use a torque wrench with a torque of 0.6 N•m to connect the SMA straight male connector on a jumper to the ANT port on the pRRU3902 panel.



NOTICE

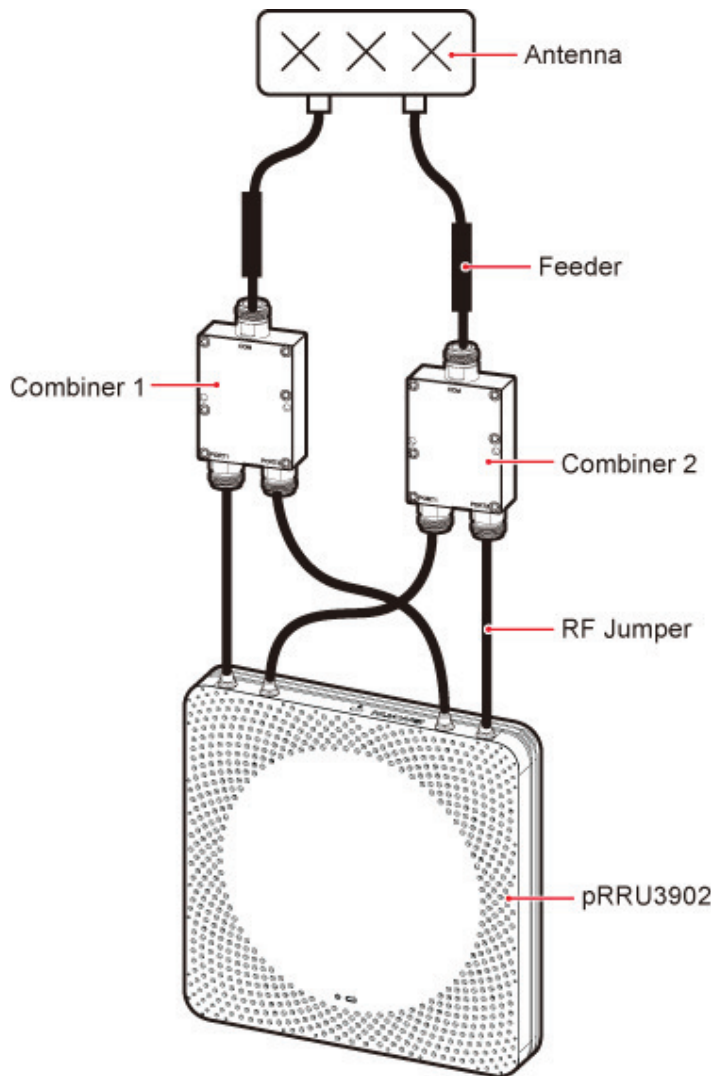
Tighten it with hands, and then use a torque wrench to tighten it with a rotational speed of less than or equal to 2.4 rpm to tighten it.

- Step 2** Connect the type N female connector of the jumper to the type N male connector of the RF feeder connected to the PORT port of the combiner, as shown as [Table 8-10](#).

Table 8-10 Connections of the RF jumper between pRRU3902 and combiners

One End		The Other End	
Connector	Connected to...	Connector	Connected to...
SMA straight male connector	pRRU3902/ANT0 RF port	Type N male connector	Combiner1/PORT1 or PORT2 prot
	pRRU3902/ANT1 RF port		Combiner2/PORT1 or PORT2 prot
	pRRU3902/ANT2 RF port		Combiner1/PORT2 or PORT2 prot
	pRRU3902/ANT3 RF port		Combiner2/PORT2 or PORT1 prot

Figure 8-61 Installing jumpers between the pRRU3902 and Combiners



---End

Follow-up Procedure

1. Route the cable, and then use a cable tie to bind the cable. For details, see [7.5.1 Requirements for Cable Layout](#).
2. Label the installed cable. For details, see section [15.4 Attaching an L-Shaped Label](#).

8.4.8 Installing a pRRU3911 RF Jumper (Optional)

The RF Jumpers transmit radio frequency signals between pRRU3911 and the external antennas. Only the pRRU3911 using external antennas can be configured with an RF Jumper.

Context

- An RF jumpers delivered is 50 cm at most.

- If the RF jumper is provided by the customer, the jumper must not be lower than the RG316 specifications. In addition, the jumpers can be used after they are checked by Huawei engineers.
- pRRU3911s can be connected to external whip antennas or external remote antennas (through pRRU3911 RF jumpers). Whip antennas are delivered optionally. RF jumpers are not delivered.

Procedure

- Step 1** Use a torque wrench with a torque of 0.6 N•m to connect the SMA straight male connector on a jumper to the ANT port on the pRRU3902 panel.

NOTICE

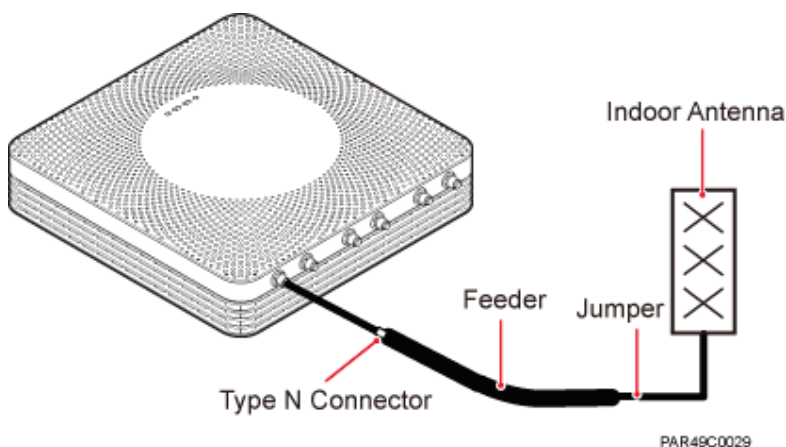
Tighten it with hands, and then use a torque wrench to tighten it with a rotational speed of less than or equal to 2.4 rpm to tighten it.

- Step 2** Connect the type N female connector of the jumper to the type N male connector of the RF feeder connected to the built-in antenna.

NOTICE

Tighten the feeder close to the type N connector to ensure that the jumper is not tightened. In this way, the connectors on both ends of a jumper are not affected by the external force.

Figure 8-62 Installing jumpers between the pRRU3911 and external antennas



----End

Follow-up Procedure

1. Route the cable, and then use a cable tie to bind the cable. For details, see [7.5.1 Requirements for Cable Layout](#).
2. Label the installed cable. For details, see section [15.4 Attaching an L-Shaped Label](#).

8.5 (Optional) Installing a Combiner

This section describes how to install a combiner. The pRRU3902 using external antennas must be configured with a combiner.

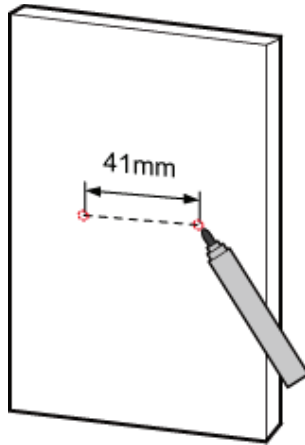
Context

This section describes how to mount a combiner on a wall as an example. The actual installation mode depends on actual requirements.

Procedure

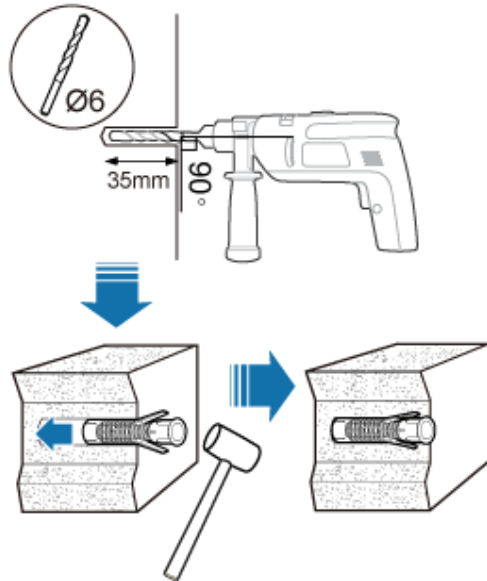
- Step 1** Use a marker to mark two anchor points according to inter-hole spacing, as shown in [Figure 8-63](#).

Figure 8-63 Marking anchor points



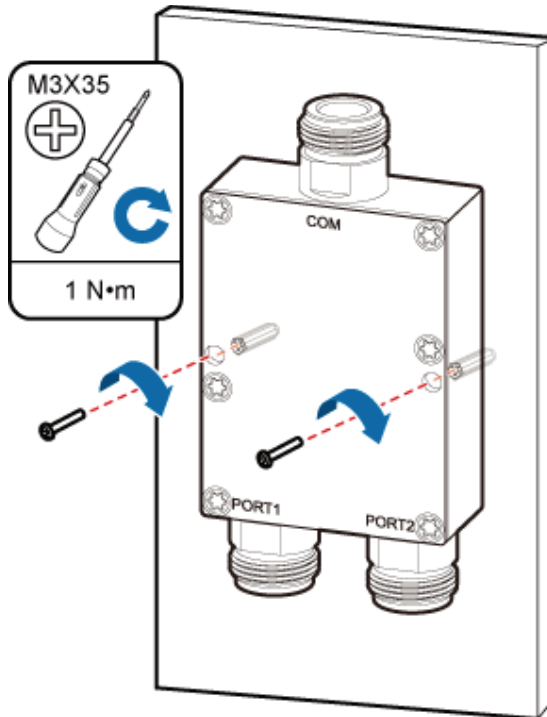
- Step 2** Use a hammer drill with $\phi 6$ bore to drill holes at the marked anchor points, as shown in [Figure 8-64](#). Use a vacuum cleaner to clean the dust inside and around the holes and measure the distance between them. If they are inaccurately positioned, re-measure and re-drill the holes. Then, use a rubber mallet to hit a plastic expansion sleeve into each hole.

Figure 8-64 Drilling holes and installing expansion bolts



Step 3 Place the Extender in the corresponding position and use an M3 Phillips screwdriver to torque the screws to 1 N•m, as shown in [Figure 8-65](#).

Figure 8-65 Installing the Extender



----End

8.6 Checking the pRRU Hardware Installation

pRRU hardware installation checking includes hardware and cable installation checking.

Table 8-11 lists the hardware installation checking items.

Table 8-11 Hardware installation checking list

No.	Item
1	Ensure that the pRRU is not grounded.
2	The position for each device conforms to the engineering design and meets the space requirement.
3	Ensure that the pRRU is properly installed.
4	The surface of the pRRU is neat and clean. The external paint is intact. The labels, tags, and nameplates are correct, legible, and complete.

Table 8-12 lists the check items of the signal cable connection.

Table 8-12 Checklist for the signal cable connection

No.	Item
1	The connectors of the signal cables must be securely connected.
2	The connectors of the signal cables are intact.
3	The signal cables are intact.
4	The cable ties are evenly spaced. The signal cables are bound neatly with cable ties to proper tightness, and arranged at even intervals in the same direction.
5	The extra length of the cable ties is cut and removed. The cut surfaces of the indoor cables are smooth and have no sharp edges.
6	The cable layout facilitates maintenance and expansion.
7	Correct and clear labels are attached to both ends of the signal cables.

Table 8-13 lists the checking items for other cable connections.

Table 8-13 Checklist for other cable connections

No.	Item
1	The connectors of the other cables must be securely connected.

No.	Item
2	Labels on the cables are legible and bound based on the engineering requirements. The cables must be bound tightly and neatly. The sheaths of the cables must not be damaged.
3	Positions for routing the cables must meet requirements of the engineering design.

8.7 Powering on the pRRU

This section describes the power-on check on the pRRU after the pRRU hardware is installed and checked.

Context

After the RHUB and pRRUs are installed and connected to each other, power on them no matter whether the BBU is installed.

Procedure

Step 1 Power on the pRRU.

The pRRU supports PoE. The RHUB supplies power to the pRRU in PoE mode through the CPRI_E0 port on the pRRU.

Step 2 Power on the pRRU. Wait 3 to 5 minutes, check the status of the 3GPP indicator on the pRRU.

If the 3GPP Indicator...	Because...	Then...
Blinks white at 4 Hz	The pRRU is loading software, configuring data, or it is not running.	Wait until the software is loaded. If the loading is not completed in five minutes, power off the pRRU and check whether the data configuration file is correct. After the fault is rectified, power on the pRRU again.
Blinks white at 0.5 Hz (on for 1s and off for 1s)	The pRRU is working properly and does not transmit power.	Check whether the services have been configured and power amplification have been enabled on the pRRU.
Is steady white	The cell is set up and transmits power properly.	No further action is required.
Is steady orange.	There is power input, but the hardware is faulty.	Power off the pRRU, rectify the hardware fault, and then power it on again.

If the 3GPP Indicator...	Because...	Then...
Blinks orange at 0.5 Hz (on for 1s and off for 1s)	A minor alarm (indicating an HDLC link disconnection, for example) is generated.	Troubleshoot based on the alarm information.
Is off	The board is not powered on.	Turn off the power supply switch and check whether the power input is normal. If the power input is normal, check for and rectify board faults, and turn on the power supply switch again.

 **NOTE**

Check the indicator status 30 minutes after the power-on if a pRRU is not connected to any BBU. The pRRU is considered normally powered on when any indicator on the pRRU is on.

----**End**

9 Installing a pRRU3907 or pRRU3916

About This Chapter

This chapter describes the pRRU3907 or pRRU3916 installation process. The pRRU3907 and pRRU3916 are installed in similar way, and this chapter uses the pRRU3907 as an example.

[9.1 Information About the Installation](#)

This section describes the information that you must be familiar with before installing a pRRU, including the pRRU product family, installation scenarios, installation space and environment requirements.

[9.2 Installation Process](#)

This section describes the pRRU installation process, which involves installing a pRRU, and cables, checking the pRRU hardware installation, and powering on the pRRU.

[9.3 Installing a pRRU](#)

This section describes the pRRU installation process.

[9.4 Installing pRRU Cables](#)

This chapter describes the procedures for installing pRRU cables.

[9.5 Checking the pRRU Hardware Installation](#)

pRRU hardware installation checking includes hardware and cable installation checking.

[9.6 Powering on the pRRU](#)

This section describes the power-on check on the pRRU after the pRRU hardware is installed and checked.

9.1 Information About the Installation

This section describes the information that you must be familiar with before installing a pRRU, including the pRRU product family, installation scenarios, installation space and environment requirements.

9.1.1 pRRU Product Family

This chapter describes the configurations and functions of the pRRU components.

Table 9-1 lists the pRRU product family.

Table 9-1 pRRU product family

Category	Equipment	Optional or Mandatory	Quantity	Function
Main equipment	pRRU3907/ pRRU3916	Mandatory	1	Functions as a remote radio unit that processes RF signals.
Auxiliary device	Mounting kits	Mandatory	1	Supports the pRRU installation on a wall or pole. The mounting kits vary with the pRRU installation mode.
	Extender	Optional	1/2 NOTE The quantity depends on the number of Ethernet cables in use.	Extends the distance between the pRRU and RHUB.

9.1.2 Constraints and Limitations

The pRRU can be installed on a wall or pole. Installation scenarios must meet heat-dissipation and waterproofing requirements of the RRU.

Requirements for the Installation Scenarios

Application scenarios:

To ensure proper heat dissipation of the pRRU, the following requirements must be met:

- The pRRU cannot be installed in an enclosed cabinet without a cooling system.
- The pRRU cannot be installed in an enclosed camouflage box.
- The pRRU cannot be installed in an enclosed equipment room without a cooling system.

- When multiple pRRUs are installed in centralized mode, the minimum clearance requirements must be met. For details, see [9.1.3 Installation Clearance and Space Requirements](#).

 **NOTICE**

If the pRRU is inappropriately installed, heat dissipation of the pRRU deteriorates and the pRRU may not work properly, as shown in [Figure 9-1](#).

Figure 9-1 Inappropriately installed pRRU

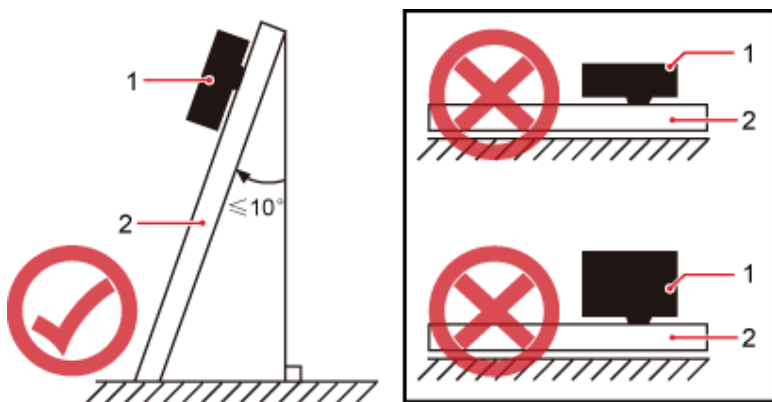


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Correct installation methods:

To ensure the heat dissipation of the pRRU and waterproofing of the ports at the bottom of the RRU, the vertical deviation angle of a pRRU must be less than or equal to 10°, as shown in [Figure 9-2](#).

Figure 9-2 Requirements for the vertical deviation angle of a pRRU



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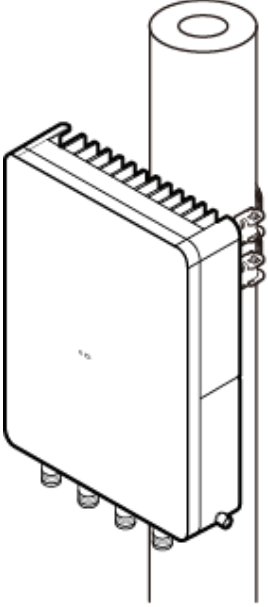
(1) pRRU

(2) Installation support (pole or wall)

Table 9-2 lists the mounted suggestions of different installation scenarios.

Table 9-2 mounted suggestion

Installation Mode	Requirements	Mounting Brackets	Installation Diagram
Installing the pRRU on a wall For details, see 9.3.2 Installing a pRRU on a Wall .	<ul style="list-style-type: none"> The wall can bear a load at least four times the weight of a pRRU. The screws must be tightened with a torque of 30 N·m. This ensures the screws work properly and the wall remains intact without cracks in it. 	<ol style="list-style-type: none"> M6x60 bolt Nut Spring washer Flat washer Expansion sleeve 	<p>PAR49C0005</p>

Installation Mode	Requirements	Mounting Brackets	Installation Diagram
Installing the pRRU on a pole For details, see 9.3.3 Installing a pRRU on a Pole .	<ul style="list-style-type: none"> The diameter of a pole for installing a pRRU ranges from 60 mm (2.36 in.) to 114 mm (4.49 in.). The recommended diameter is 80 mm (3.15 in.). The recommended thickness of the pole wall is 3.5 mm (0.14 in.) or above. 	<ol style="list-style-type: none"> Mounting kit Hose clamp 	

9.1.3 Installation Clearance and Space Requirements

This section describes the recommended and minimum clearances for a pRRU.

Clearance for a pRRU

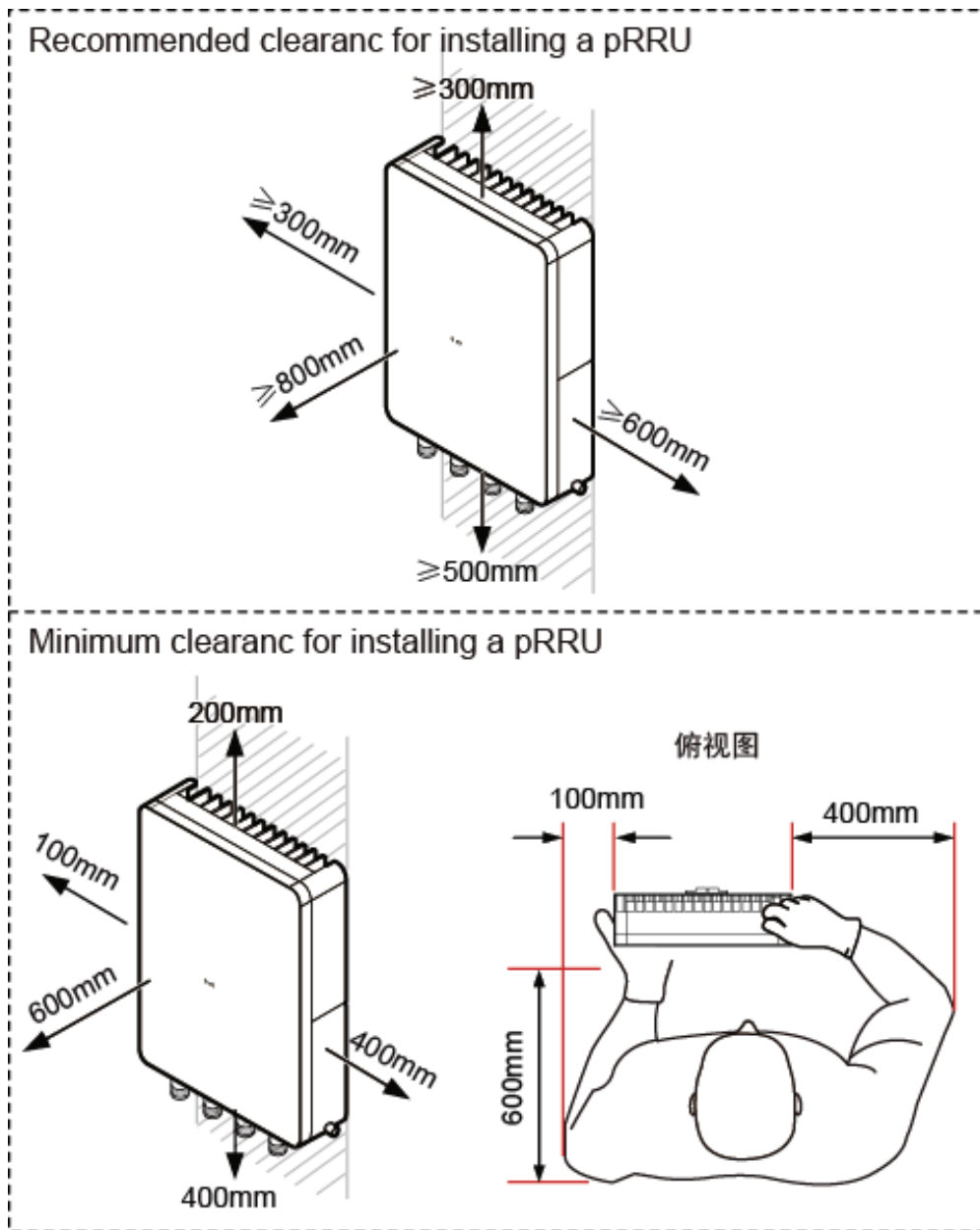
When the pRRU is installed on a wall or pole, the minimum clearance is required for easy cabling and operation and maintenance (O&M). Based on the engineering practice, the recommendation for the installation clearance is provided.

NOTE

- The recommended clearances are for customers, ensuring normal running and providing appropriate space for O&M. If installation space is sufficient, leave the recommended clearances after installing equipment.
- The minimum clearance ensures normal operation and heat dissipation, but O&M activities such as checking indicator status and opening the cover plate of a cabling cavity cannot be properly conducted. If installation space is restricted, leave the minimum clearance after installing equipment.

[Figure 9-3](#) show the clearances for installing a pRRU.

Figure 9-3 Clearances for installing a pRRU

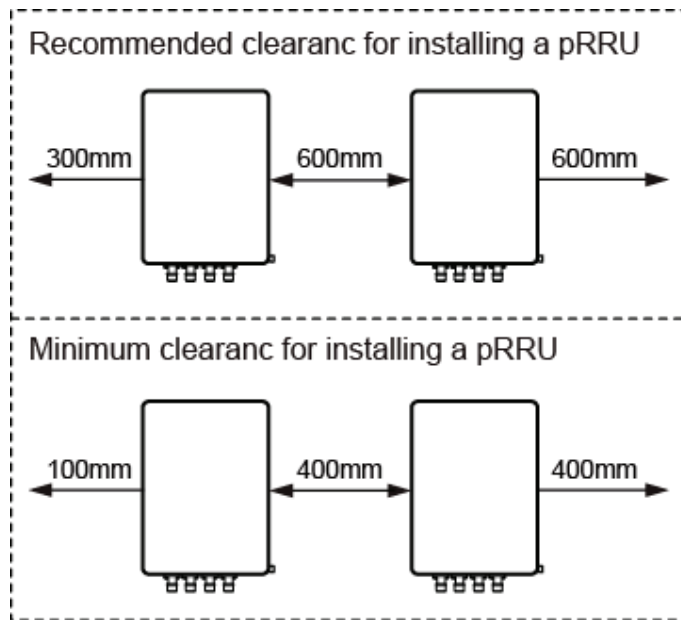


SRR49C0001

Installation Spacing Between pRRUs

Figure 9-4 lists the horizonta spacing between pRRUs.

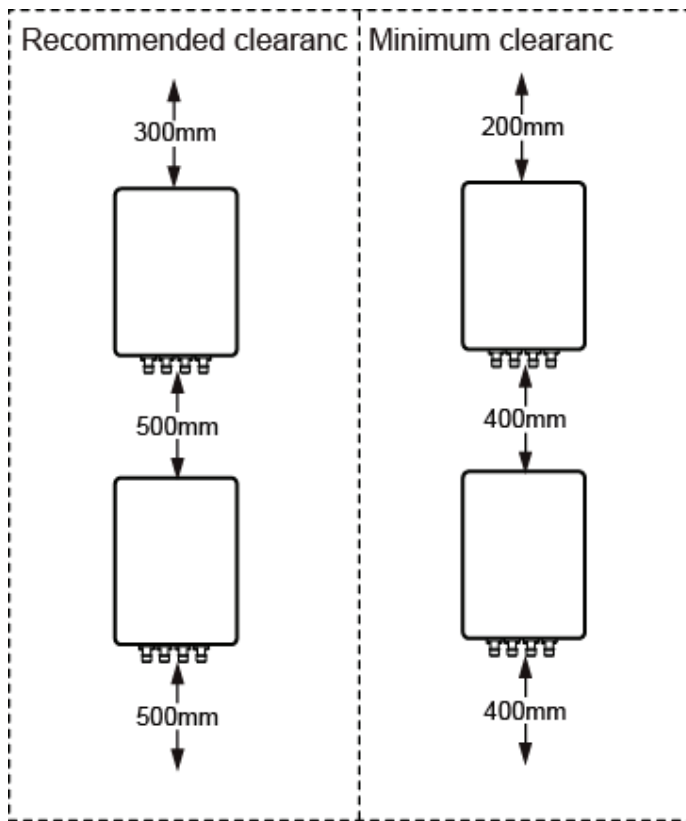
Figure 9-4 Clearances for installing a pRRU



SRR84C0002

Figure 9-5 lists the vertical spacing between pRRUs.

Figure 9-5 Clearances for installing a pRRU



SRR84C0003

9.1.4 Installation Environment Requirements

The installation environment of a pRRU involves the running environment specifications for the pRRU.

Running Environment Specifications

Table 9-3 shows the environment specifications for the pRRU installed outdoors.

Table 9-3 pRRU environment specifications

Specifications	Condition	Remarks
Operating temperature	- 40 °C to + 50 °C	
Relative humidity	5% RH to 95% RH	-
Altitude	- 60 m to + 1800 m	Works properly.

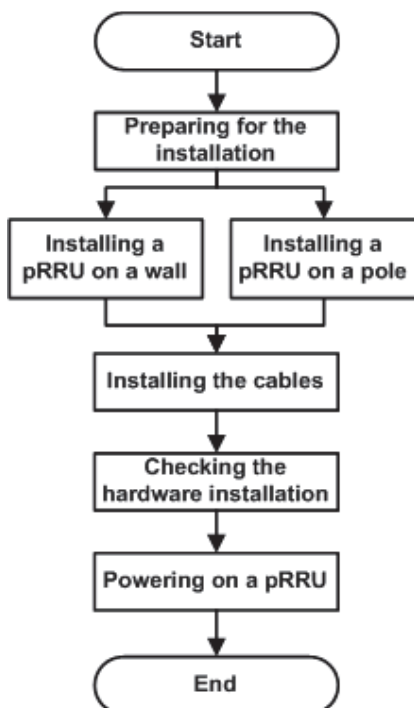
Specifications	Condition	Remarks
	1800 m to 4000 m	Above the 1800 m altitude, the maximum operating temperature decreases by 1 °C each time the altitude increases by 220 m.

9.2 Installation Process

This section describes the pRRU installation process, which involves installing a pRRU, and cables, checking the pRRU hardware installation, and powering on the pRRU.

Figure 9-6 shows the pRRU installation process.

Figure 9-6 pRRU installation process



9.3 Installing a pRRU

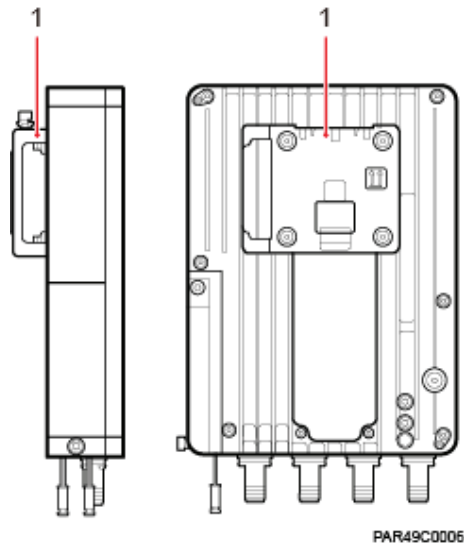
This section describes the pRRU installation process.

9.3.1 pRRU Mounting Kits

This section describes mounting kits and attachment plates for installing pRRUs.

Figure 9-7 shows the exterior of the pRRU.

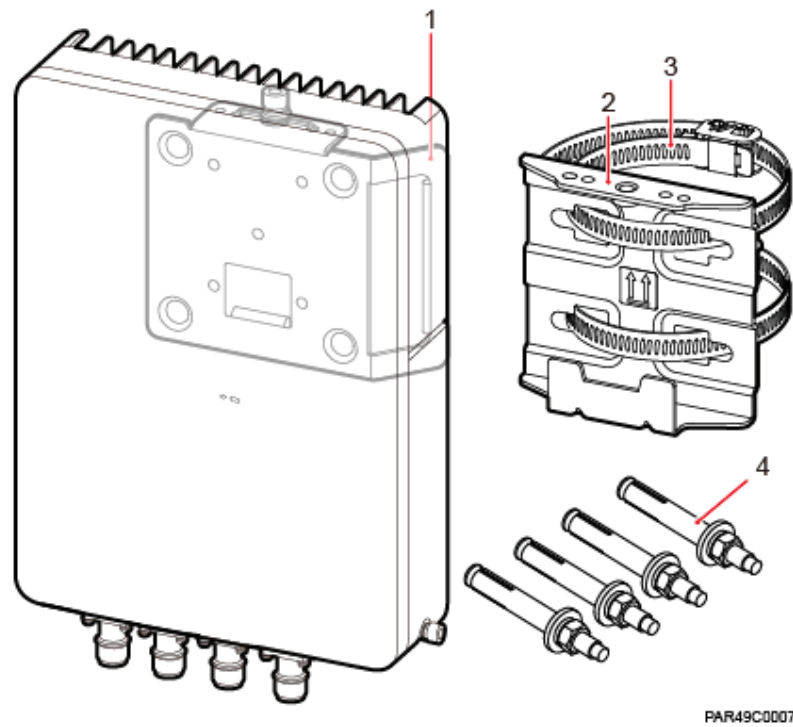
Figure 9-7 Front and side of a pRRU



(1) Attachment plate

Figure 9-8 shows a mounting bracket and a attachment plate.

Figure 9-8 Mounting bracket and common attachment plate for installing a pRRU



(1) Attachment plate

(2) Mounting bracket

(3) Hose clamp

(4) Expansion bolt

9.3.2 Installing a pRRU on a Wall

This section describes the procedure and precautions for installing a pRRU on a wall.

Context

The wall for installing pRRUs must meet the following requirements:

- The wall must be able to bear a weight four times heavier than the pRRU's weight.
- Expansion bolts must be tightened to 30 N·m (265.52 lbf·in.) to ensure that the bolt assemblies work properly and the wall remains intact.



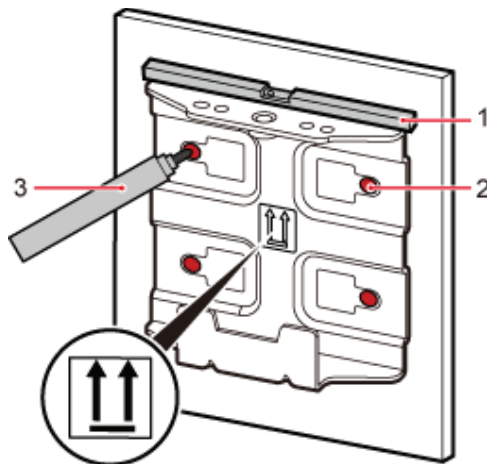
NOTICE

- Do not stand a pRRU upright because the RF ports cannot support the weight of the pRRU.
 - Place a foam pad or cardboard under a pRRU to protect the pRRU housing from damage during the installation.
-

Procedure

- Step 1** Determine a position for installing the pRRU on a wall, use a level to verify that the marking-off template is placed horizontally, and then use a marker to mark anchor points, as shown in [Figure 9-9](#).

Figure 9-9 Marking anchor points



HIU01C0002

(1) Level

(2) Tapped hole

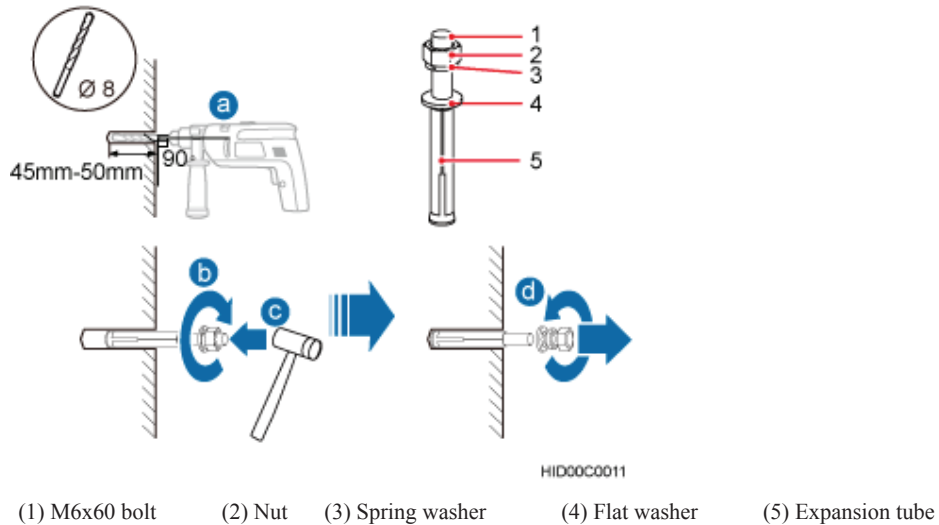
(3) Marker

NOTE

It is recommended that the separate mounting kit be 1200 mm (47.24 in.) to 1600 mm (62.99 in.) above the ground.

- Step 2** Drill holes at the anchor points and install expansion bolts in the holes, as shown in **Figure 9-10**.

Figure 9-10 Drilling a hole and inserting an expansion bolt assembly



1. Use a hammer drill with a $\phi 8$ bit to drill holes vertically at the marked anchor points. Ensure that the depth of each hole ranges from 45 mm (1.77 in.) to 50 mm (1.97 in.).

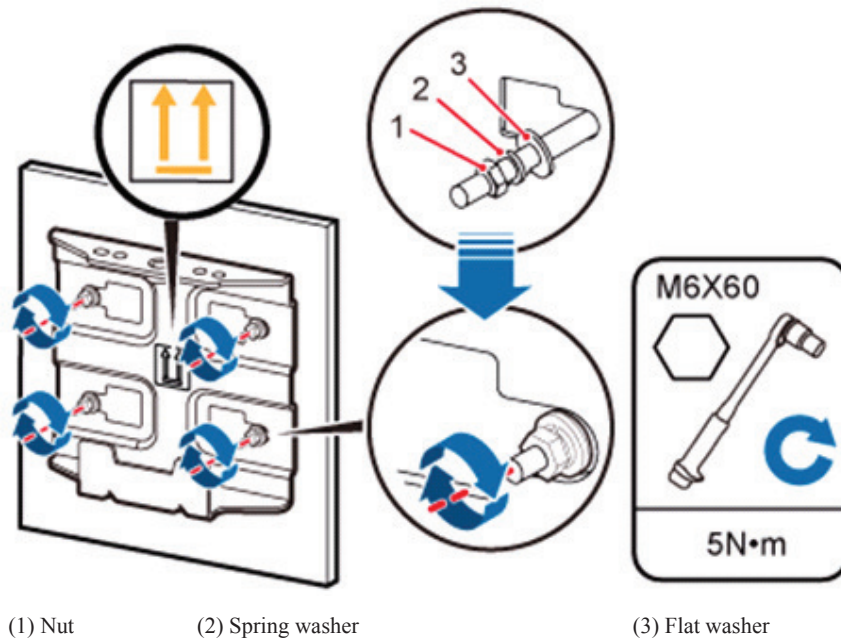
NOTICE

Take proper safety measures to protect your eyes and respiratory tract against the dust before drilling holes.

2. Use a vacuum cleaner to clear the dust out from inside and around the holes, and measure the distances between holes. If any of the holes is beyond the acceptable range, mark a new anchor point and drill a new hole.
3. Tighten the expansion bolts slightly, and place each expansion bolt vertically into each hole.
4. Use a rubber mallet to pound each expansion bolt until the corresponding expansion tube completely enters the hole. Leave 20 mm (0.79 in.) of the expansion bolt outside the wall.
5. Remove the M6x60 bolt, nut, spring washer, and flat washer in sequence.

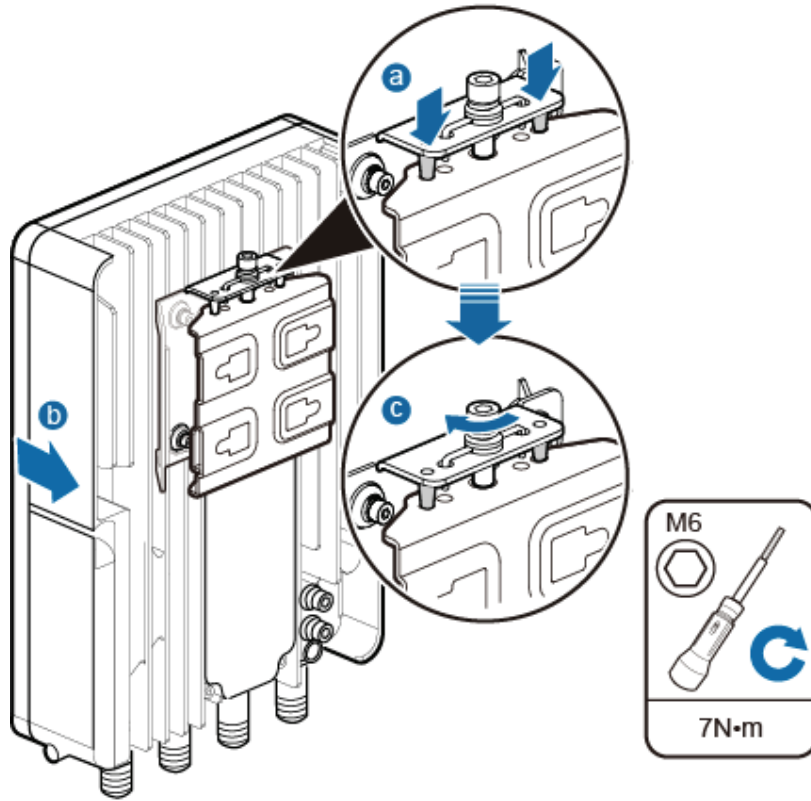
- Step 3** Place the mounting kit onto the wall, insert four M6x60 bolts into the tapped holes on the mounting kit, and tighten each bolt to 5 N·m (44.25 lbf·in.) to secure the mounting kit, as shown in **Figure 9-11**.

Figure 9-11 Securing the separate mounting kit



- Step 4** Hold the pRRU, hang the two dowels on the top of the pRRU attachment plate onto the separate mounting kit, and push the pRRU until it snaps into place, as shown by illustrations a and b in **Figure 9-12**.
- Step 5** Use the M6 inner hexagon screwdriver to tighten the screw on the top of the separate attachment plate to 7 N·m (61.96 lbf·in.), as shown by illustration c in **Figure 9-12**.

Figure 9-12 Securing the pRRU onto the mounting kit



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---End

9.3.3 Installing a pRRU on a Pole

This section describes the procedure and precautions for installing a pRRU on a pole.

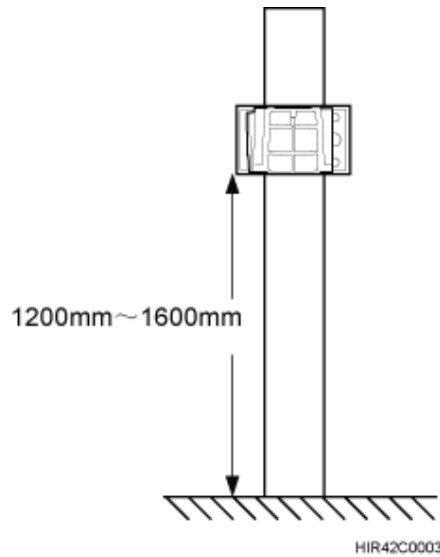
Context

- Do not stand a pRRU upright because the RF ports cannot support the weight of the pRRU.
- Place a foam pad or cardboard under a pRRU to protect the pRRU housing from damage during the installation.

Procedure

Step 1 Determine a position for installing the separate mounting kit, as shown in [Figure 9-13](#).

Figure 9-13 Distance between the separate mounting kit and the ground

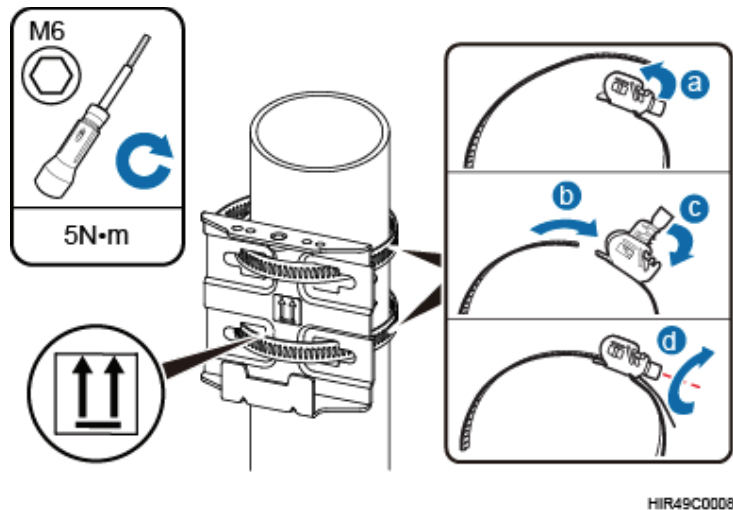


NOTE

It is recommended that the separate mounting kit be 1200 mm (47.24 in.) to 1600 mm (62.99 in.) above the ground.

Step 2 Install the mounting kit, as shown in **Figure 9-14**.

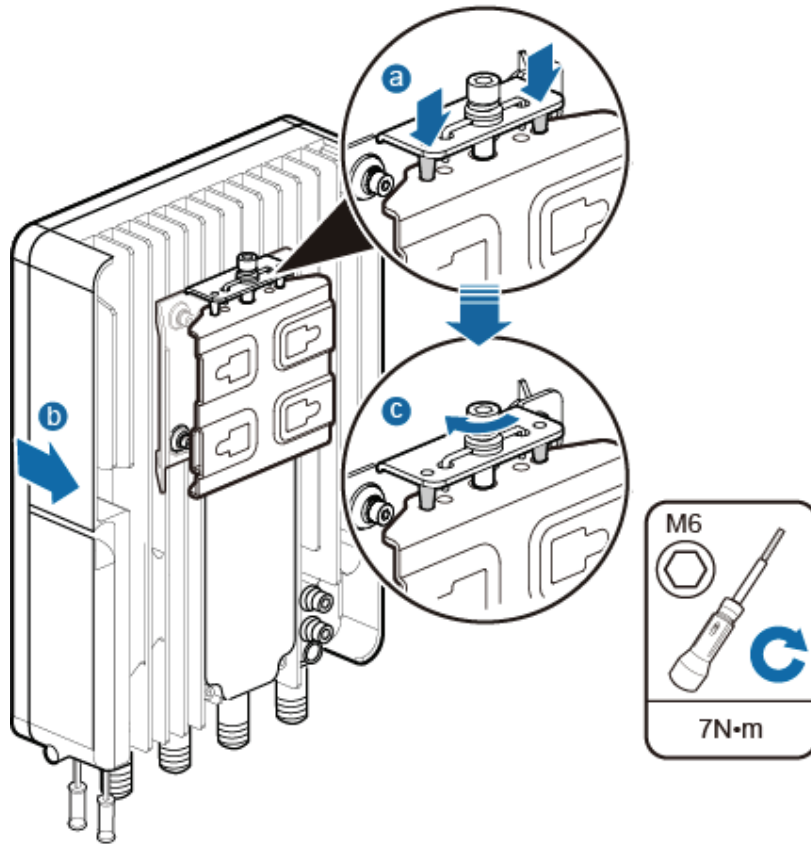
Figure 9-14 Installing a pRRU mounting kit



1. Determine a position for installing the pRRU. Then, place the separate mounting kit onto the pole, thread the hose clamp through the mounting kit, and encircle the pole with the hose clamp, as shown by illustrations a, b, and c in **Figure 9-14**.
2. Use an M6 inner hexagon screwdriver to tighten the bolt on each hose clamp to 5 N·m (44.25 lbf·in.) to secure the mounting kit, as shown by illustration d in **Figure 9-14**.

Step 3 Secure the pRRU onto the separate mounting kit, as shown in **Figure 9-15**.

Figure 9-15 Securing the pRRU onto the mounting kit



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1. Hang the two dowels on the top of the pRRU attachment plate onto the mounting kit, and push the pRRU until it snaps into place, as shown by illustrations a and b in **Figure 9-15**.
2. Use the M6 inner hexagon screwdriver to tighten the screw on the top of the attachment plate to 7 N·m (61.96 lbf·in.), as shown by illustration c in **Figure 9-15**.

----End

9.4 Installing pRRU Cables

This chapter describes the procedures for installing pRRU cables.

9.4.1 Cabling Requirements

Cables must be laid out according to the specified cabling requirements to prevent signal interference.

NOTE

If a cable listed below is not required, skip the cabling requirements of the cable.

General Cabling Requirements

Bending radius requirements

- The bending radius of a 7/8" feeder must be greater than 250 mm (9.84 in.), and the bending radius of a 5/4" feeder must be greater than 380 mm (14.96 in.).
- The bending radius of a 1/4" jumper must be greater than 35 mm (1.38 in.). The bending radius of a super-flexible 1/2" jumper must be greater than 50 mm (1.97 in.), and the bending radius of an ordinary 1/2" jumper must be greater than 127 mm (5.00 in.).
- The bending radius of a PGND cable must be at least three times its diameter.
- The bending radius of a signal cable must be at least five times its diameter.

Cable binding requirements

- Cables of the same type must be bound together.
- Different types of cables must be separately laid out and bound, with a minimum distance of 30 mm (1.18 in.) from each other.
- Cables must be bound tightly and neatly. The sheaths of cables must not be damaged.
- Cable ties must face the same direction, and those at the same horizontal line must be in a straight line.
- The excess of indoor cable ties must be cut off. The excess of 5 mm (0.197 in.) of outdoor cable ties should be reserved, and the cut surfaces must be smooth without sharp edges.
- After cables are installed, labels or nameplates must be attached to the cables at their ends, curves, and interconnection positions.

Security requirements

- When laying out cables, avoid sharp objects, for example sharp edges on the wall. If necessary, use tubes to protect the cables.
- When laying out cables, keep cables away from heat sources, or use heat insulation materials to insulate the cables from the heat sources.
- Reserve a proper distance (0.1 m [3.937 in.] is recommended) between equipment and cables especially at the cable curves to protect the cables and equipment.

Indoor cabling requirements

- Route each cable into the room through the feeder window.
- Reserve drip loops for all cables outside the feeder window before routing them into the room. Ensure that the radiuses of the drip loops are greater than or equal to the minimum bending radiuses of the cables.
- When routing a cable into the room, ensure that a person is assisting you in the room.
- Apply waterproof treatment to the feeder window.

Outdoor Cabling Requirements

- Protect outdoor cables against potential damage. For example, thread the cables through tubes.
- Cables to be protected include AC power cables, transmission cables, and cables laid out underground.
- Use cable clips to secure cables outdoors.
- Arrange cables neatly along the routing direction and use cable clips to secure the cables.

- Determine the positions where the clips are installed according to the actual situation. For example, 7/8" feeders are secured with clips at an interval of 1.5 m (4.92 ft) to 2 m (6.56 ft), and CPRI fiber optic cables and power cables are secured with clips at an interval of 1 m (3.28 ft) to 1.5 m (4.92 ft). Ensure that the clips are evenly spaced and in the same direction.
- When fastening cables with a clip, ensure that the cables are aligned neatly and are routed through the holes in the clip. Do not stretch the cables too tightly.
- When using clips to secure cables, tighten the screws on the clips after all cables are arranged and laid out.

Special Cabling Requirements

Cabling of PGND cables

- PGND cables for a base station must be connected to the same ground bar.
- PGND cables must be buried in the ground or routed indoors.
- The external conductor of the coaxial wire and the shield layer of the shielded cable must have proper electrical contact with the metal surface of the equipment which they are connected to.
- PGND cables and signal cables must be installed separately. A certain distance must be reserved between them to prevent interference from each other.
- Switches or fuses must not be installed on the PGND cables.
- Other devices must not be used for electrical connections of the PGND cables.
- All the metal parts in the housing of the equipment must be reliably connected to the ground terminal.

9.4.2 pRRU Cable List

This section describes pRRU cables, connectors added to the pRRU cables, and installation positions for both ends of each cable.

Table 9-4 List of pRRU3901 cables

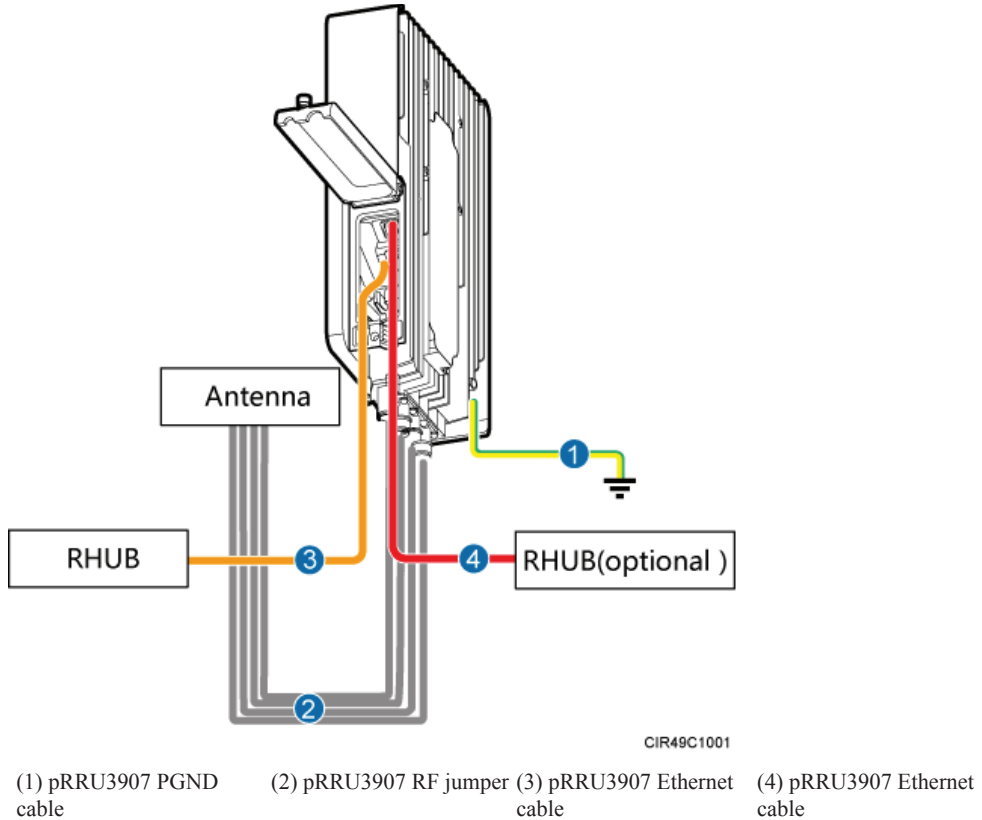
Cable	One End		The Other End	
	Connector	Connected to ...	Connector	Connected to ...
Ethernet Cable	RJ45 connector	CPRI_E0~CPRI_E7 port on RHUB	RJ45 connector	CPRI_E0~CPRI_E1 port on pRRU
	RJ45 connector	Transmission port on Access Control(AC)	RJ45 connector	<ul style="list-style-type: none"> ● GE port on pRRU3901 ● CPRI_E1 port on pRRU3911
(Optional) RF Jumper	SMA straight male connector/ Type N male connector	External antenna TX/RX RF port on pRRU	Based on the port model of the antenna system.	Antenna system

9.4.3 pRRU3907 Cable Connections

This section describes pRRU3907 cable connections.

Figure 9-16 shows the cable connections when a pRRU3907 is installed.

Figure 9-16 Cable connections when a pRRU3907 is installed

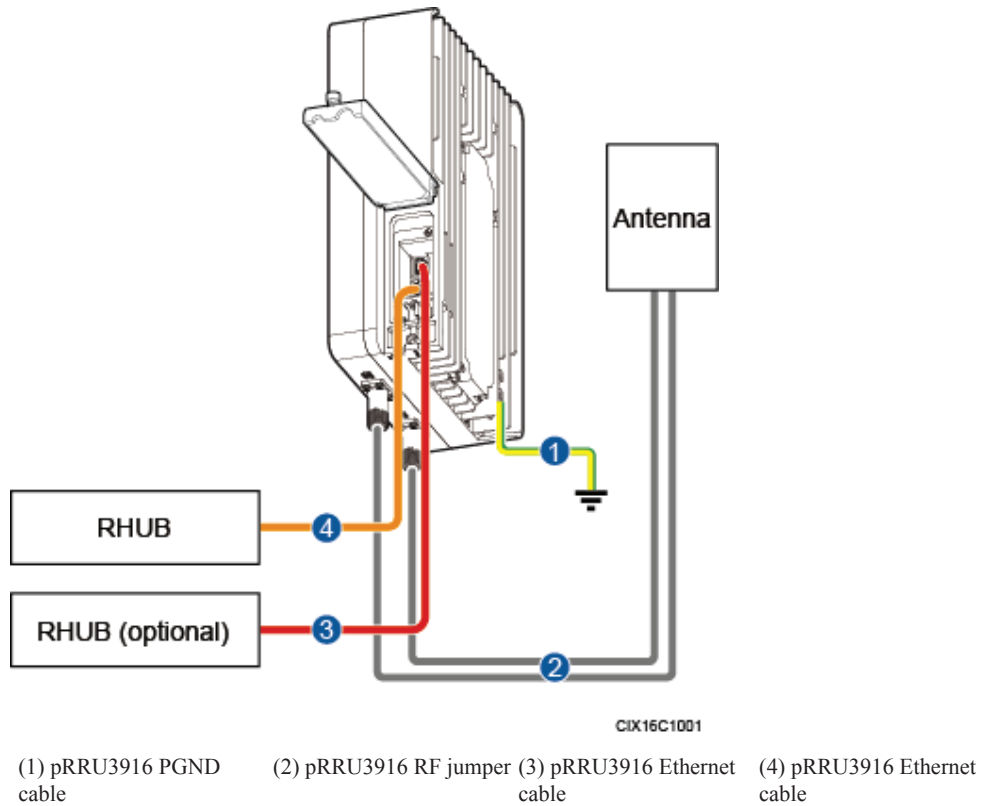


9.4.4 pRRU3916 Cable Connections

This section describes pRRU3916 cable connections.

Figure 9-17 shows the cable connections when a pRRU3916 is installed.

Figure 9-17 Cable connections when a pRRU3916 is installed

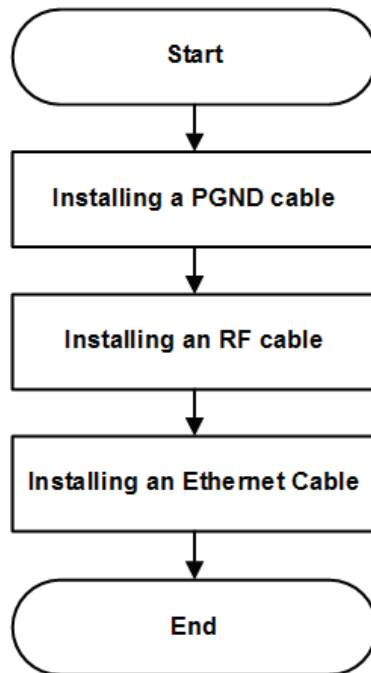


9.4.5 pRRU cable installation process

This section describes the process of installing pRRU cables.

Figure 9-18 shows the process of installing pRRU cables.

Figure 9-18 pRRU cable installation process



9.4.6 Installing a PGND Cable

This section describes the procedure for installing a PGND cable.

Procedure

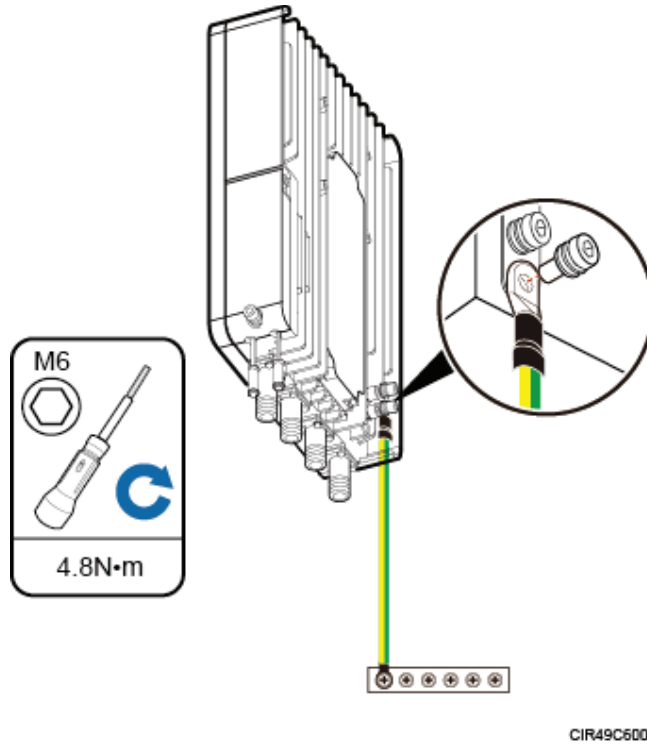
Step 1 Prepare a pRRU PGND cable.

1. Cut the cable to a length suitable for the actual cable route.
2. Add OT terminals to both ends of the cable by following the instructions in Assembling the OT Terminal and the Power Cable.

Step 2 Install the pRRU PGND cable.

Connect one end of the PGND cable with an M6 OT terminal to the ground terminal at the RRU bottom and the other end of the cable with an M8 OT terminal to the external ground bar, as shown in [Figure 9-19](#).

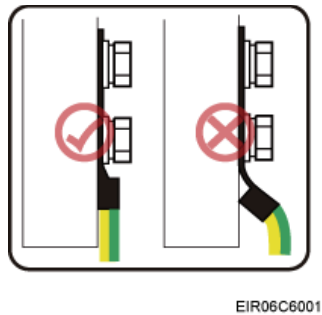
Figure 9-19 Installing a pRRU PGND cable



NOTE

Crimp OT terminals in correct directions, as shown in [Figure 9-20](#).

Figure 9-20 Correct direction for crimping an OT terminal



Step 3 Label the installed cable by following the instructions in [15.5 Attaching a Sign Plate Label](#).

----End

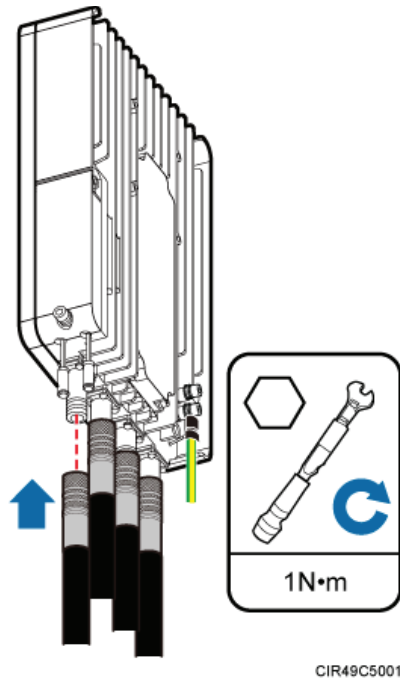
9.4.7 Installing a pRRU3907 RF Jumper

This section describes the procedure for installing an RF jumper.

Procedure

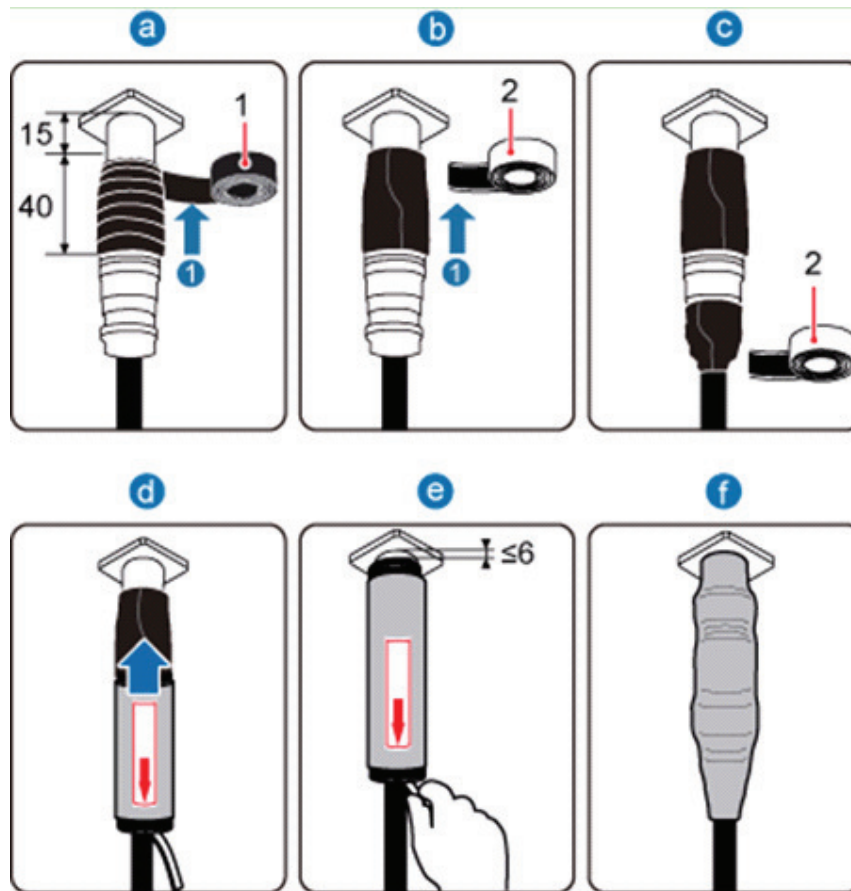
- Step 1** Remove the dustproof cap from the ANT port to be used on the pRRU3907.
- Step 2** Connect the type N male connector at one end of the pRRU3907 RF jumper to the ANT port at the bottom of the pRRU3907 in sequence, and use a torque wrench to tighten the connector to 1 N·m (8.85 lbf·in.), as shown in **Figure 9-21**.

Figure 9-21 Installing an RF jumper



- Step 3** Connect the other end of the pRRU3907 RF jumper to the external antenna system.
- Step 4** Waterproof the connector of the RF jumper by cold shrink sleeve, as shown in **Figure 9-22**.

Figure 9-22 Waterproofing the connector of the RF jumper



NOTICE

- Wrap cold shrink sleeves around the RF jumpers before installing the connectors.
- Do not rotate the adjacent connectors of a connector that has been wrapped with a cold shrink sleeve. Otherwise, the cold shrink sleeve may be damaged.
- During installation, ensure that no foreign substance, including sand, enters the sleeve.

1. Wrap a PVC insulation tape around the exposed area of the connector. The wrapped area is 15 mm away from the end of the connector, with a total length of 40 mm.
2. Ensure that dimensions (L x W) of the waterproof tape is 50 mm x 50 mm. Stretch the tape horizontally until it is twice of the original length and wrap it around the upper area of the connector.

Ensure that the upper end of the waterproof tape overlays that of the PVC insulation tape.

3. Push the cold shrink sleeve to the end of the pRRU3907 connector while gently pulling out the support strip along the jumper until the sleeve shrinks and secures the connector.

4. Pull out the support strip along the direction indicated by the arrow.

 **CAUTION**

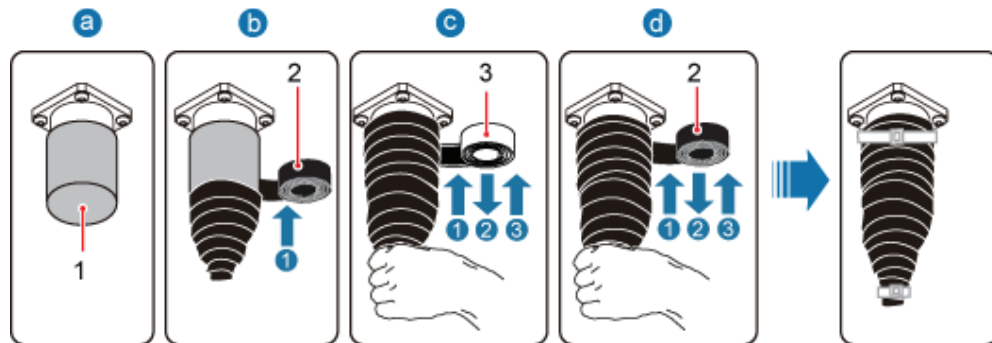
Ensure that the sleeve shrinks around the end of the pRRU3907 connector and that the upper end of the sleeve and the connector end is 6 mm apart or less.

- Step 5** Check the dustproof caps on antenna connectors. In outdoor scenarios, dustproof caps must be waterproofed, as shown in [Figure 9-23](#).

 **NOTICE**

Do not remove dustproof caps from vacant antenna connectors.

Figure 9-23 Waterproofing a dustproof cap



(1) Dustproof cap

(2) PVC insulation tape

(3) Waterproof tape

1. Verify that dustproof caps are not removed.
2. Wrap one layer of PVC insulation tape on each connector from bottom up.
3. Wrap three layers of waterproof tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.
4. Wrap three layers of PVC insulation tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.

 **NOTE**

- When wrapping waterproof tape, stretch the tape evenly until it is twice of the original length. When wrapping PVC insulation tape, do not stretch it.
- Wrap each layer of tape around each connector tightly and neatly, and ensure that the adhesive surface of each layer of tape overlaps more than 50% of the lower layer.
- When cutting off a cable tie, reserve a surplus length of 3 mm (0.12 in.) to 5 mm (0.20 in.).

----End

Follow-up Procedure

1. Route the cable by following the instructions in section [9.4.1 Cabling Requirements](#) and use cable ties to bind the cable.
2. Label the installed cable. For details, see section [15.5 Attaching a Sign Plate Label](#) and Attaching the Color Ring.

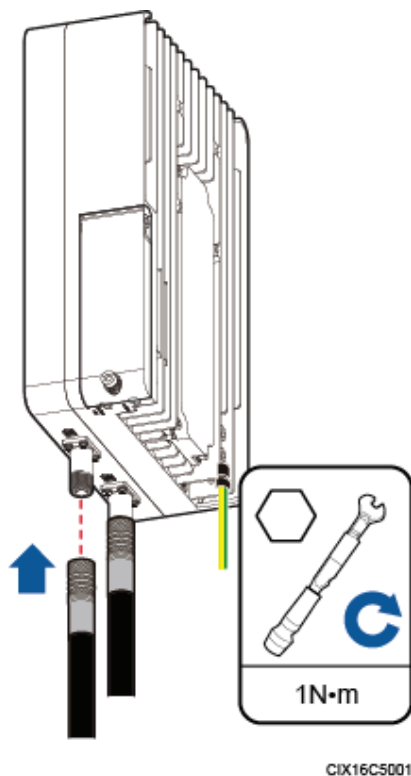
9.4.8 Installing a pRRU3916 RF Jumper

This section describes the procedure for installing a pRRU3916 RF jumper.

Procedure

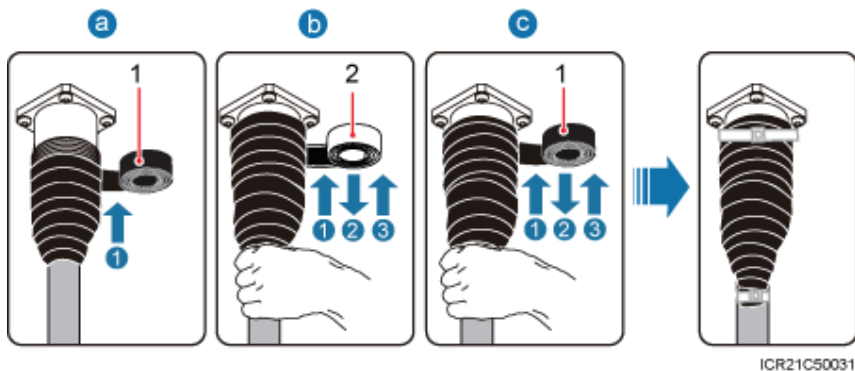
- Step 1** Remove the dustproof cap from the RF port to be used on the an pRRU3916.
- Step 2** Connect the type N male connector at one end of each pRRU3916 RF jumper to the ANT port at the bottom of the pRRU3916 in sequence, and use a torque wrench to tighten the connector to 1 N·m (8.85 lbf·in.), as shown in [Figure 9-24](#).

Figure 9-24 Installing a pRRU3916 RF jumper



- Step 3** Connect the other end of the pRRU3916 RF jumper to the external antenna system.
- Step 4** Waterproof the ANT port on each pRRU3916 and the BTS and ANT ports on the external auxiliary filter (AUF), as shown in [Figure 9-25](#).

Figure 9-25 Waterproofing a connector of an RF jumper



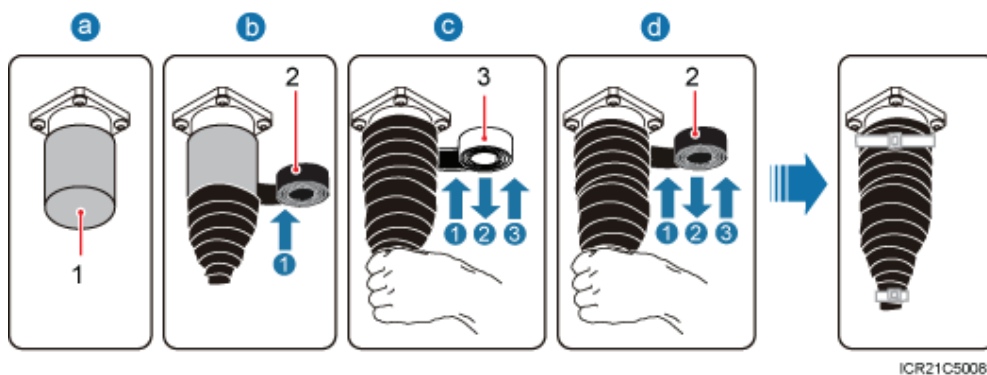
(1) PVC insulation tape	(2) Waterproof tape
-------------------------	---------------------

1. Ensure that dustproof caps are not removed.
2. Wrap one layer of PVC insulation tape on each connector from bottom up.
3. Wrap three layers of waterproof tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.
4. Wrap three layers of PVC insulation tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.

NOTE

- When wrapping waterproof tape, stretch the tape evenly until it is twice of the original length. When wrapping PVC insulation tape, do not stretch it.
- Wrap each layer of tape around each connector tightly and neatly, and ensure that the adhesive surface of each layer of tape overlaps more than 50% of the lower layer.
- When cutting off a cable tie, reserve a surplus length of 3 mm (0.12 in.) to 5 mm (0.20 in.).

- Step 5** If a pRRU3916 with an external antenna is to be installed, do not remove the dustproof cap from an unused RF port. Waterproof this RF port, as shown in [Figure 9-26](#).

Figure 9-26 Waterproofing an RF port with a dustproof cap

(1) Dustproof cap

(2) PVC insulation tape

(3) Waterproof tape

1. Ensure that dustproof caps are not removed.
2. Wrap one layer of PVC insulation tape on each connector from bottom up.
3. Wrap three layers of waterproof tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.
4. Wrap three layers of PVC insulation tape on each connector, first from bottom up, then from top down, and finally from bottom up. Wrap each layer of the tape around the connector tightly.

NOTE

- When wrapping waterproof tape, stretch the tape evenly until it is twice of the original length. When wrapping PVC insulation tape, do not stretch it.
- Wrap each layer of tape around each connector tightly and neatly, and ensure that the adhesive surface of each layer of tape overlaps more than 50% of the lower layer.
- When cutting off a cable tie, reserve a surplus length of 3 mm (0.12 in.) to 5 mm (0.20 in.).

Step 6 Route the cable by following the instructions in section "Cabling Requirements" and use cable ties to bind the cable.

Step 7 Label the installed cable. For details, see section [15.5 Attaching a Sign Plate Label](#) and [Attaching the Color Ring](#).

----End

9.4.9 Opening the Cover Plate of a pRRU Cabling Cavity

This section describes the procedure for opening the cover plate of a pRRU cabling cavity.

Procedure

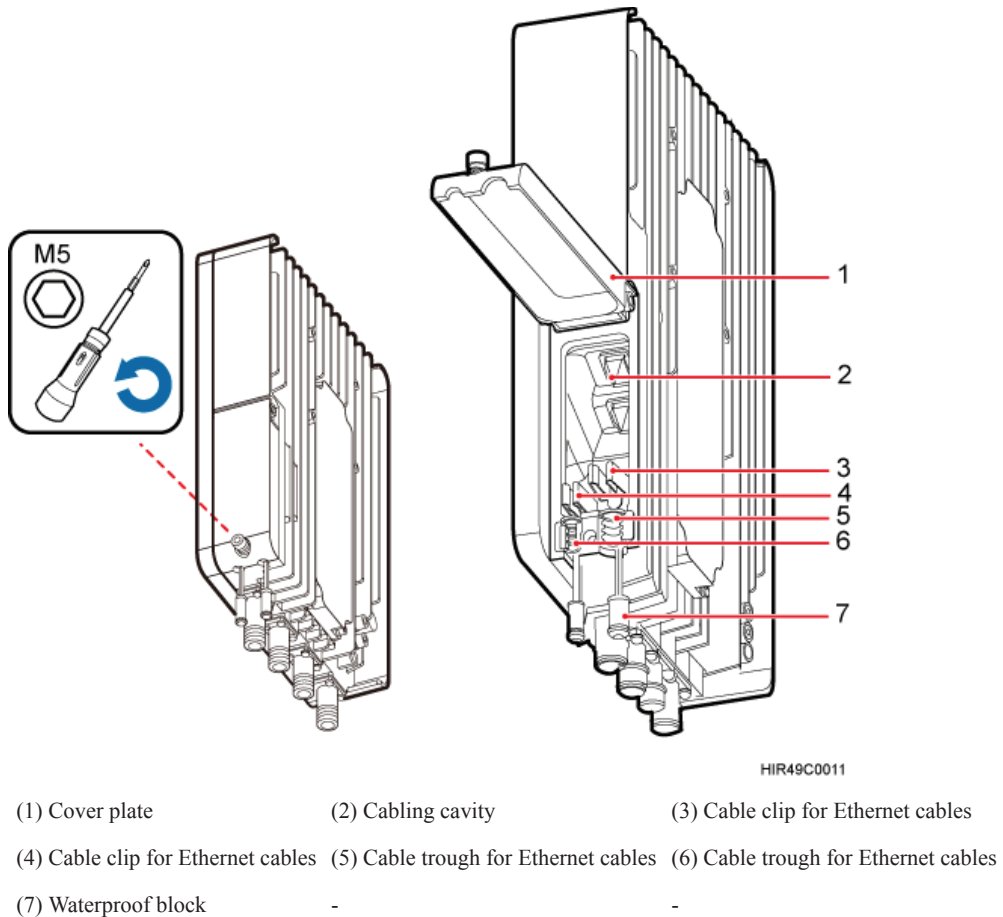
Step 1 Wear ESD gloves.

NOTICE

Take proper ESD protection measures, for example, wear ESD gloves, to prevent electrostatic damage to boards, modules, or electronic components.

- Step 2** Use an M6 inner hexagon screwdriver to loosen the screw on the cover plate of the pRRU cabling cavity, and open the cover plate, as shown in [Figure 9-27](#).

Figure 9-27 Opening the cover plate of the pRRU cabling cavity



- Step 3** Remove the waterproof block.

NOTE

Remove only the waterproof blocks for cables to be installed.

----End

9.4.10 Installing an Ethernet Cable

This section describes how to install an Ethernet cable.

Context

- The Ethernet cable must be of Category 5e (enhanced) or higher.
- With the internal PoE module providing power, the maximum length of an Ethernet cable is 100 m. With the Extender, the distance of the pRRU and RHUB can be extended by the Extender up to a total distance of 200 m.
- Ethernet cables are not delivered, and they must be prepared onsite. You need to use a network cable tester to test the Ethernet cable connection.
- The Ethernet cable has the following functions:
 - Provides power supply for the pRRU when the cable connects the CPRI_E0 port on the pRRU to the RHUB.
 - Transmits CPRI signals between an RHUB and a pRRU.

Procedure

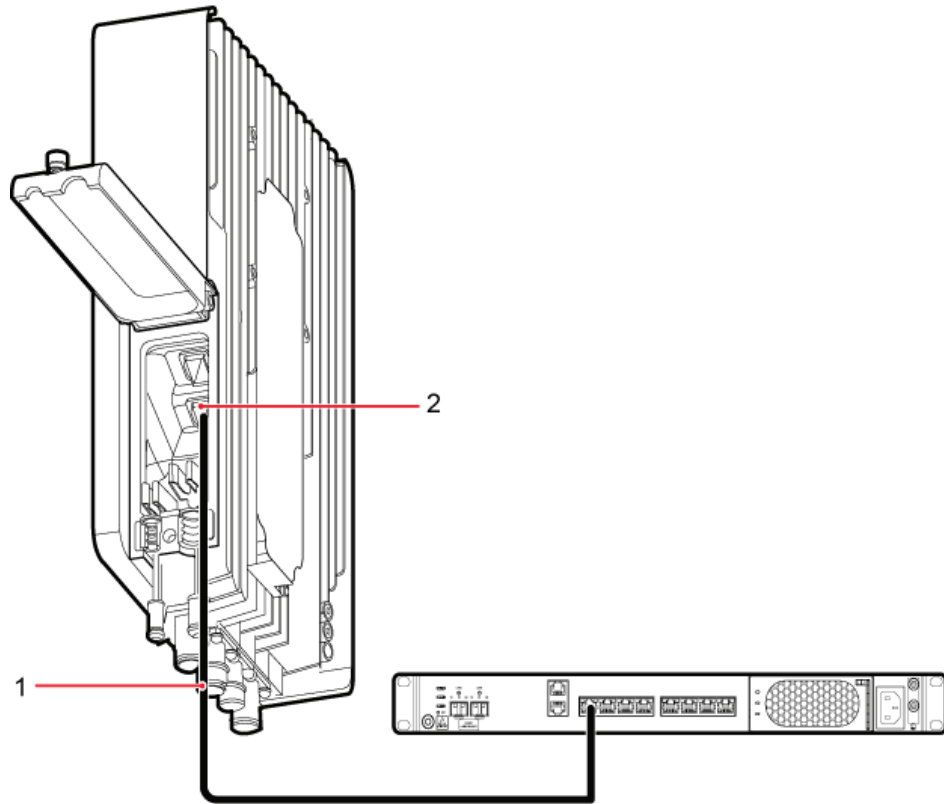
Step 1 Connect the RJ45 connector at one end of the Ethernet cable to the PoE port on the pRRU panel, and push the cables into the cable clips.

Step 2 Optional: Connect the RJ45 connector at the other end of the Ethernet cable to the output port of the Extender. Then, connect the RJ45 connector at one end of another Ethernet cable to the input port of the Extender.

In this scenario, the Ethernet cable is divided into two parts, one between the RHUB and the Extender and the other between the Extender and the pRRU.

Step 3 Connect the RJ45 connector at the other end of the Ethernet cable to any port ranging from CPRI_E0 to CPRI_E7 on the RHUB panel based on the engineering design, as shown in [Figure 9-28](#).

Figure 9-28 Installing an Ethernet cable



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(1) Ethernet cable

(2) CPRI_E0 port on the pRRU

NOTE

The connection mode of CPRI_E0 port is the same to that of CPRI_E1 port on pRRU, and this chapter uses CPRI_E0 as an example.

----End

Follow-up Procedure

1. Route the cable by following the instructions in section [9.4.1 Cabling Requirements](#) and use cable ties to bind the cable.
2. Label the installed cable. For details, see section [15.5 Attaching a Sign Plate Label](#).

9.4.11 Closing the Cover Plate of a pRRU Cabling Cavity

This section describes the procedure for closing the cover plate of a pRRU cabling cavity.

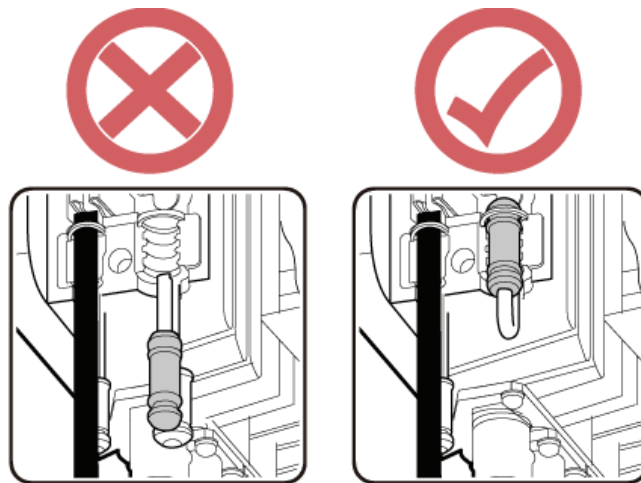
Procedure

- Step 1** Insert waterproof blocks into vacant cable troughs in the cabling cavity, as shown in [Figure 9-29](#). [Figure 9-29](#) is for reference only and vacant cable troughs must be blocked based on onsite requirements.

 **NOTICE**

Ensure that cables and waterproof blocks are properly inserted into troughs.

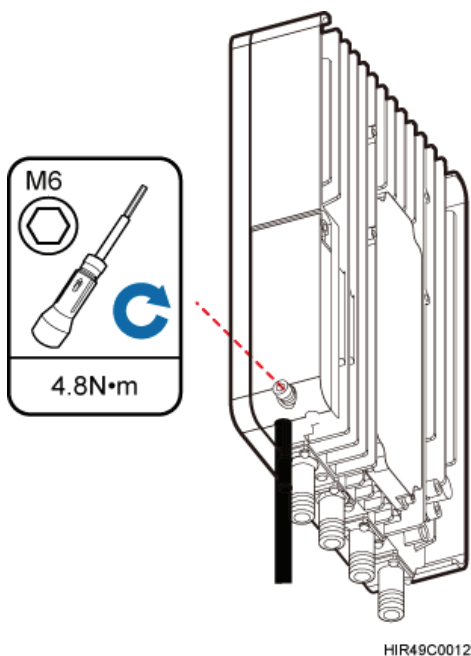
Figure 9-29 Correct placement of waterproof blocks



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- Step 2** Close the cover plate of the pRRU cabling cavity, and use an M6 inner hexagon screwdriver to tighten the screw on the cover plate to 4.8 N·m (42.48 lbf·in.), as shown in [Figure 9-30](#).

Figure 9-30 Closing the cover plate of a pRRU cabling cavity



Step 3 Take off the ESD gloves, and pack up all tools.

---End

9.5 Checking the pRRU Hardware Installation

pRRU hardware installation checking includes hardware and cable installation checking.

Table 9-5 lists the hardware installation checking items.

Table 9-5 Hardware installation checking list

No.	Item
1	The installation position of each device strictly complies with the engineering design and meets clearance requirements. Sufficient space is reserved for equipment maintenance.
2	The pRRU is securely installed.
3	The cover plate is securely installed on the RRU cabling cavity.
4	Waterproof blocks are securely installed in vacant cable troughs of the pRRU cabling cavity, and the cover plate of the cabling cavity is securely installed. In addition, vacant RF ports are covered with dustproof caps and the caps are tightened.
5	Labels are correct, legible, and complete at both ends of each cable, feeder, and jumper.

Table 9-6 lists the check items of the signal cable connection.

Table 9-6 Checklist for the signal cable connection

No.	Item
1	The connectors of the signal cables must securely connected.
2	The connectors of the signal cables are intact.
3	The signal cables are intact.
4	The cable ties are evenly spaced. The signal cables are bound neatly with cable ties to proper tightness, and arranged at even intervals in the same direction.
5	The extra length of the cable ties is cut and removed. The cut surfaces of the indoor cables are smooth and have no sharp edges.
6	The cable layout facilitates maintenance and expansion.
7	Correct and clear labels are attached to both ends of the signal cables.

Table 9-7 lists the checking items for other cable connections.

Table 9-7 Checklist for other cable connections

No.	Item
1	The connectors of the other cables must securely connected.
2	Labels on the cables are legible and bound based on the engineering requirements. The cables must be bound tightly and neatly. The sheaths of the cables must not be damaged.
3	Positions for routing the cables must meet requirements of the engineering design.
4	There are no connectors or joints on each PGND cable. None of PGND cables can be short-circuited or reversely connected. In addition, these cables are not damaged or broken.
5	PGND cables are separately bound from other cables.
6	The protection grounding of the pRRU and the surge protection grounding of the building share one group of ground conductors.

9.6 Powering on the pRRU

This section describes the power-on check on the pRRU after the pRRU hardware is installed and checked.

Context

After the RHUB and pRRUs are installed and connected to each other, power on them no matter whether the BBU is installed.

Procedure

- Step 1** Power on the pRRU. Wait 3 to 5 minutes, check the status of the 3GPP indicator on the pRRU.

If the 3GPP Indicator...	Because...	Then...
Blinks white at 4 Hz	The pRRU is loading software, configuring data, or it is not running.	Wait until the software is loaded. If the loading is not completed in five minutes, power off the pRRU and check whether the data configuration file is correct. After the fault is rectified, power on the pRRU again.
Blinks white at 0.5 Hz (on for 1s and off for 1s)	The pRRU is working properly and does not transmit power.	Check whether the services have been configured and power amplification have been enabled on the pRRU.
Is steady white	The cell is set up and transmits power properly.	No further action is required.
Is steady orange.	There is power input, but the hardware is faulty.	Power off the pRRU, rectify the hardware fault, and then power it on again.
Blinks orange at 0.5 Hz (on for 1s and off for 1s)	A minor alarm (indicating an HDLC link disconnection, for example) is generated.	Troubleshoot based on the alarm information.
Is off	The board is not powered on.	Turn off the power supply switch and check whether the power input is normal. If the power input is normal, check for and rectify board faults, and turn on the power supply switch again.

NOTE

Check the indicator status 30 minutes after the power-on if a pRRU is not connected to any BBU. The pRRU is considered normally powered on when any indicator on the pRRU is on.

---End

10 (Optional) Installing the Extender-PoE90

This section describes the Extender-PoE90 installation process.

Context

When an RHUB and a pRRU need extended install, use Extender-PoE90. With the Extender-PoE90, the distance of the pRRU and RHUB can be extended by the Extender-PoE90 up to a total distance of 200 m.

The Extender-PoE90 can be installed on a wall or ceiling in the same mode. This section describes wall-mounted installation as an example.

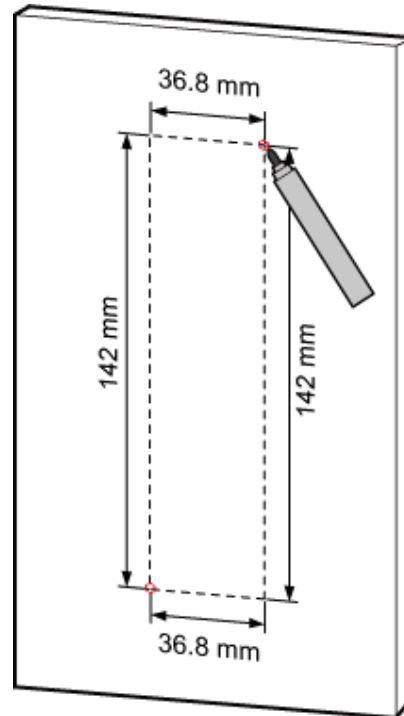
Only space above and under the Extender-PoE90 is required to be reserved when installing the Extender-PoE90. The recommended space for installing the Extender-PoE90 is described as follows:

- At least 150 mm above the Extender-PoE90 is reserved for cabling.
- At least 150 mm under the Extender-PoE90 is reserved for cabling.

Procedure

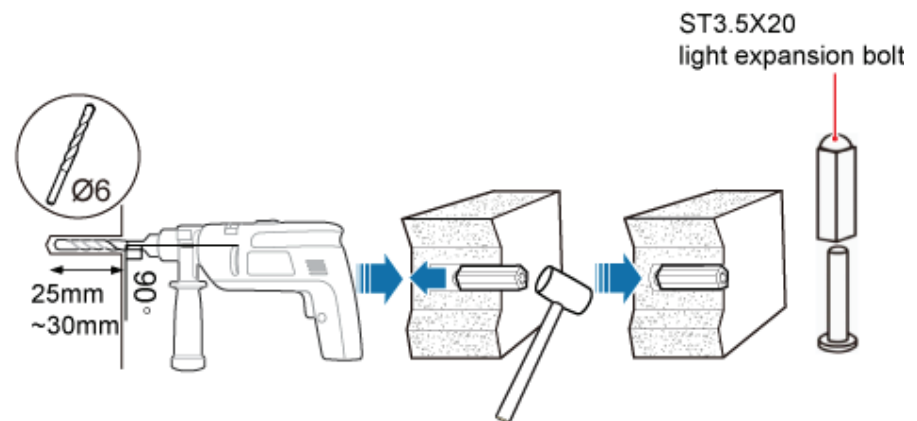
- Indoor scenario:
 - a. Use a marker to mark the two anchor points according to inter-hole spacing, as shown in [Figure 10-1](#).

Figure 10-1 Marking anchor points



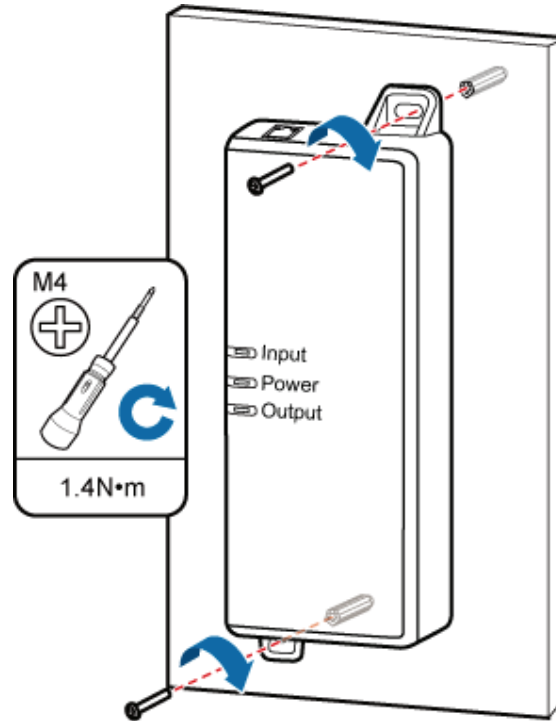
- b. Drill holes at the anchor points, and install expansion bolt assemblies, as shown in [Figure 10-2](#). The diameter of the hole is 6 mm, and the depth is 25 mm to 30 mm.

Figure 10-2 Drilling holes and installing expansion bolts



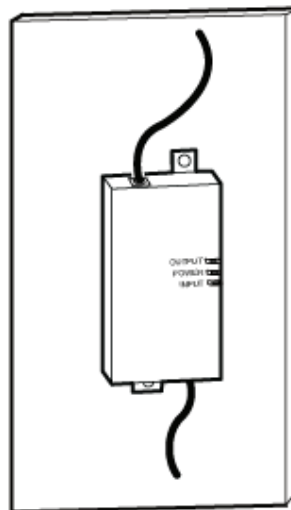
- c. Place the Extender-PoE90 in the corresponding position and use an M4 Phillips screwdriver to tighten the screws to 1.4 N•m, as shown in [Figure 10-3](#).

Figure 10-3 Installing Extender-PoE90



- d. Installing the Ethernet cables at the two ends of Extender-PoE90, as shown in [Figure 10-4](#).

Figure 10-4 Installing the Ethernet cables (1)



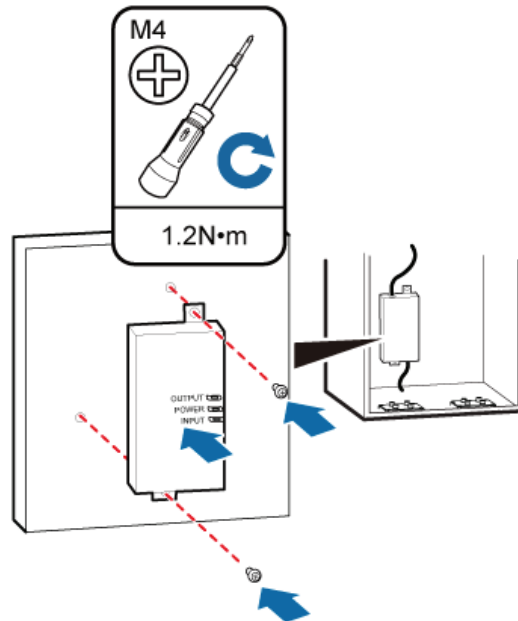
- Outdoor:
 - a. Installing the Ethernet cables at the two ends of Extender-PoE90, as shown in [Figure 10-5](#).

Figure 10-5 Installing the Ethernet cables (2)



- b. Install the Extender-PoE90 to the cabinet, and keep the OUTPUT interface on top, as shown in **Figure 10-6**.

Figure 10-6 Installing the Extender-PoE90 to the cabinet



---End

11 (Optional) Installing the EXD3902 and Cables

About This Chapter

This chapter describes how to install an EXD3902 and its cables. EXD3902 is applied in outdoor scenarios.

[11.1 Installation Scenario](#)

The EXD3902 can be installed on a pole or wall. Installation scenarios must meet heat-dissipation and waterproofing requirements of the EXD3902.

[11.2 Installation Clearance and Space Requirements](#)

This section describes the recommended and minimum clearances for an EXD3902.

[11.3 Installation Process](#)

This section describes the EXD3902 installation process, which involves installing an EXD3902 and cables, checking the EXD3902 hardware installation, and powering on the EXD3902.

[11.4 Installing an EXD3902](#)

This section describes the EXD3902 installation process. The EXD3902 can be mounted on a pole or wall depending on the surrounding environment.

[11.5 Installing EXD3902 Cables](#)

This section describes the procedure for installing EXD3902 cables.

[11.6 Checking the EXD3902 Hardware Installation](#)

EXD3902 hardware installation checking includes hardware and cable installation checking.

[11.7 Powering on the EXD3902](#)

This section describes the power-on check on the EXD3902 after the EXD3902 hardware is installed and checked.

11.1 Installation Scenario

The EXD3902 can be installed on a pole or wall. Installation scenarios must meet heat-dissipation and waterproofing requirements of the EXD3902.

Constraints and Limitations

Application scenarios:

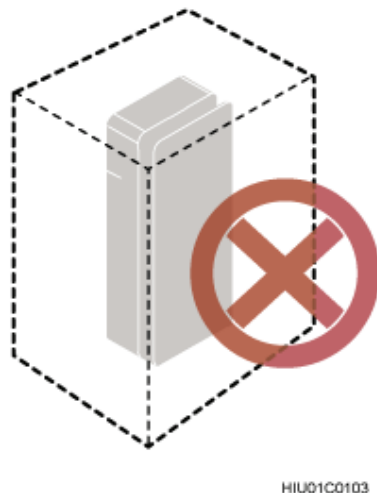
To ensure proper heat dissipation of the EXD3902, the following requirements must be met:

- The EXD3902 cannot be installed in an enclosed cabinet without a cooling system.
- The EXD3902 cannot be installed in an enclosed camouflage box.
- The EXD3902 cannot be installed in an enclosed equipment room without a cooling system.
- When multiple EXD3902s are installed in centralized mode, the minimum clearance requirements must be met. For details, see [11.2 Installation Clearance and Space Requirements](#).

NOTICE

If the EXD3902 is inappropriately installed, as shown in [Figure 11-1](#), heat dissipation of the EXD3902 deteriorates and the EXD3902 may not work properly.

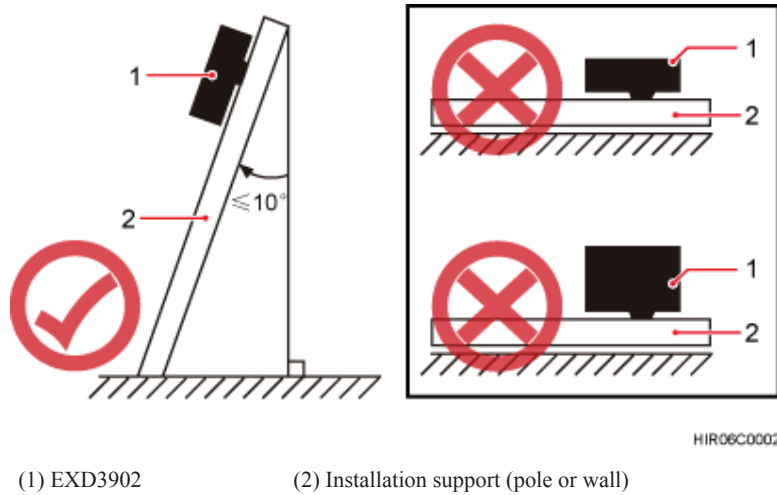
Figure 11-1 Inappropriately installed EXD3902



Correct installation methods:

To ensure heat dissipation of the EXD3902 and waterproofing of the ports at the bottom of the EXD3902, the vertical deviation angle of an EXD3902 must be less than or equal to 10°, as shown in [Figure 11-2](#).

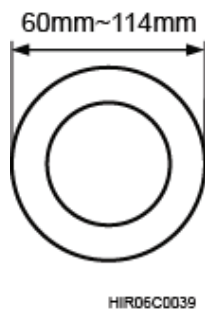
Figure 11-2 Requirements for the vertical deviation angle of an EXD3902



Pole-mounted Scenario

Figure 11-3 shows the recommended pole diameters in different installation scenarios.

Figure 11-3 Diameter of a pole

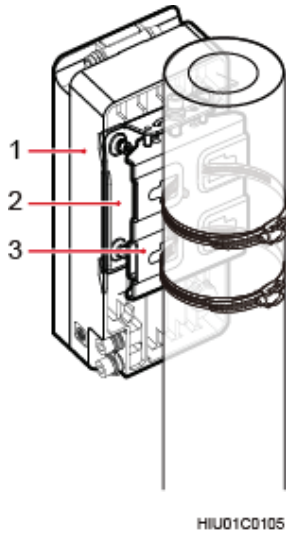


NOTICE

- The diameter of the pole ranges from 60 mm to 114 mm (80 mm recommended).
- The pole thickness must be greater than or equal to 3.5 mm.

Figure 11-4 shows an EXD3902 installed on a pole.

Figure 11-4 EXD3902 installed on a pole



(1) EXD3902

(2) Attachment plate

(3) Mounting kit

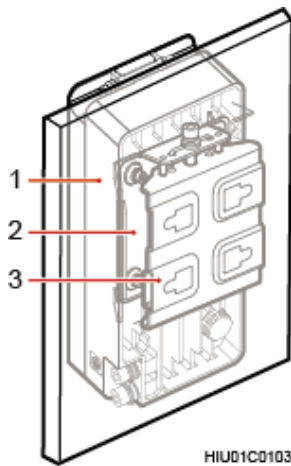
Wall-mounted Scenario

The wall for installing EXD3902s must meet the following requirements:

- The wall must be able to bear a weight four times heavier than the EXD3902's weight.
- Expansion bolts must be tightened to 30 N·m to ensure that the bolt assemblies work properly and the wall remains intact.

Figure 11-5 shows an EXD3902 installed on a wall.

Figure 11-5 EXD3902 installed on a wall



(1) EXD3902

(2) Attachment plate

(3) Mounting kit

11.2 Installation Clearance and Space Requirements

This section describes the recommended and minimum clearances for an EXD3902.

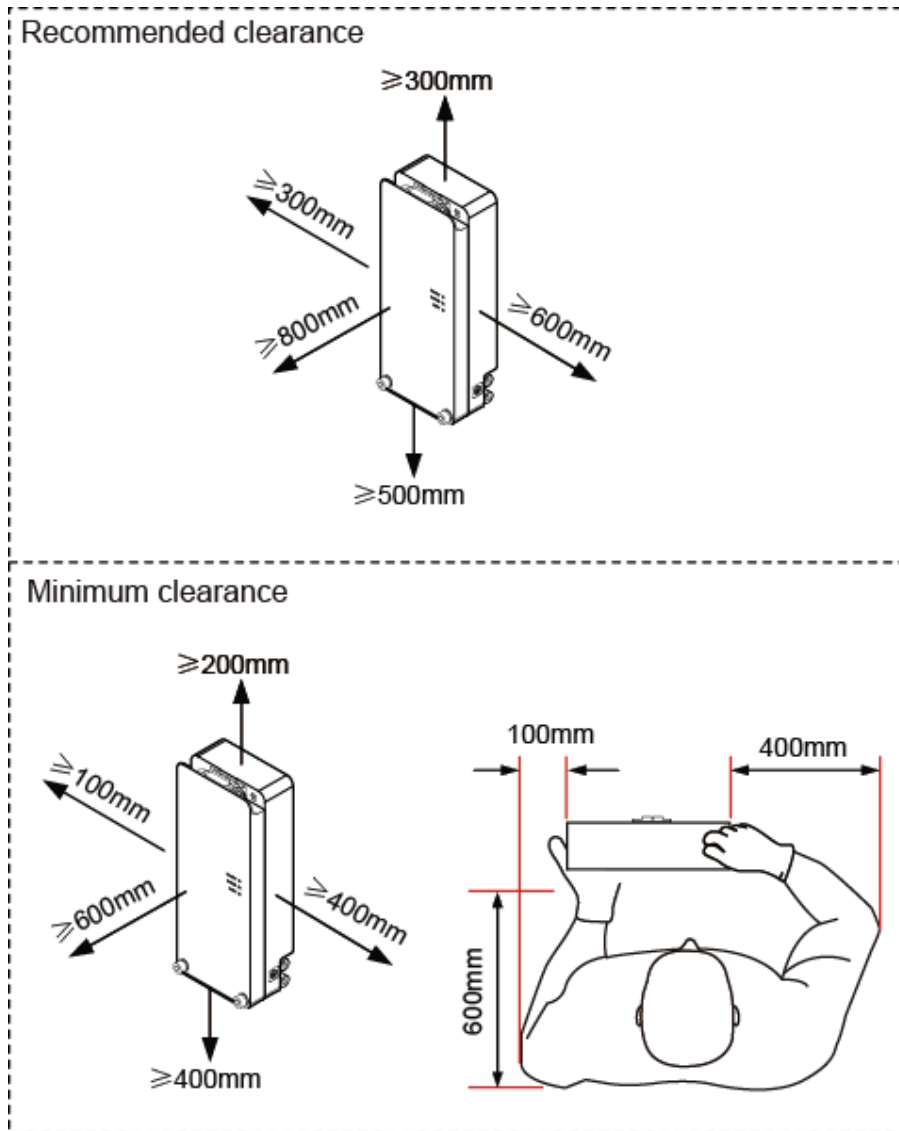
 **NOTE**

- The recommended clearances are for customers, ensuring normal running and providing appropriate space for O&M. If installation space is sufficient, leave the recommended clearances after installing equipment.
- The minimum clearance ensures normal operation and heat dissipation, but O&M activities such as checking indicator status and opening the cover plate of a cabling cavity cannot be properly conducted. If installation space is sufficient, leave the minimum clearance after installing equipment.

Clearance for an EXD3902

Figure 11-6 shows the clearances for installing an EXD3902.

Figure 11-6 Clearances for installing an EXD3902



HIU01C0107

Installation Spacing Between EXD3902s

Installation spacing between EXD3902s includes horizontal and vertical spacing.

Figure 11-7 shows the horizontal spacing between EXD3902s.

Figure 11-7 Horizontal spacing

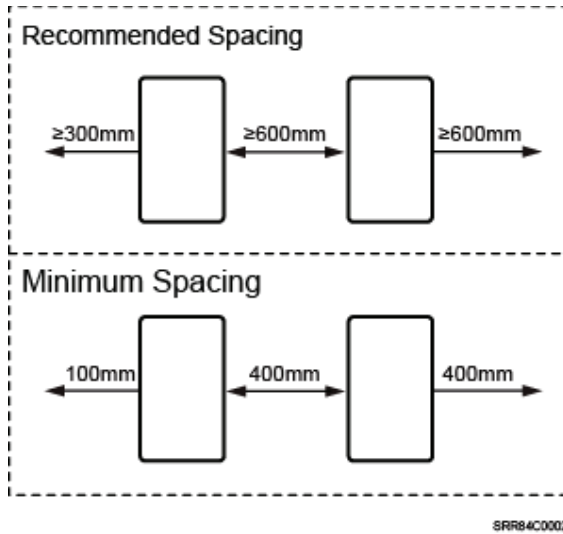
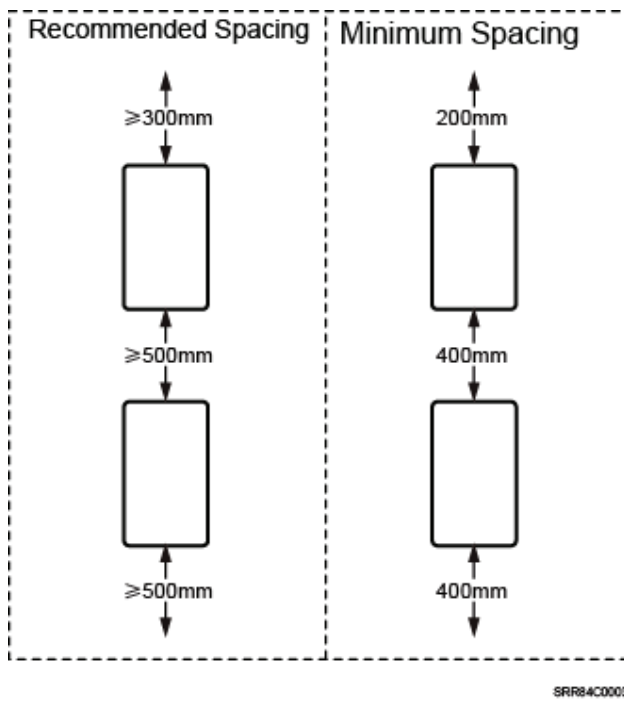


Figure 11-8 shows the vertical spacing between EXD3902s.

Figure 11-8 Vertical spacing

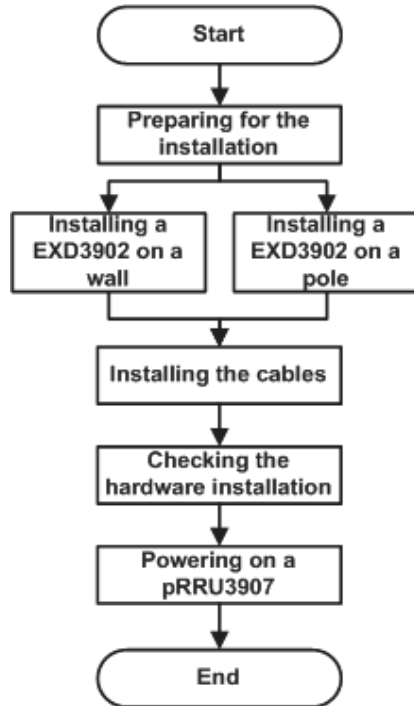


11.3 Installation Process

This section describes the EXD3902 installation process, which involves installing an EXD3902 and cables, checking the EXD3902 hardware installation, and powering on the EXD3902.

Figure 11-9 shows the EXD3902 installation process.

Figure 11-9 EXD3902 installation process



11.4 Installing an EXD3902

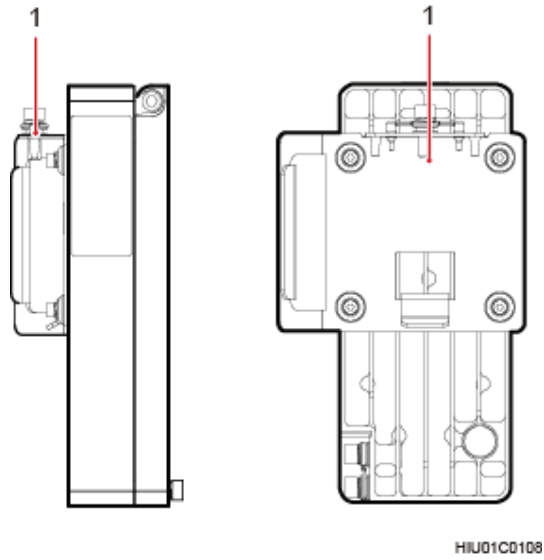
This section describes the EXD3902 installation process. The EXD3902 can be mounted on a pole or wall depending on the surrounding environment.

11.4.1 EXD3902 Mounting Kits

This section describes mounting kits and attachment plates for installing EXD3902s.

Figure 11-10 shows the exterior of an EXD3902.

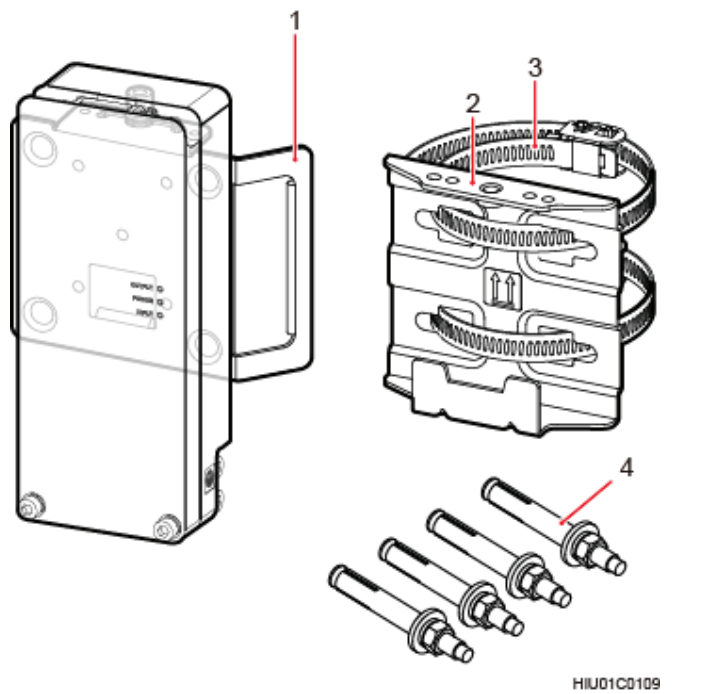
Figure 11-10 Front and side of an EXD3902



(1) Attachment plate

Figure 11-11 shows the mounting kits for installing an EXD3902.

Figure 11-11 Mounting kits for installing an EXD3902



(1) Attachment plate

(2) Mounting bracket

(3) Hose clamp

(4) Expansion bolt

11.4.2 Installing an EXD3902 on a Wall

This section describes the procedure and precautions for installing an EXD3902 on a wall.

Context

NOTICE

Place a foam pad or cardboard under an EXD3902 to protect the EXD3902 housing from damage during the installation.

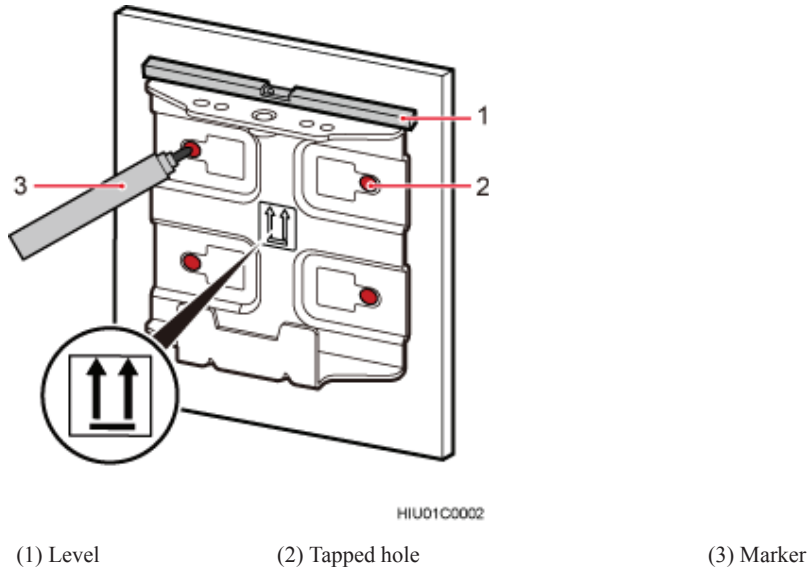
The wall for installing EXD3902s must meet the following requirements:

- The wall must be able to bear a weight four times heavier than the EXD3902's weight.
- Expansion bolts must be tightened to 30 N·m to ensure that the bolt assemblies work properly and the wall remains intact.

Procedure

- Step 1** Determine a position for installing the EXD3902 on a wall, use a level to verify that the marking-off template is placed horizontally, and then use a marker to mark anchor points, as shown in [Figure 11-12](#).

Figure 11-12 Marking anchor points

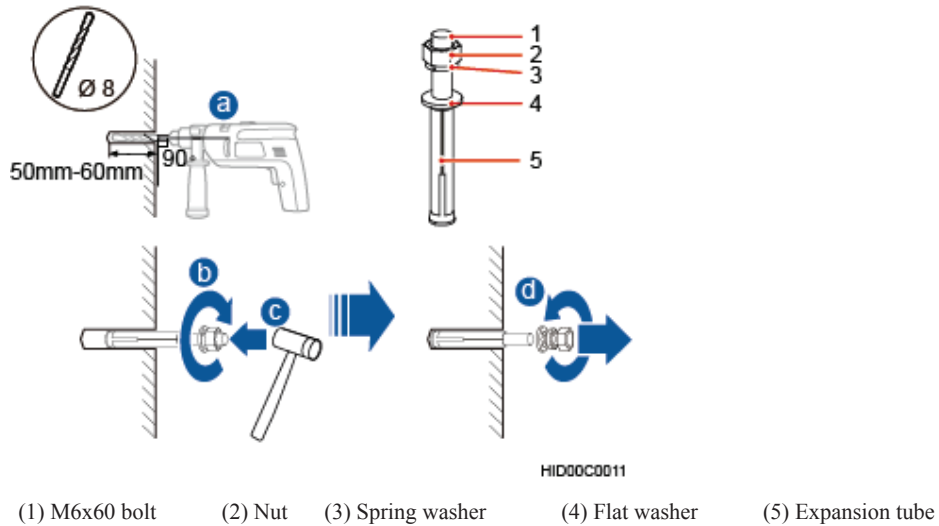


NOTE

It is recommended that the separate mounting kit be 1200 mm to 1600 mm above the ground

- Step 2** Drill holes at the anchor points and install expansion bolts in the holes, as shown in [Figure 11-13](#).

Figure 11-13 Drilling a hole and inserting an expansion bolt assembly



1. Use a hammer drill with a $\phi 8$ bit to drill holes vertically at the marked anchor points. Ensure that the depth of each hole ranges from 45 mm to 50 mm.



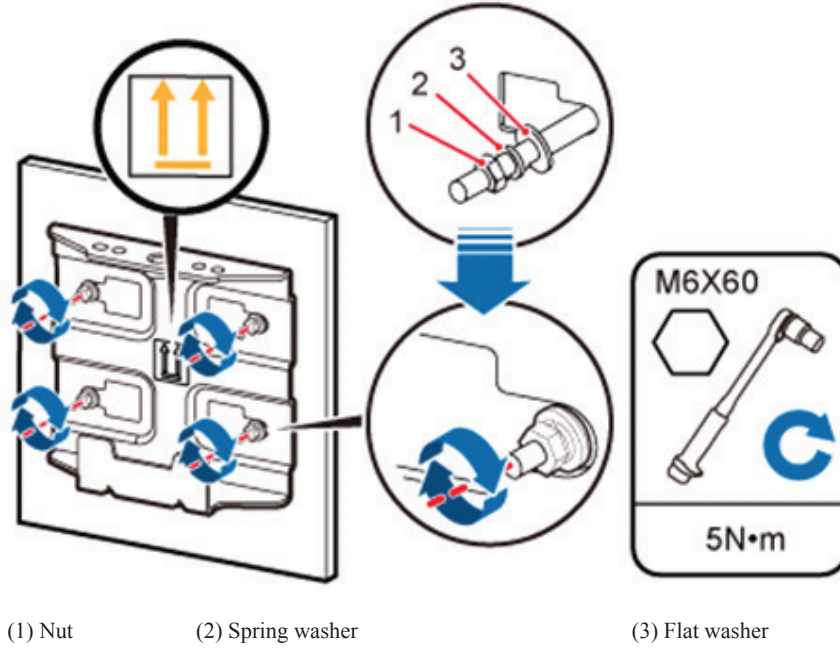
NOTICE

Take proper safety measures to protect your eyes and respiratory tract against the dust before drilling holes.

2. Use a vacuum cleaner to clear the dust out from inside and around the holes, and measure the distances between holes. If any of the hole is beyond the acceptable range, mark a new anchor point and drill a new hole.
3. Tighten the expansion bolts slightly, and place each expansion bolt vertically into each hole.
4. Use a rubber mallet to pound each expansion bolt until the corresponding expansion tube completely enters the hole. Leave 20 mm of the expansion bolt outside the wall.
5. Remove the M6×60 bolt, nut, spring washer, and flat washer in sequence.

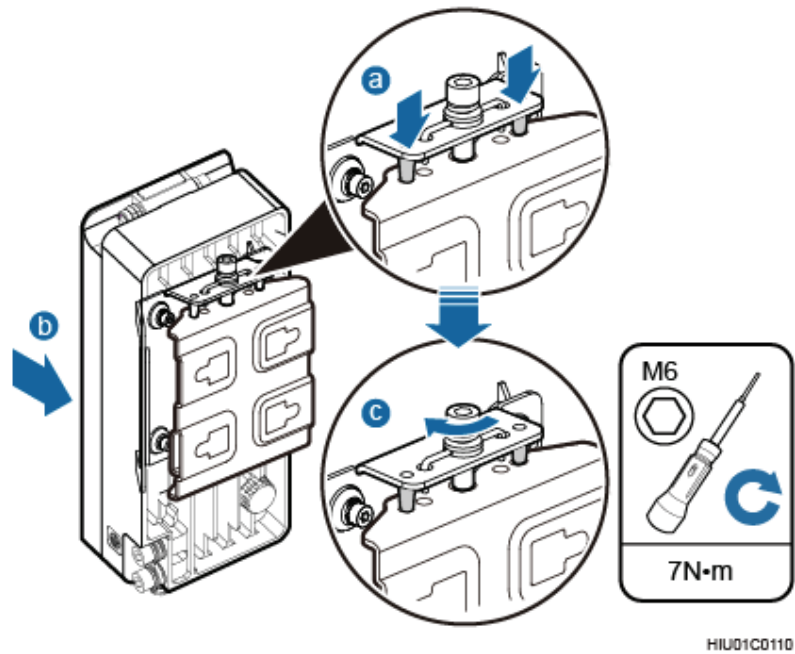
Step 3 Place the mounting kit onto the wall, insert four M6x60 bolts into the tapped holes on the mounting kit, and tighten each bolt to 5 N·m (44.25 lbf·in.) to secure the mounting kit, as shown in [Figure 11-14](#).

Figure 11-14 Securing the separate mounting kit



Step 4 Secure the EXD3902 onto the mounting kit, as shown in [Figure 11-15](#).

Figure 11-15 Securing the EXD3902 onto the mounting kit



1. Hold the EXD3902, hang the two dowels on the top of the EXD3902 attachment plate onto the separate mounting kit, and push the EXD3902 until it snaps into place, as shown by illustrations a and b in [Figure 11-15](#).
2. Use the M6 inner hexagon screwdriver to tighten the screw on the top of the separate attachment plate to 7 N·m, as shown by illustration c in [Figure 11-15](#).

----End

11.4.3 Installing an EXD3902 on a Pole

This section describes the procedure and precautions for installing an EXD3902 on a pole.

Context



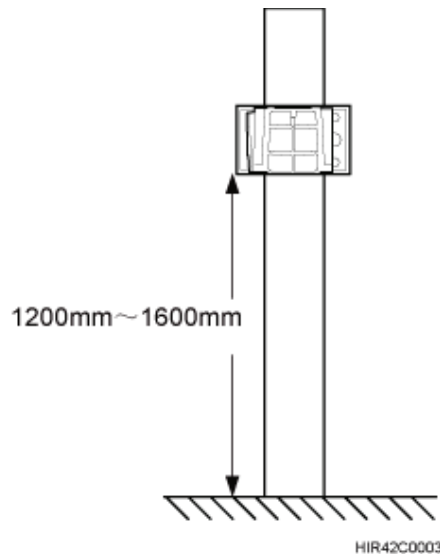
NOTICE

Place a foam pad or cardboard under an EXD3902 to protect the EXD3902 housing from damage during the installation.

Procedure

- Step 1** Determine a position for installing the separate mounting kit, as shown in [Figure 11-16](#).

Figure 11-16 Distance between the separate mounting kit and the ground

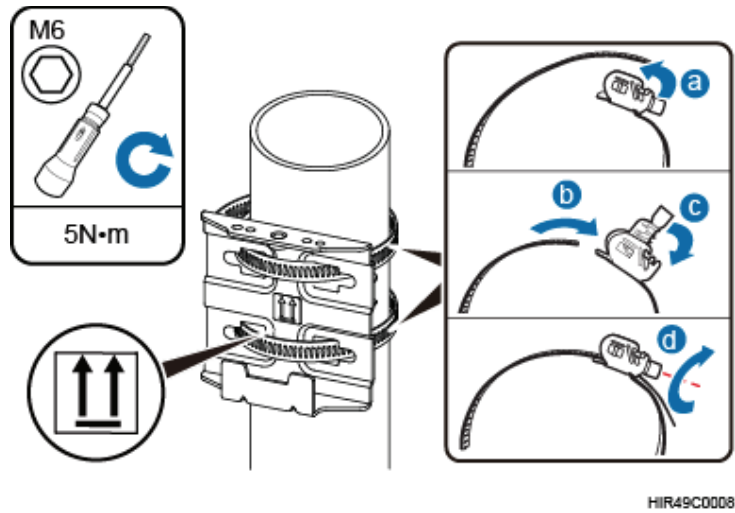


NOTE

It is recommended that the separate mounting kit be 1200 mm (47.24 in.) to 1600 mm (62.99 in.) above the ground.

- Step 2** Install the EXD3902 mounting kit, as shown in [Figure 11-17](#).

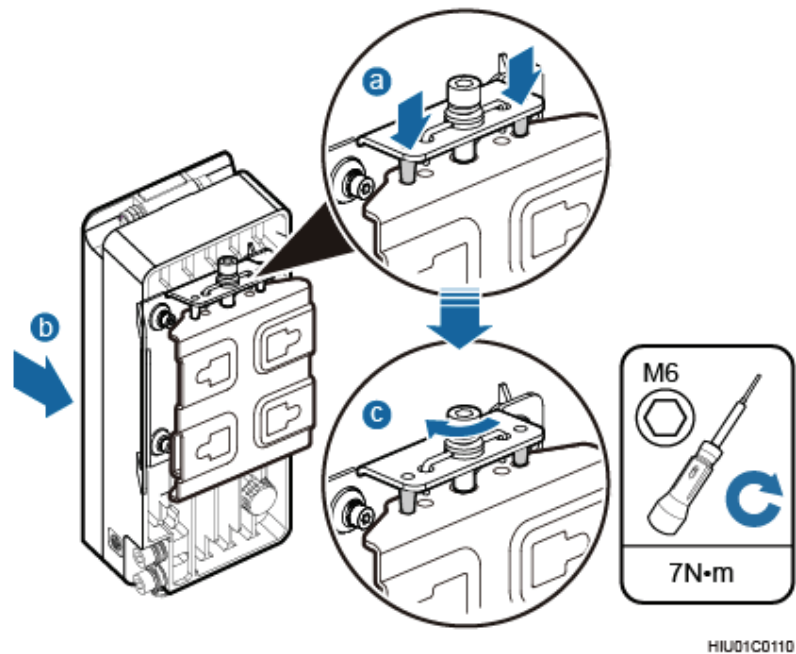
Figure 11-17 Installing the EXD3902 mounting kit



1. Determine a position for installing the EXD3902. Then, place the separate mounting kit onto the pole, thread the hose clamp through the mounting kit, and encircle the pole with the hose clamp, as shown by illustrations a, b, and c in [Figure 11-17](#).
2. Use an M6 inner hexagon screwdriver to tighten the bolt on each hose clamp to 5 N·m to secure the mounting kit, as shown by illustration d in [Figure 11-17](#).

Step 3 Secure the EXD3902 onto the mounting kit, as shown in [Figure 11-18](#).

Figure 11-18 Securing the EXD3902 onto the mounting kit



1. Hold the EXD3902, hang the two dowels on the top of the EXD3902 attachment plate onto the separate mounting kit, and push the EXD3902 until it snaps into place, as shown by illustrations a and b in [Figure 11-18](#).
2. Use the M6 inner hexagon screwdriver to tighten the screw on the top of the separate attachment plate to 7 N·m, as shown by illustration c in [Figure 11-18](#).

---End

11.5 Installing EXD3902 Cables

This section describes the procedure for installing EXD3902 cables.

11.5.1 Cabling Requirements

Cables must be laid out according to the specified cabling requirements to prevent signal interference.

NOTE

If a cable listed below is not required, skip the cabling requirements of the cable.

General Cabling Requirements

Bending radius requirements

- The bending radius of a 7/8" feeder must be greater than 250 mm (9.84 in.), and the bending radius of a 5/4" feeder must be greater than 380 mm (14.96 in.).
- The bending radius of a 1/4" jumper must be greater than 35 mm (1.38 in.). The bending radius of a super-flexible 1/2" jumper must be greater than 50 mm (1.97 in.), and the bending radius of an ordinary 1/2" jumper must be greater than 127 mm (5.00 in.).
- The bending radius of a PGND cable must be at least three times its diameter.
- The bending radius of a signal cable must be at least five times its diameter.

Cable binding requirements

- Cables of the same type must be bound together.
- Different types of cables must be separately laid out and bound, with a minimum distance of 30 mm (1.18 in.) from each other.
- Cables must be bound tightly and neatly. The sheaths of cables must not be damaged.
- Cable ties must face the same direction, and those at the same horizontal line must be in a straight line.
- The excess of indoor cable ties must be cut off. The excess of 5 mm (0.197 in.) of outdoor cable ties should be reserved, and the cut surfaces must be smooth without sharp edges.
- After cables are installed, labels or nameplates must be attached to the cables at their ends, curves, and interconnection positions.

Security requirements

- When laying out cables, avoid sharp objects, for example sharp edges on the wall. If necessary, use tubes to protect the cables.
- When laying out cables, keep cables away from heat sources, or use heat insulation materials to insulate the cables from the heat sources.

- Reserve a proper distance (0.1 m [3.937 in.] is recommended) between equipment and cables especially at the cable curves to protect the cables and equipment.

Indoor cabling requirements

- Route each cable into the room through the feeder window.
- Reserve drip loops for all cables outside the feeder window before routing them into the room. Ensure that the radiuses of the drip loops are greater than or equal to the minimum bending radiuses of the cables.
- When routing a cable into the room, ensure that a person is assisting you in the room.
- Apply waterproof treatment to the feeder window.

Outdoor Cabling Requirements

- Protect outdoor cables against potential damage. For example, thread the cables through tubes.
- Cables to be protected include AC power cables, transmission cables, and cables laid out underground.
- Use cable clips to secure cables outdoors.
- Arrange cables neatly along the routing direction and use cable clips to secure the cables.
- Determine the positions where the clips are installed according to the actual situation. For example, 7/8" feeders are secured with clips at an interval of 1.5 m (4.92 ft) to 2 m (6.56 ft), and CPRI fiber optic cables and power cables are secured with clips at an interval of 1 m (3.28 ft) to 1.5 m (4.92 ft). Ensure that the clips are evenly spaced and in the same direction.
- When fastening cables with a clip, ensure that the cables are aligned neatly and are routed through the holes in the clip. Do not stretch the cables too tightly.
- When using clips to secure cables, tighten the screws on the clips after all cables are arranged and laid out.

Special Cabling Requirements

Cabling of PGND cables

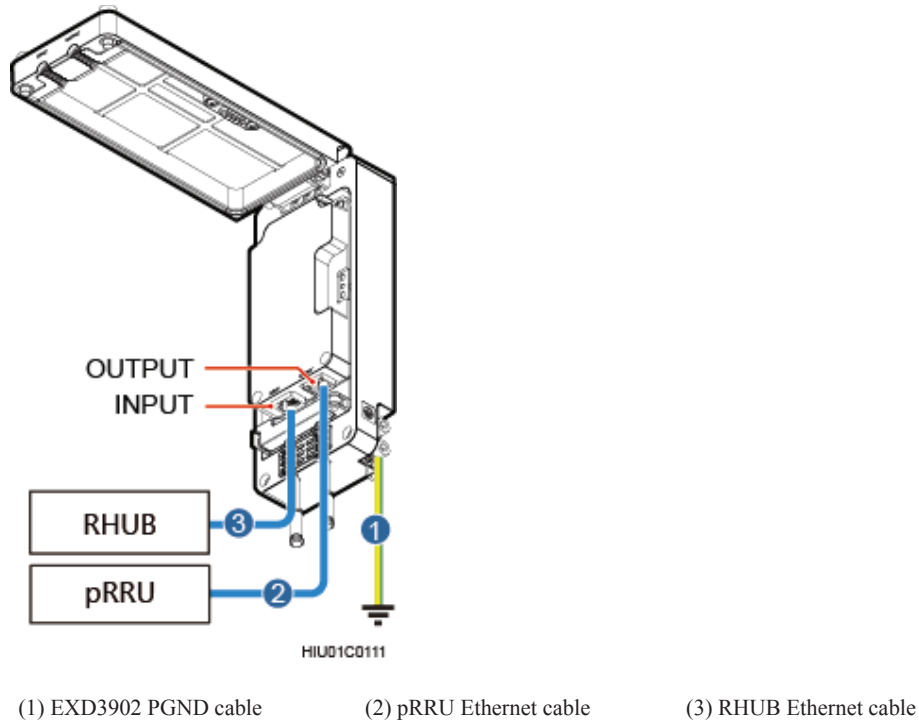
- PGND cables for a base station must be connected to the same ground bar.
- PGND cables must be buried in the ground or routed indoors.
- The external conductor of the coaxial wire and the shield layer of the shielded cable must have proper electrical contact with the metal surface of the equipment which they are connected to.
- PGND cables and signal cables must be installed separately. A certain distance must be reserved between them to prevent interference from each other.
- Switches or fuses must not be installed on the PGND cables.
- Other devices must not be used for electrical connections of the PGND cables.
- All the metal parts in the housing of the equipment must be reliably connected to the ground terminal.

11.5.2 EXD3902 Cable Connections

This section describes EXD3902 cable connections.

Figure 11-19 shows the cable connections when an EXD3902 is installed.

Figure 11-19 Cable connections when an EXD3902 is installed



11.5.3 Installing a PGND cable

This section describes the procedure for installing a PGND cable.

Context

The cross-sectional area of an EXD3902 PGND cable is 16 mm². The OT terminals at two ends of the cable are M6 and M8 terminals respectively.

Procedure

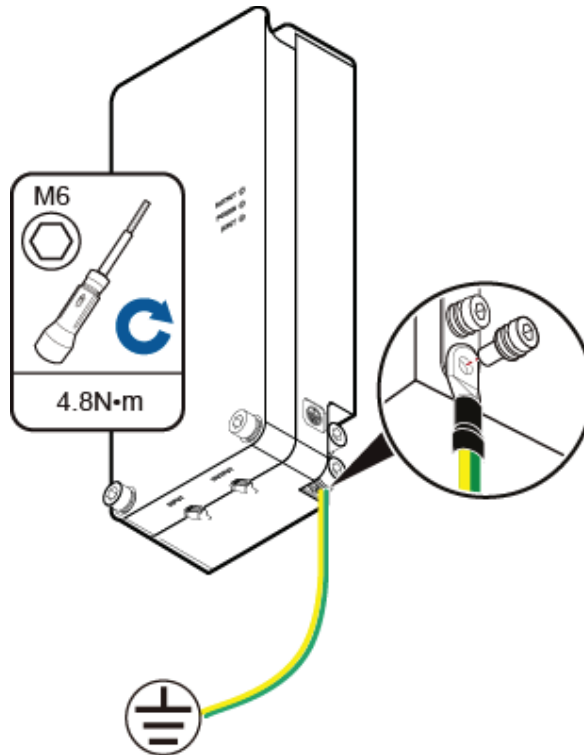
Step 1 Prepare an EXD3902 PGND cable.

1. Cut the cable to a length suitable for the actual cable route.
2. Add OT terminals to both ends of the cable by following the instructions in Assembling the OT Terminal and the Power Cable.

Step 2 Installing the EXD3902 PGND cable.

Connect one end of the PGND cable with an M6 OT terminal to the ground terminal at the EXD3902 bottom and the other end of the cable with an M8 OT terminal to the external ground bar, as shown in [Figure 11-20](#).

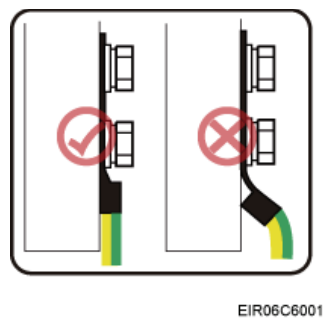
Figure 11-20 Installing an EXD3902 PGND cable



NOTE

Crimp OT terminals in correct directions, as shown in [Figure 11-21](#).

Figure 11-21 Correct direction for crimping an OT terminal



---End

Follow-up Procedure

1. Route the cable by following the instructions in section [11.5.1 Cabling Requirements](#) and use cable ties to bind the cable.

2. Label the installed cable. For details, see section [15.5 Attaching a Sign Plate Label](#).

11.5.4 Opening the Cover Plate of an EXD3902 Cabling Cavity

This section describes the procedure for opening the cover plate of an EXD3902 cabling cavity.

Procedure

- Step 1** Wear ESD gloves.

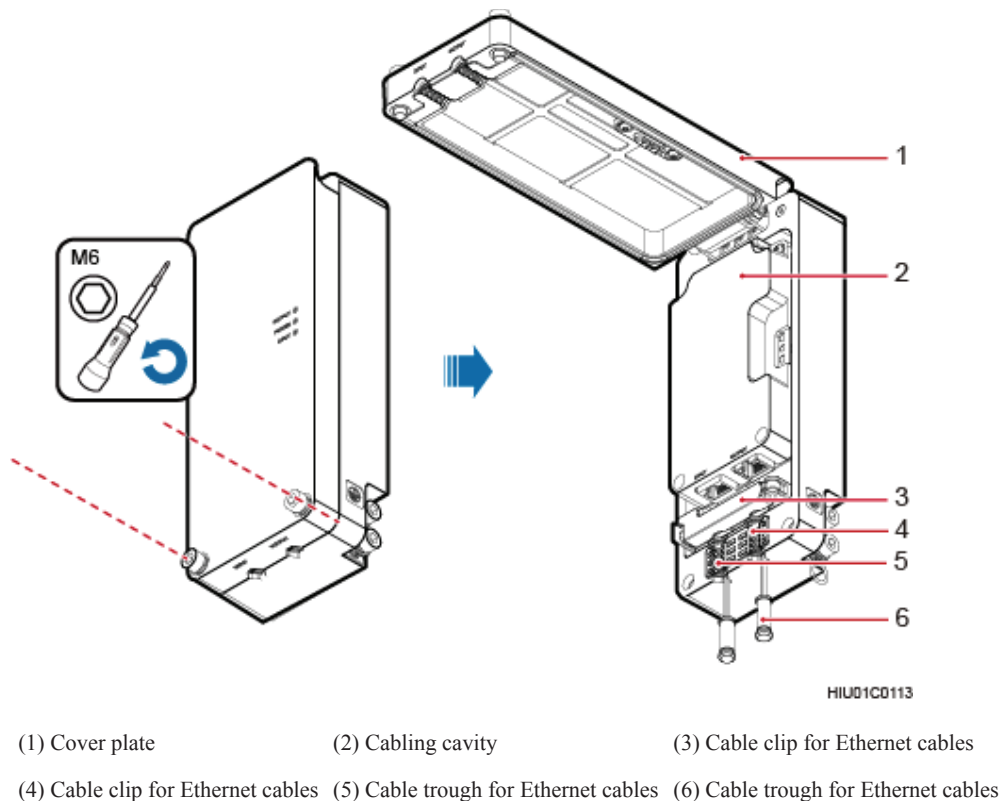


NOTICE

Take proper ESD protection measures, for example, wear ESD gloves, to prevent electrostatic damage to the boards, modules, or electronic components.

- Step 2** Use an M6 inner hexagon screwdriver to loosen the screws on the cover plate of the EXD3902 cabling cavity, and open the cover plate, as shown in [Figure 11-22](#).

Figure 11-22 Opening the cover plate of an EXD3902 cabling cavity



- Step 3** Remove the waterproof block.

 **NOTE**

Remove only the waterproof blocks for cables to be installed.

---End

11.5.5 Installing an Ethernet Cable

This section describes how to install an Ethernet cable.

Context

- The Ethernet cable must be of Category 5e (enhanced) or higher.
- Ethernet cables are not delivered, and they must be prepared onsite. You need to use a network cable tester to test the Ethernet cable connection.

 **NOTE**

The INPUT port is for connecting to the RHUB, and the OUTPUT port is for connecting to the pRRU.

Procedure

Step 1 Make the Ethernet cables.

1. Assemble an RJ45 connector and an Ethernet cable by following instructions in *Assembling the Unshielded RJ45 Connector and the Ethernet Cable*, *Assembling the Shielded RJ45 Connector and the Ethernet Cable*.

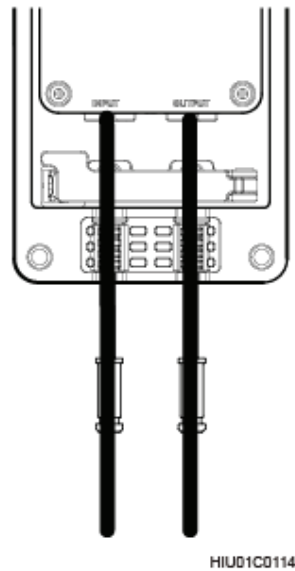
 **NOTE**

Follow pin assignment instructions described in section Ethernet Cable in *DBS3900 LampSite Hardware Description* to assemble the RJ45 connector and the Ethernet cable. Otherwise, the transmission signal quality deteriorates and CPRI links may be disconnected.

2. Check whether the made RJ45 connector is qualified by following instructions in *Checking the Appearance of Metal Contact Strips*.
3. To complete the assembly of the other end, repeat [Step 1.1](#) and [Step 1.2](#).
4. Check whether the touch points on the connectors at both ends are normally conducted and well contacted and whether the connections are correct by following instructions in *Testing the Connection of Assembled Cables of Installation Reference*.

Step 2 Connect the RJ45 connector of the cable connecting the RHUB to the INPUT port on the EXD3902 and the RJ45 connector of the cable connecting the pRRU to the OUTPUT port on the EXD3902. Press the cables into the clips, as shown in [Figure 11-23](#).

Figure 11-23 Installing Ethernet cables



---End

Follow-up Procedure

1. Route the cable by following the instructions in section [11.5.1 Cabling Requirements](#) and use cable ties to bind the cable.
2. Label the installed cable. For details, see section [15.5 Attaching a Sign Plate Label](#).

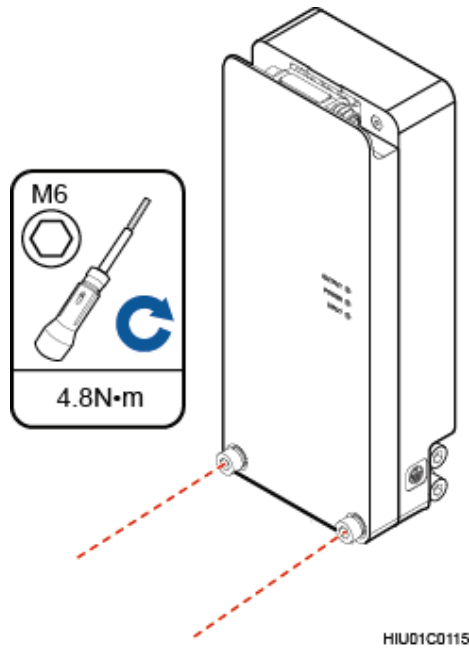
11.5.6 Closing the Cover Plate of an EXD3902 Cabling Cavity

This section describes the procedure for closing the cover plate of an EXD3902 cabling cavity.

Procedure

- Step 1** Close the cover plate of the EXD3902 cabling cavity. Use an M6 inner hexagon screwdriver to tighten the screws on the cover plate to 4.8 N·m, as shown in [Figure 11-24](#).

Figure 11-24 Closing the cover plate of an EXD3902 cabling cavity



Step 2 Take off the ESD gloves, and pack up all tools.

---End

11.6 Checking the EXD3902 Hardware Installation

EXD3902 hardware installation checking includes hardware and cable installation checking.

Table 11-1 lists the hardware installation checking items.

Table 11-1 Hardware installation checking list

No.	Item
1	The installation position of each device strictly complies with the engineering design and meets clearance requirements. Sufficient space is reserved for equipment maintenance.
2	The EXD3902 is securely installed.
3	The cover plate is securely installed on the EXD3902 cabling cavity.
4	Waterproof blocks are securely installed in vacant cable troughs of the EXD3902 cabling cavity, and the cover plate for the cabling cavity is securely installed. In addition, vacant RF ports are covered with dustproof caps.
5	Labels are correct, legible, and complete at both ends of each cable, feeder, and jumper.

Table 11-2 lists the check items of the signal cable connection.

Table 11-2 Checklist for the signal cable connection

No.	Item
1	The signal cable connectors are securely connected.
2	The signal cable connectors are intact.
3	The signal cables are intact.
4	The signal cables are bound neatly with cable ties to proper tightness, and arranged at even intervals in the same direction.
5	The excess of cable ties is trimmed off without remaining rough edges.
6	The signal cable layout facilitates future maintenance and capacity expansion.
7	Labels at two ends of the signal cables are correct and legible.

Table 11-3 lists the checking items for other cable connections.

Table 11-3 Checklist for other cable connections

No.	Item
1	The connectors of the other cables are securely connected.
2	All labels on the cables are legible and are bound according to the engineering requirements. The cables are bound tightly and neatly. The sheaths of the cables are intact.
3	The cable layout complies with the engineering design.
4	There are no connectors or joints on each PGND cable. None of PGND cables can be short-circuited or reversely connected. In addition, these cables are not damaged or broken.
5	PGND cables are separately bound from other cables.
6	The protection grounding of the EXD3902 and the surge protection grounding of the building share one group of ground conductors.

11.7 Powering on the EXD3902

This section describes the power-on check on the EXD3902 after the EXD3902 hardware is installed and checked.

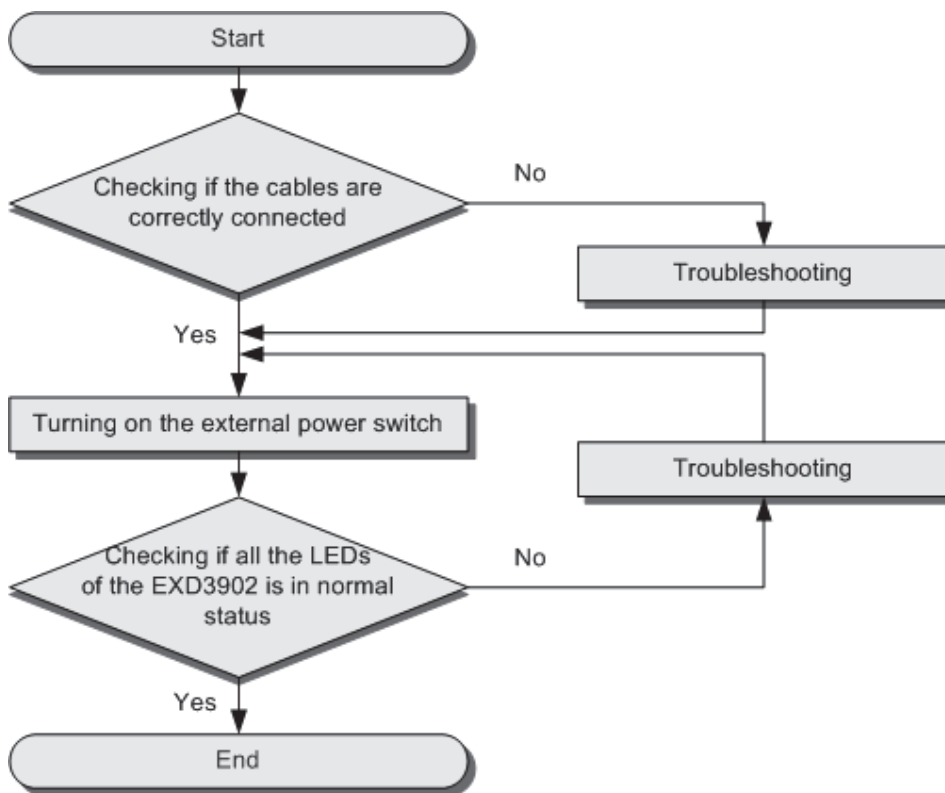
Context

NOTICE

An EXD3902 must be powered on within 24 hours after it is unpacked. If the EXD3902 is powered off for maintenance, you must restore its power within 24 hours.

Figure 11-25 shows the EXD3902 power-on check procedure.

Figure 11-25 EXD3902 power-on check procedure



IPP02C0003

Procedure

- Step 1** Check that the cables are correctly connected.
- Step 2** Check the EXD3902 indicator status three to five minutes after it is powered on. The EXD3902 is working normally if the OUTPUT and INPUT indicators blink green and the POWER indicator is steady orange.

---End

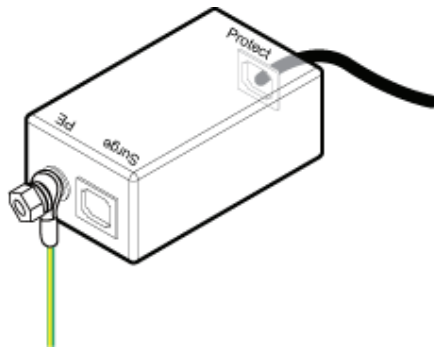
12 (Optional) Installing the PoE Surge Protector and Cables

This section describes how to install a PoE surge protector and its cables in the cabinet. When the RHUB, pRRU, and extender are installed outdoors, a PoE surge protector is required to provide surge protection for the PoE power supply port.

Procedure

- Step 1** Connect a PGND cable to the PE ground terminal and an Ethernet cable (about 0.4 m long) to the Protect port. See [Figure 12-1](#).

Figure 12-1 Installing the PGND Cable and Ethernet Cable (1)

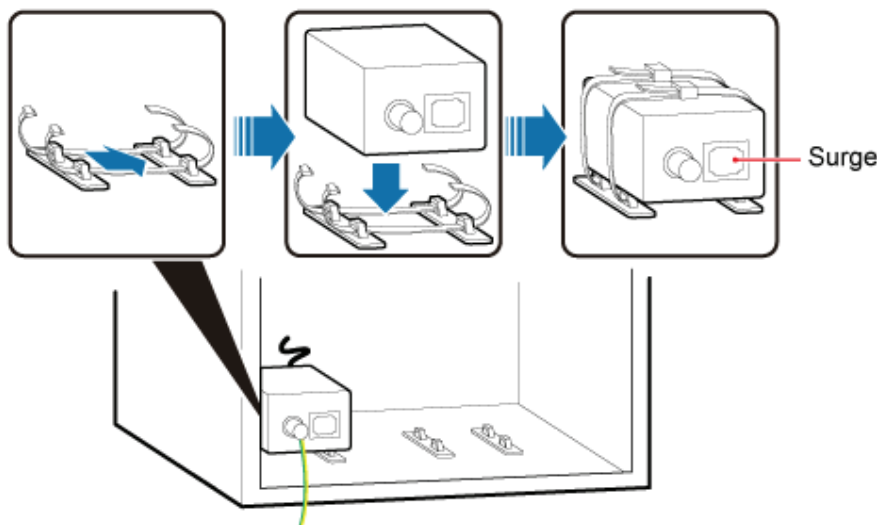


- Step 2** Install the PoE surge protector in the cabinet. See [Figure 12-2](#).

 **NOTE**

The Surge port must be installed toward the outside.

Figure 12-2 Installing the PoE surge protector

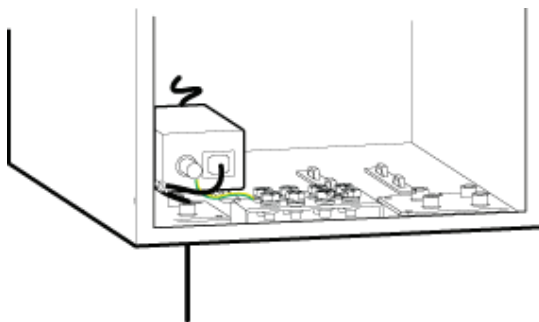


Step 3 Connect an Ethernet cable to the Surge port, and the other end of the PGND cable to the ground terminal on the cabinet. See [Figure 12-3](#).

NOTE

During the installation, bind the Ethernet cables to the side cable bridge on the cabinet.

Figure 12-3 Installing the PGND Cable and Ethernet Cable (2)



---End

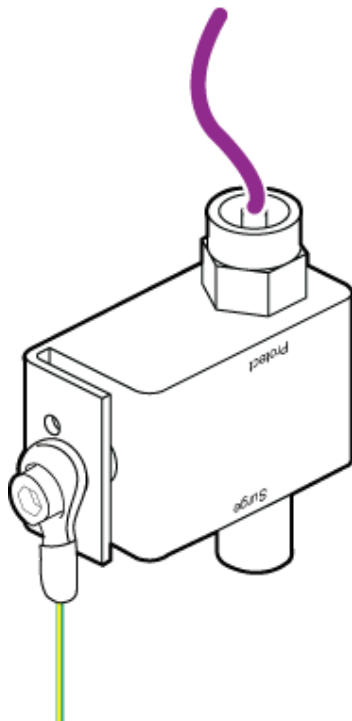
13 (Optional) Installing the RF Surge Protector and Cables

This section describes how to install an RF surge protector and its cables in the cabinet. When the pRRU is installed outdoors, an RF surge protector is required to provide surge protection for the RF port.

Procedure

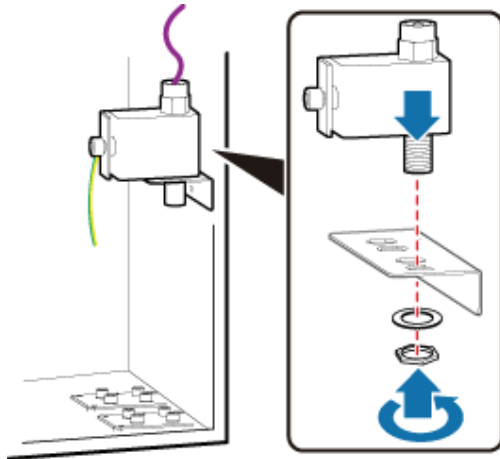
- Step 1** Install the PGND cable and the RF jumper connected to the Protect port. See [Figure 13-1](#).

Figure 13-1 Installing the PGND Cable and RF Jumper (1)



- Step 2** Install the RF surge protector in the cabinet. See [Figure 13-2](#).

Figure 13-2 Installing the RF surge protector

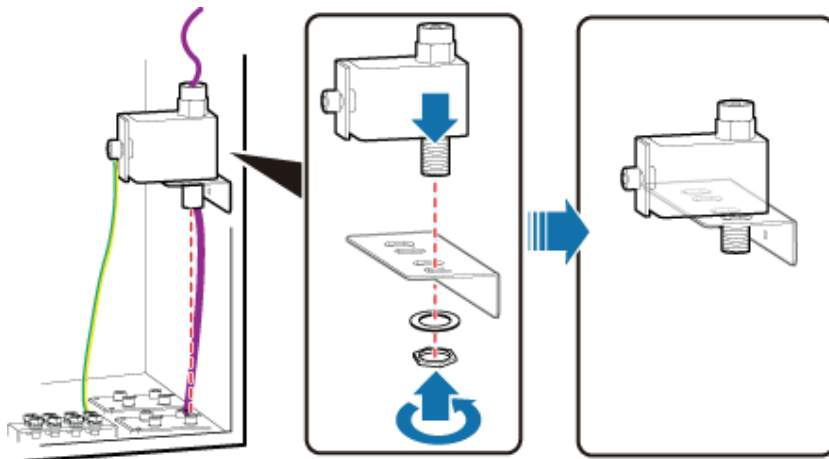


NOTE

Alternatively, you can remove the fastener on the cabinet, install the RF surge protector and its cables on the fastener, and then install the combination onto the cabinet.

Step 3 Connect an RF jumper to the Surge port, and the other end of the PGND cable to the ground terminal on the cabinet. See [Figure 13-3](#).

Figure 13-3 Installing the PGND Cable and RF Jumper (2)



NOTE

- The cable hole on the cabinet for the RF jumper must be vertical to the Surge port.
- Before routing all cables through the cable outlet modules at the bottom of the cabinet, wrap the naked RF jumper by using PVC insulation tape and then apply petroleum jelly.

---End

14 (Optional) Installing the Cabinet and Cabinet Cables

About This Chapter

This section describes the procedure and precautions for installing a cabinet and cables connected to it. The cabinet can be installed on the wall, pole, channel steel, angle steel, steel mesh, or ground by using mounting kits. Vertical and horizontal installation modes are supported when the cabinet is installed on the steel mesh.

[14.1 Installation Clearance Requirements](#)

This section describes the recommended and minimum clearances for a cabinet.

[14.2 Mounting Bracket and Attachment Plate](#)

This section describes mounting brackets and attachment plates for installing a cabinet.

[14.3 Installing a Cabinet](#)

This section describes the procedure and precautions for installing a cabinet.

[14.4 Installing Cabinet Cables](#)

This chapter describes the procedure for installing cabinet cables.

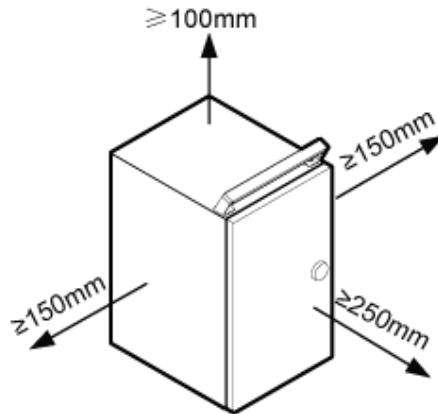
14.1 Installation Clearance Requirements

This section describes the recommended and minimum clearances for a cabinet.

When installing a cabinet, the following clearance requirements should be met.

Figure 14-1 show the recommended clearances for installing a cabinet.

Figure 14-1 Clearances for installing a cabinet



The recommended clearance for installing a cabinet is described as follows:

- At least 100 mm above the cabinet is reserved for maintenance.
- At least 150 mm on the left of the cabinet is reserved for maintenance.
- At least 150 mm on the right of the cabinet is reserved for maintenance.
- At least 250 mm in front of the cabinet is reserved for maintenance.

14.2 Mounting Bracket and Attachment Plate

This section describes mounting brackets and attachment plates for installing a cabinet.

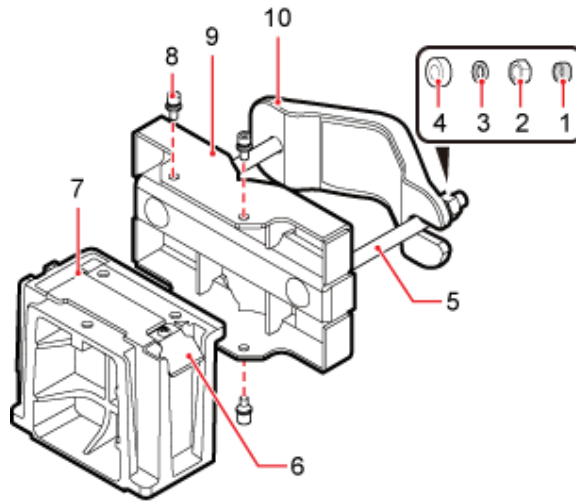
14.2.1 Mounting Bracket

This section describes mounting brackets for installing a cabinet.

Mounting Bracket for the Cabinet

Figure 14-2 shows the mounting bracket for the cabinet.

Figure 14-2 Mounting bracket for the cabinet



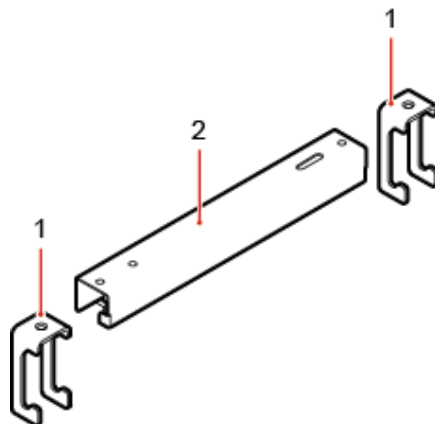
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- | | | | | |
|-------------------------------------|----------------------|-------------------------|-------------------------------|------------------------|
| (1) Plastic cap | (2) Standard M10 nut | (3) Spring washer | (4) Thick flat washer | (5) Square-neck bolt |
| (6) Hoist clamp on the main bracket | (7) Main bracket | (8) Inner hexagon screw | (9) Pole installation bracket | (10) Auxiliary bracket |

Mounting Bracket for the Metal Grid

Figure 14-3 shows the mounting bracket for the metal grid.

Figure 14-3 Mounting bracket for the metal grid



- | | |
|------------------|--------------------|
| (1) Clamping jaw | (2) Horizontal bar |
|------------------|--------------------|

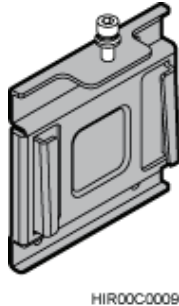
14.2.2 Attachment Plate

This section describes attachment plates for installing a cabinet.

Attachment Plate on the Cabinet Side

Figure 14-4 shows the attachment plate on the cabinet side.

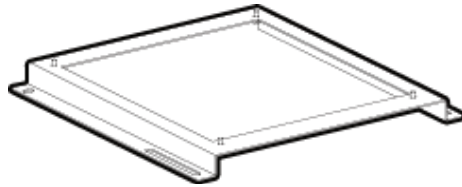
Figure 14-4 Attachment plate on the cabinet side



Attachment Plate at the Cabinet Bottom

Figure 14-5 shows the attachment plate at the cabinet bottom.

Figure 14-5 Attachment plate at the cabinet bottom



14.3 Installing a Cabinet

This section describes the procedure and precautions for installing a cabinet.

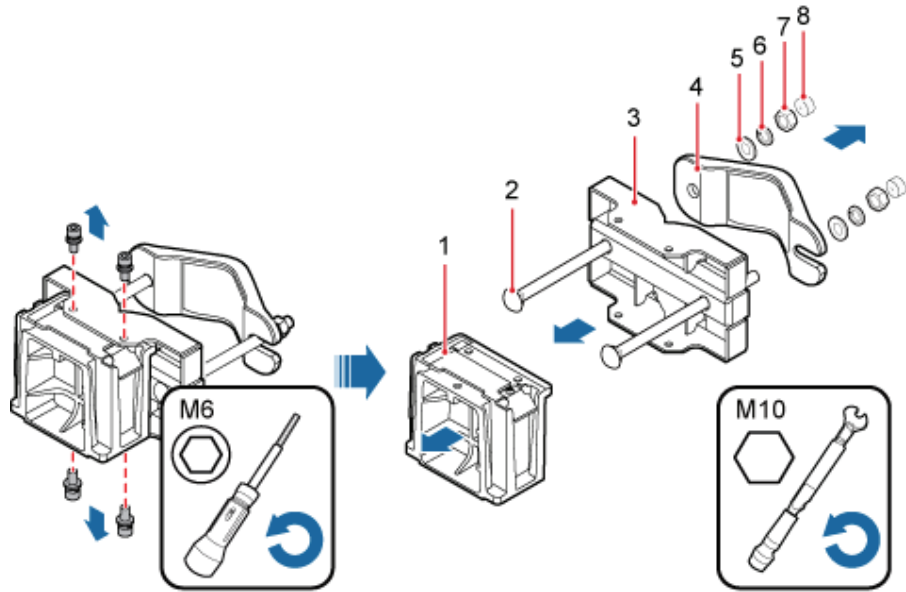
14.3.1 Installing the Cabinet on a Wall

This section describes the procedure and precautions for installing the cabinet on a wall.

Procedure

- Step 1** Disassemble the cabinet mounting brackets, as shown in **Figure 14-6**.

Figure 14-6 Disassembling the mounting brackets



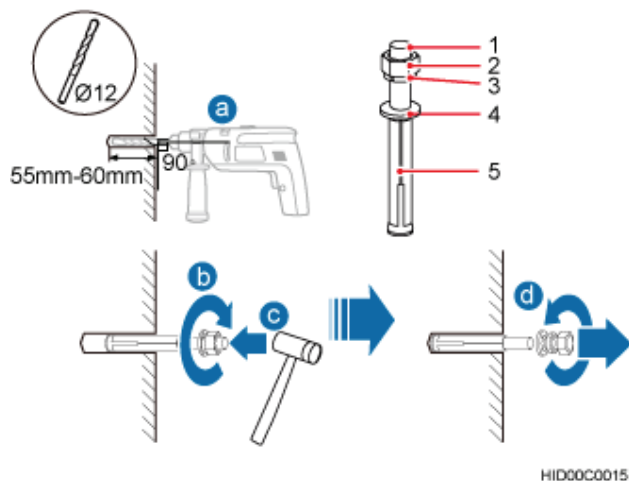
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- | | | | |
|------------------|----------------------|-------------------------------|-----------------------|
| (1) Main bracket | (2) Square-neck bolt | (3) Pole installation bracket | (4) Auxiliary bracket |
| (5) Flat washer | (6) Spring washer | (7) Nut | (8) Plastic cap |

1. Use an M6 inner hexagon torque screwdriver to remove the four inner hexagon screws on the pole installation bracket, and remove the main bracket from the pole installation bracket.
2. Use an M10 torque wrench to loosen the nuts on the two square-neck bolts, and remove the plastic cap, nuts, spring washers, flat washers, square-neck bolts, and pole installation bracket from the auxiliary bracket.

Step 2 Drill holes at the anchor points, and then insert expansion anchor bolt assemblies, as shown in [Figure 14-7](#).

Figure 14-7 Drilling a hole and inserting expansion anchor bolt assemblies



HID00C0015

(1) M10x80 bolt	(2) Nut	(3) Spring washer	(4) Flat washer	(5) Expansion tube
-----------------	---------	-------------------	-----------------	--------------------

1. Use a hammer drill with a $\phi 8$ bit to drill holes vertically at the marked anchor points. Ensure that the depth of each hole ranges from 45 mm (1.77 in.) to 50 mm (1.97 in.).

**NOTICE**

Take proper safety measures to protect your eyes and respiratory tract against the dust before drilling holes.

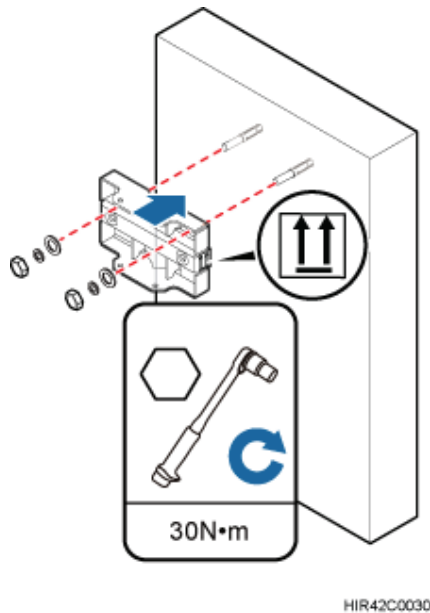
2. Use a vacuum cleaner to clear the dust out from inside and around the holes, and measure the distances between holes. If any of the holes is beyond the acceptable range, mark a new anchor point and drill a new hole.
3. Tighten the expansion bolts slightly, and place each expansion bolt vertically into each hole.
4. Use a rubber mallet to pound the expansion anchor bolt until it goes all the way into the hole.
5. Tighten and then loosen the expansion bolt, and remove the M10 bolt, spring washer, and flat washer in sequence.

**NOTICE**

After dismantling an expansion anchor bolt, ensure that the top of the expansion tube is on the same level as the wall. Otherwise, the device cannot be installed on the wall evenly and securely.

- Step 3** Install the pole installation bracket on the expansion anchor bolts, place the flat washers, spring washers, and nuts through the expansion anchor bolts in sequence, and then use a 16 mm (0.63 in.) torque socket to tighten the nuts to 30 N·m (265.52 lbf·in.), as shown in [Figure 14-8](#).

Figure 14-8 Installing the pole installation bracket on the expansion anchor bolts

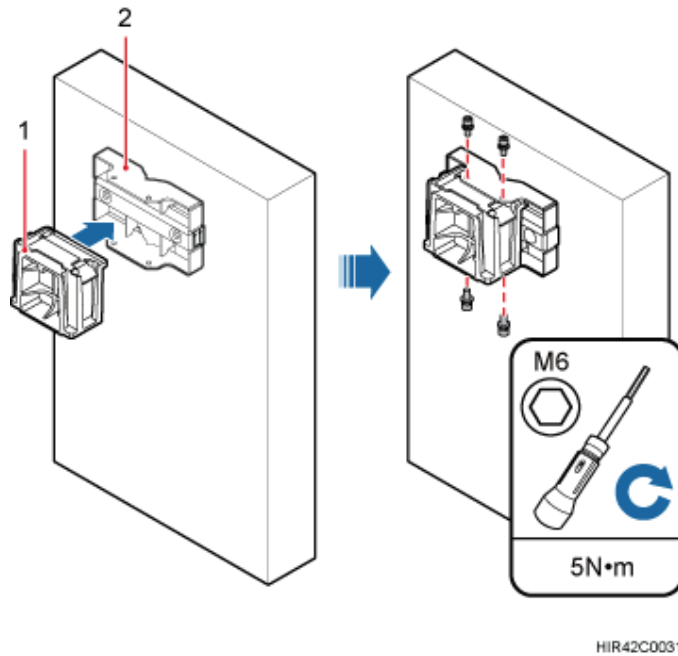


NOTICE

Verify that the arrows on the pole installation bracket are pointing up.

-
- Step 4** Install the main bracket onto the pole installation bracket, and use an inner hexagon screwdriver to tighten four M6x16 inner hexagon screws to 5 N·m (44.25 lbf·in.) so that the main bracket and pole installation bracket are firmly secured, as shown in [Figure 14-9](#).

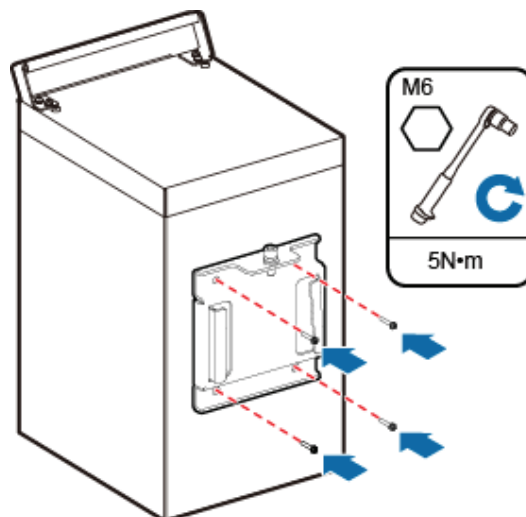
Figure 14-9 Installing the main bracket



(1) Installing the main bracket	(2) Installing the main bracket
---------------------------------	---------------------------------

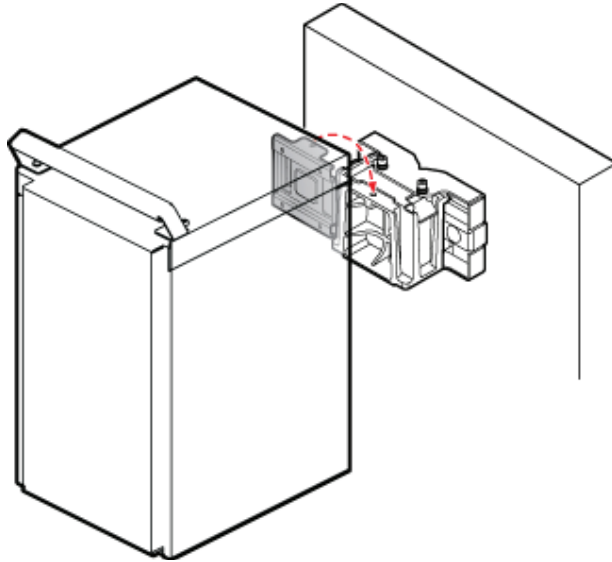
Step 5 Install the attachment plate on the cabinet side onto the rear of the cabinet, and use a torque screwdriver to tighten the stainless steel screws on the attachment plate to 5 N·m (44.25 lbf·in.), as shown in [Figure 14-10](#).

Figure 14-10 Installing the attachment plate onto the rear of the cabinet



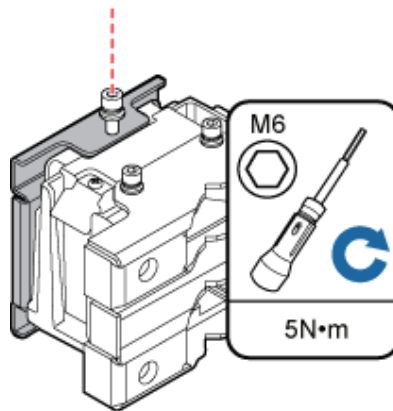
Step 6 Install the cabinet onto the main bracket, as shown in [Figure 14-11](#).

Figure 14-11 Installing the cabinet onto the main bracket



- Step 7** Use an inner hexagon screwdriver to tighten the captive screw into the hole of the attachment plate and main mounting bracket to 5 N·m (44.25 lbf·in.) so that the attachment plate and main mounting bracket are firmly secured, as shown in [Figure 14-12](#).

Figure 14-12 Securing the captive screw into the connection hole



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----End

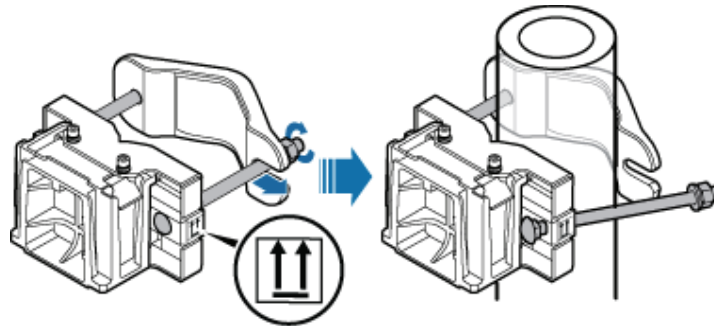
14.3.2 Installing the Cabinet on a Pole

This section describes the procedure and precautions for installing a cabinet on a pole.

Procedure

- Step 1** Install the cabinet mounting brackets, as shown in [Figure 14-13](#).

Figure 14-13 Installing the cabinet mounting brackets



HIR42C0004

NOTE

Verify that the arrows on the mounting brackets are pointing up.

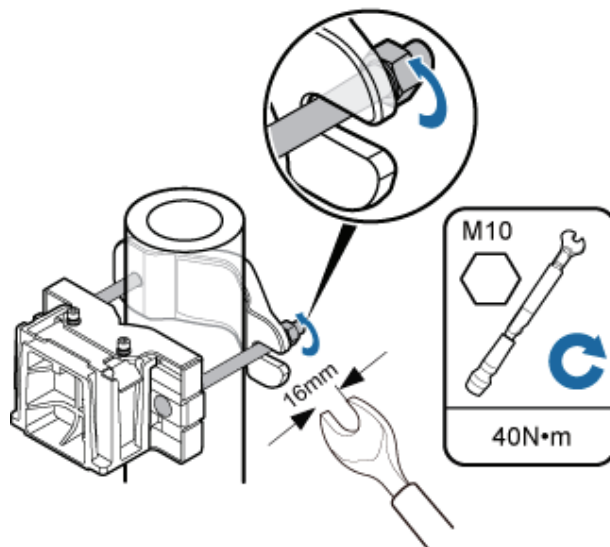
1. Adjust the position of the nut and remove one end of the square-neck bolt from the slot on the auxiliary bracket.
2. Slide the mounting brackets onto the pole horizontally and insert the square-neck bolt into the slot.

Step 2 Use a 16 mm (0.63 in.) M10 torque wrench to tighten the nuts to 40 N·m (354.03 lbf·in.) so that the mounting brackets are secured onto the pole, as shown in **Figure 14-14**.

NOTE

Tighten the nuts on the two square-neck bolts alternatively. After the main and auxiliary brackets are secured properly, measure the spacing between the brackets on both sides and ensure that the spacing is the same on the two sides.

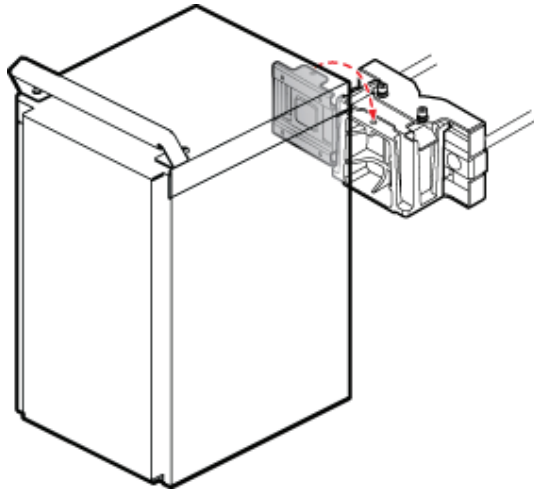
Figure 14-14 Securing the cabinet mounting brackets



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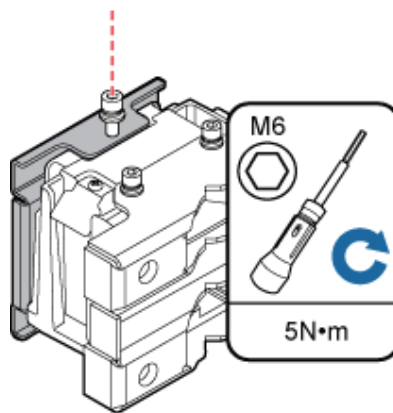
Step 3 Install the cabinet onto the main bracket, as shown in **Figure 14-15**.

Figure 14-15 Installing the cabinet onto the main bracket



- Step 4** Use an inner hexagon torque screwdriver to tighten the captive screw into the holes on the top of the attachment plate and main bracket to 5 N·m (44.25 lbf·in.) so that the attachment plate and main bracket are firmly secured, as shown in **Figure 14-16**.

Figure 14-16 Securing the captive screw into the connection hole



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---End

14.3.3 Installing the Cabinet on U-steel

This section describes the procedure and precautions for installing the cabinet on U-steel.

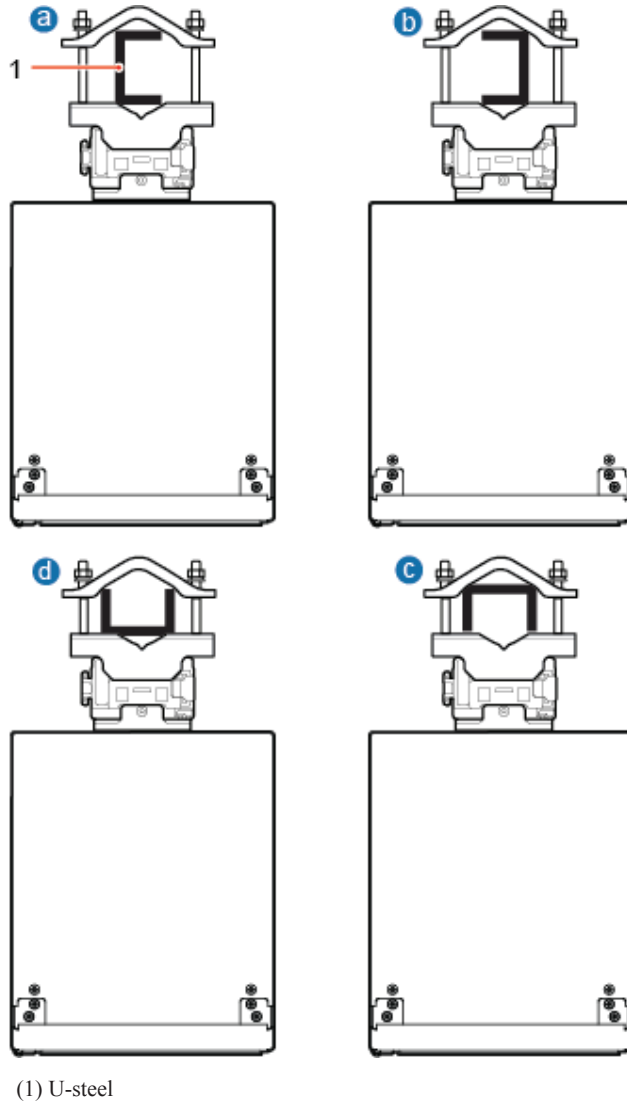
Context

Figure 14-17 shows the top view of the cabinet installed on U-steel.

 **NOTICE**

When the width of the narrower edges of the U-steel is less than 40 mm (1.57 in.), only the a and b modes are supported.

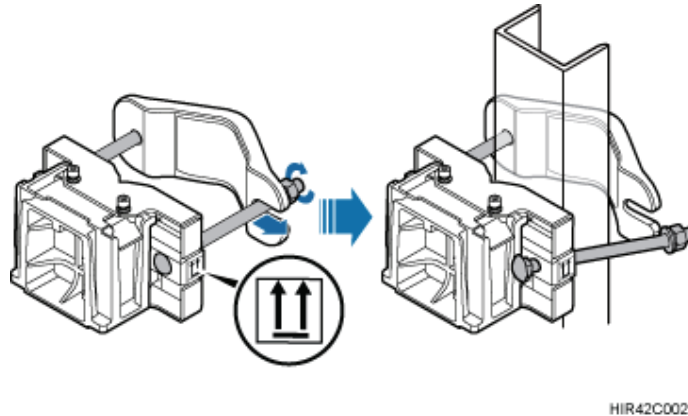
Figure 14-17 Top view of the cabinet



Procedure

Step 1 Install the cabinet mounting brackets, as shown in [Figure 14-18](#).

Figure 14-18 Installing the cabinet mounting brackets



NOTE

Verify that the arrows on the mounting brackets are pointing up.

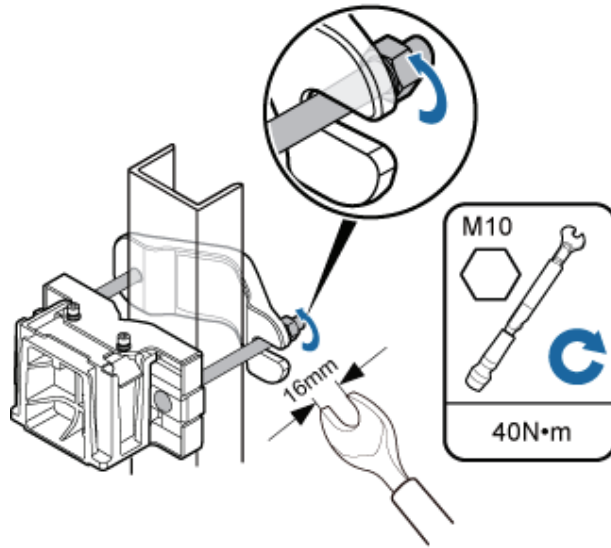
1. Adjust the position of the nut and remove one end of the square-neck bolt from the slot on the auxiliary bracket.
2. Slide the mounting brackets onto the U-steel horizontally and insert the square-neck bolt into the slot.

Step 2 Use a 16 mm (0.67 in.) M10 torque wrench to tighten the nuts to 40 N·m (354.03 lbf·in.) so that the mounting brackets are secured onto the U-steel, as shown in [Figure 14-19](#).

NOTICE

Tighten the nuts on the two square-neck bolts alternatively. After the main and auxiliary brackets are secured properly, measure the spacing between the brackets on both sides and ensure that the spacing is the same on the two sides.

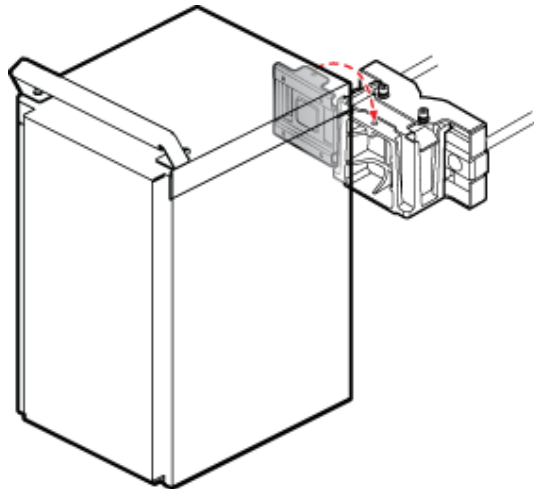
Figure 14-19 Securing the cabinet mounting brackets



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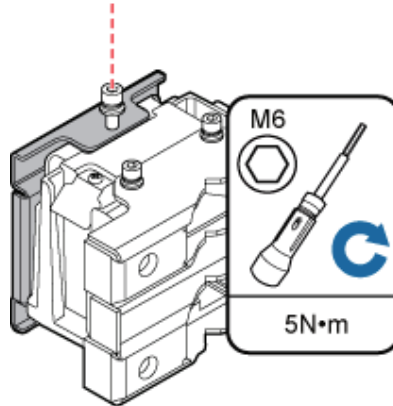
Step 3 Install the cabinet onto the main bracket, as shown in [Figure 14-20](#).

Figure 14-20 Installing the cabinet onto the main bracket



Step 4 Use an inner hexagon screwdriver to tighten the captive screw into the holes on the top of the attachment plate and main bracket to 5 N·m (44.25 lbf·in.) so that the attachment plate and main bracket are firmly secured, as shown in [Figure 14-21](#).

Figure 14-21 Securing the captive screw into the connection hole



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---End

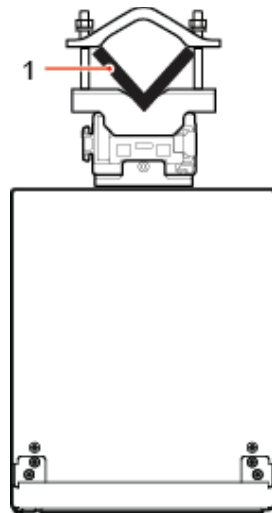
14.3.4 Installing the Cabinet on Angle Steel

This section describes the procedure and precautions for installing the cabinet on angle steel.

Context

Figure 14-22 shows the top view of the cabinet installed on angle steel.

Figure 14-22 Top view of the cabinet

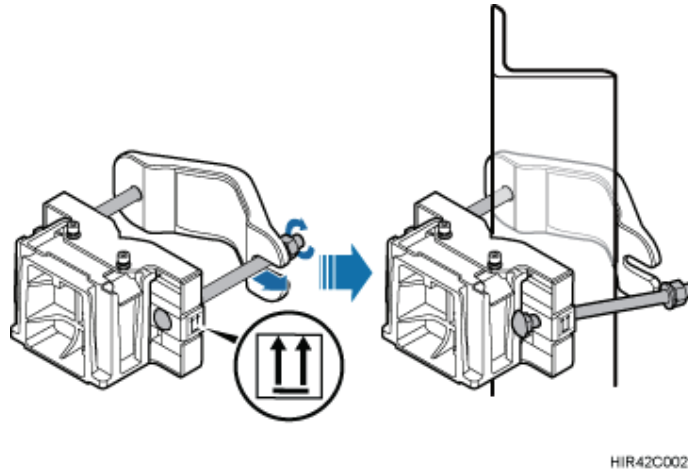


(1) Angle steel

Procedure

Step 1 Install the cabinet mounting brackets, as shown in **Figure 14-23**.

Figure 14-23 Installing the cabinet mounting brackets



NOTE

Verify that the arrows on the mounting brackets are pointing up.

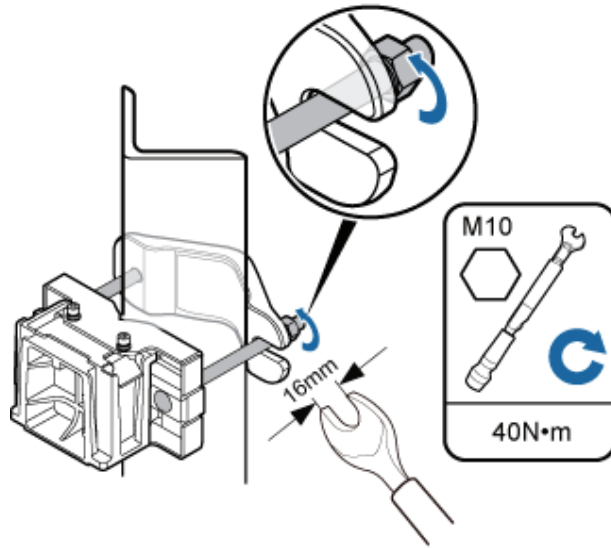
1. Adjust the position of the nut and remove one end of the square-neck bolt from the slot on the auxiliary bracket.
2. Slide the mounting brackets onto the angle steel horizontally and insert the square-neck bolt into the slot.

Step 2 Use a 16 mm (0.67 in.) M10 torque wrench to tighten the nuts to 40 N·m (354.03 lbf·in.) so that the mounting brackets are secured onto the angle steel, as shown in [Figure 14-24](#).

NOTICE

Tighten the nuts on the two square-neck bolts alternatively. After the main and auxiliary brackets are secured properly, measure the spacing between the brackets on both sides and ensure that the spacing is the same on the two sides.

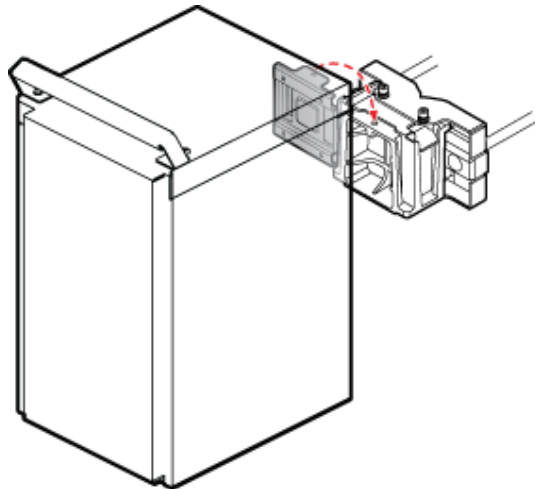
Figure 14-24 Securing the cabinet mounting brackets



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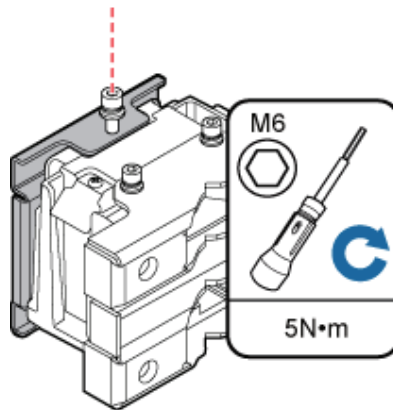
Step 3 Install the cabinet onto the main bracket, as shown in [Figure 14-25](#).

Figure 14-25 Installing the cabinet onto the main bracket



Step 4 Use an inner hexagon screwdriver to tighten the captive screw into the holes on the top of the attachment plate and main bracket to 5 N·m (44.25 lbf·in.) so that the attachment plate and main bracket are firmly secured, as shown in [Figure 14-26](#).

Figure 14-26 Securing the captive screw into the connection hole



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---End

14.3.5 Installing the Cabinet on Metal Grid

This section describes the procedure and precautions for installing the cabinet on metal grid. The cabinet can be vertically or horizontally installed on the metal grid.

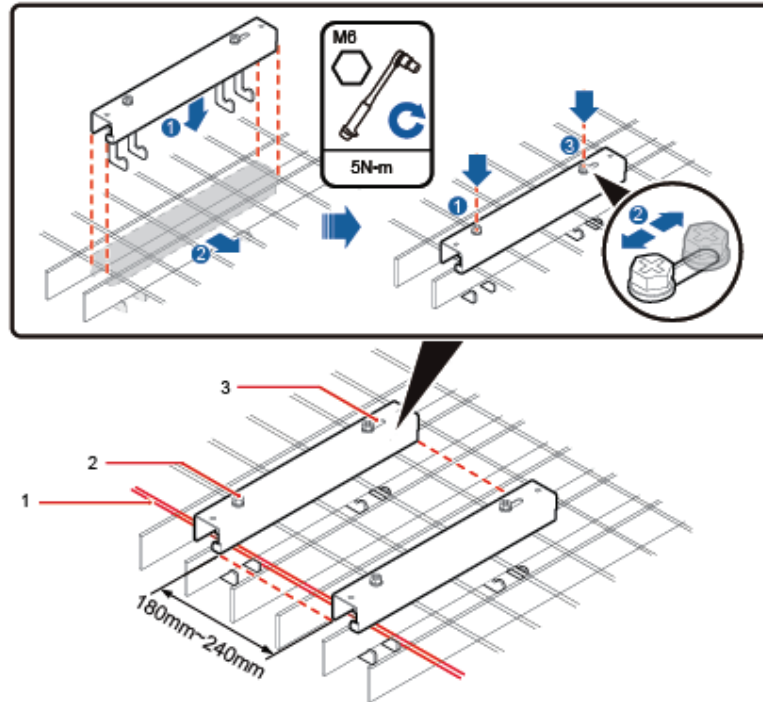
Installing the cabinet vertically

1. Install the mounting bracket onto the metal grid, as shown in [Figure 14-27](#).

 **NOTE**

The mounting bracket is recommended to install onto the metal grid close to the round hole.

Figure 14-27 Installing the mounting bracket onto the metal grid



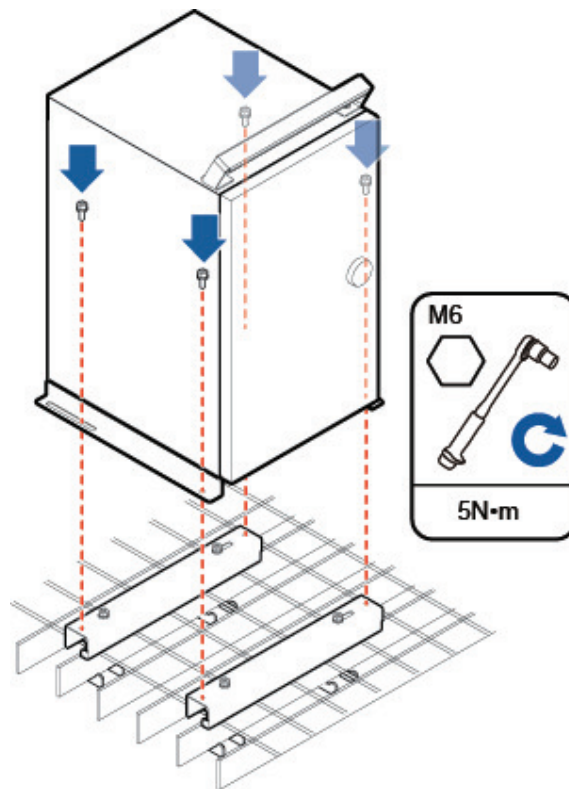
(1) Metal grid A

(2) Round hole

(3) Oblong hole

2. Install the cabinet onto the metal grid, as shown in [Figure 14-28](#).

Figure 14-28 Installing the cabinet onto the metal grid



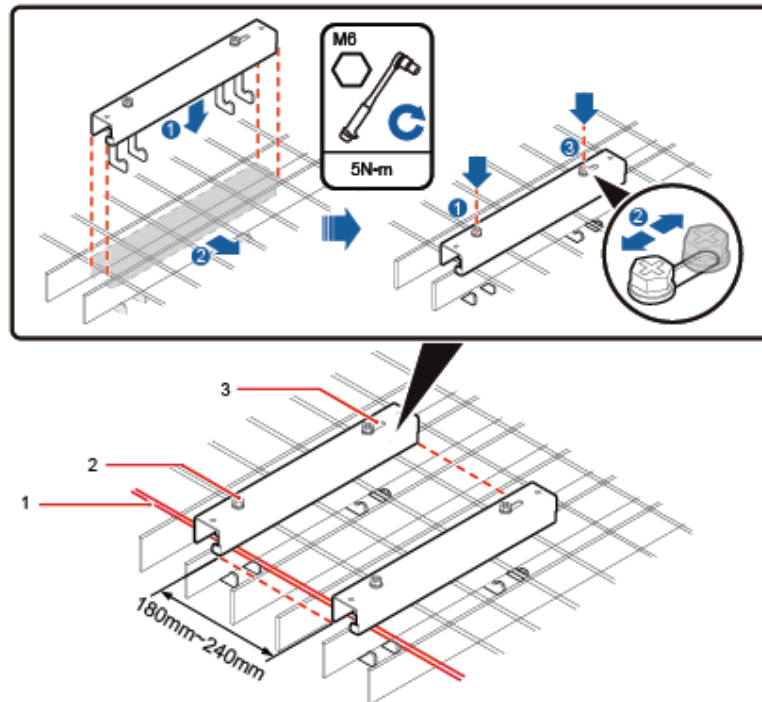
Installing the cabinet horizontally

1. Install the mounting bracket onto the metal grid, as shown in [Figure 14-29](#).

 **NOTE**

The mounting bracket is recommended to install onto the metal grid close to the round hole.

Figure 14-29 Installing the mounting bracket onto the metal grid



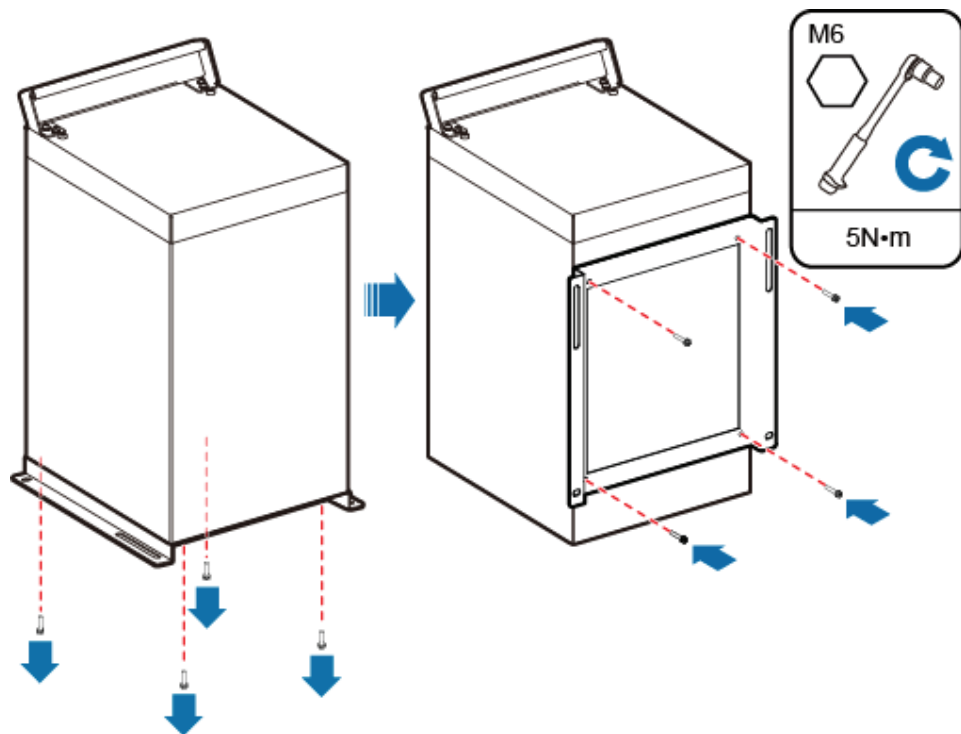
(1) Metal grid A

(2) Round hole

(3) Oblong hole

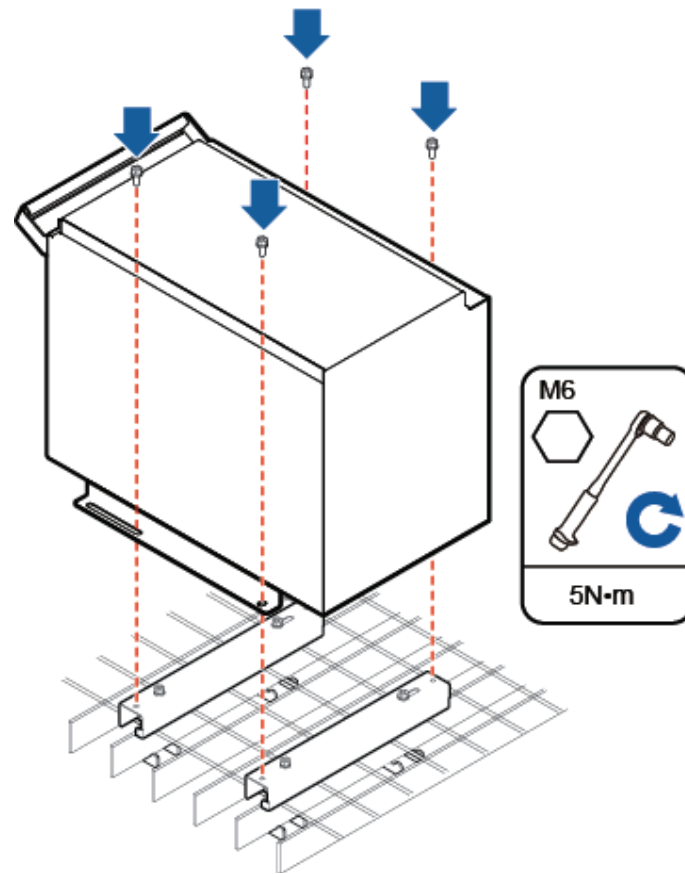
2. Use an hexagon screwdriver to remove the attachment plate from the bottom of the cabinet, reinstall the attachment plate onto the side of the cabinet, and tighten the four stainless screws to 5 N·m (44.25 lbf·in.), as shown in [Figure 14-30](#).

Figure 14-30 Installing the attachment plate onto the side of the cabinet



3. Install the cabinet onto the mounting bracket, as shown in [Figure 14-31](#).

Figure 14-31 Installing the cabinet onto the mounting bracket



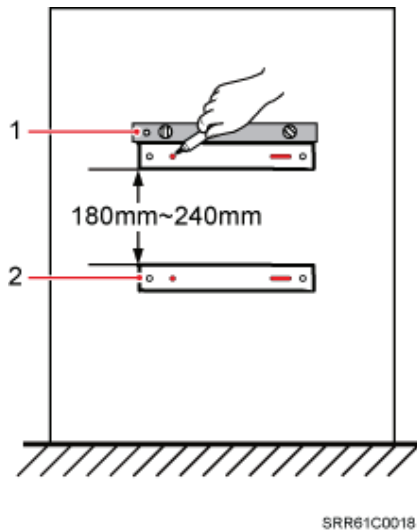
14.3.6 Installing the Cabinet on the Floor

This section describes the procedure and precautions for installing the cabinet on the floor.

Procedure

- Step 1** Keep the horizontal bar of the steel mesh mounting kit clinging to the floor, use a level to verify that the marking-off template is placed horizontally, and then use a marker to mark anchor points, as shown in [Figure 14-32](#).

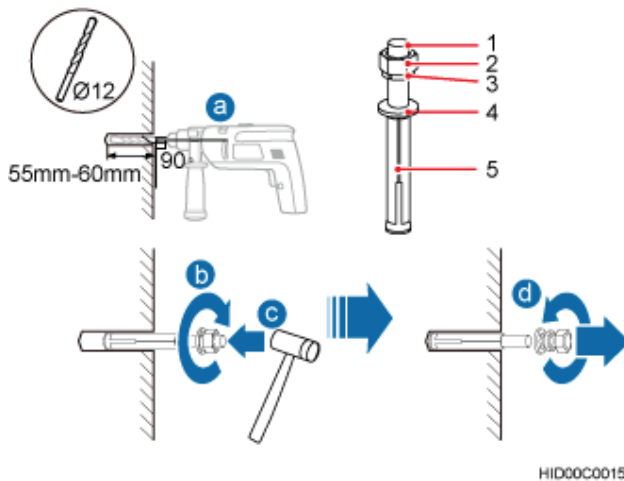
Figure 14-32 Marking anchor points



(1) Level (2) Mounting bracket for the metal grid

Step 2 Drill holes at the anchor points, and then insert expansion anchor bolt assemblies, as shown in [Figure 14-33](#).

Figure 14-33 Drilling a hole and inserting expansion anchor bolt assemblies



(1) M10x80 bolt	(2) Nut	(3) Spring washer	(4) Flat washer	(5) Expansion tube
-----------------	---------	-------------------	-----------------	--------------------

1. Use a hammer drill with a $\Phi 12$ bit to drill holes vertically at the marked anchor points with the depth ranging from 55 mm (2.17 in.) to 60 mm (2.36 in.), use a vacuum cleaner to clear the dust out from inside and around the holes, and measure the distances between holes. If any of the holes is beyond the acceptable range, mark a new anchor point and drill a new hole.



CAUTION

Take proper safety measures to protect your eyes and respiratory tract against the dust before drilling holes.

-
2. Tighten the expansion anchor bolts slightly and place one vertically into each hole.
 3. Use a rubber mallet to pound the expansion anchor bolt until it goes all the way into the hole.
 4. Tighten and then loosen the expansion bolt, and remove the M10 bolt, spring washer, and flat washer in sequence.

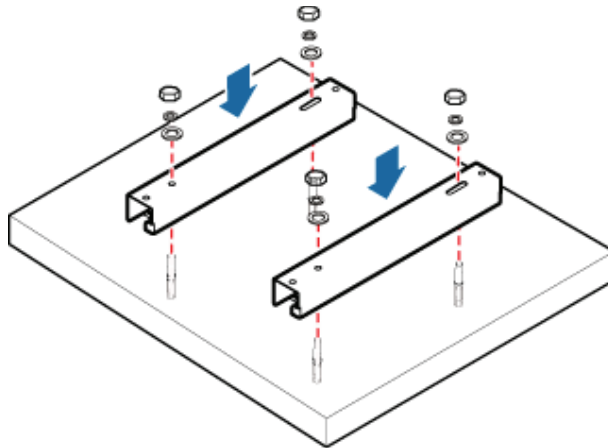


CAUTION

After dismantling an expansion anchor bolt, ensure that the top of the expansion tube is on the same level as the wall. Otherwise, the device cannot be installed on the wall evenly and securely.

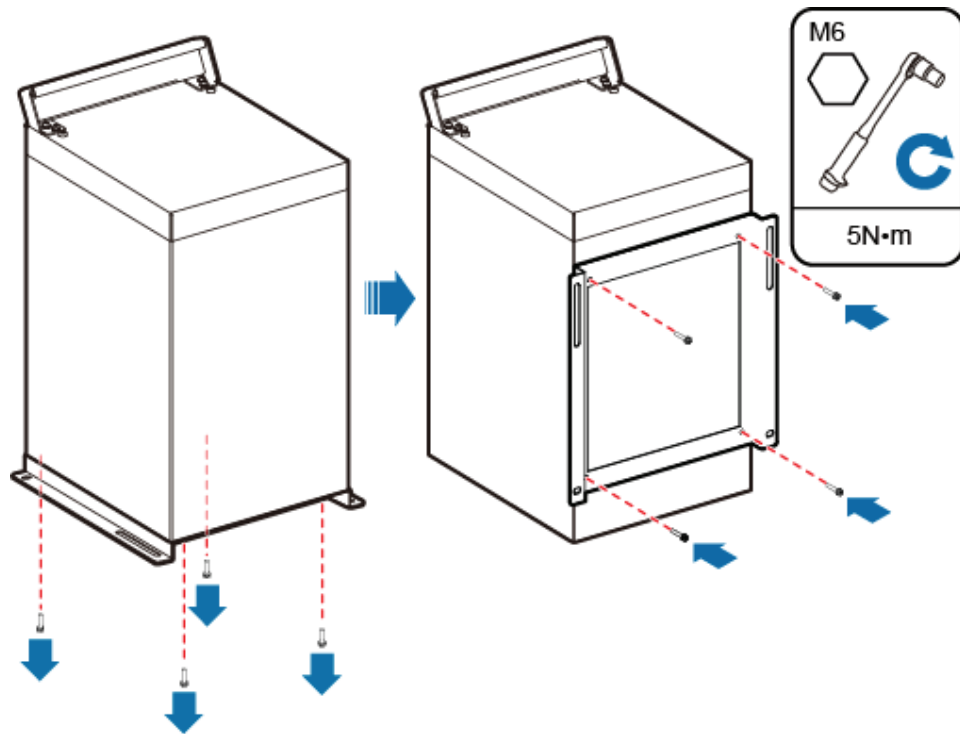
-
- Step 3** Fit the horizontal bar of the steel mesh mounting kit on the expansion anchor bolts, place the flat washers, spring washers, and nuts through the expansion anchor bolts in sequence, and then use a 16 mm (0.63 in.) torque socket to tighten the nuts to 30 N·m (265.52 lbf·in.), as shown in [Figure 14-34](#).

Figure 14-34 Installing mounting bracket on the expansion anchor bolts



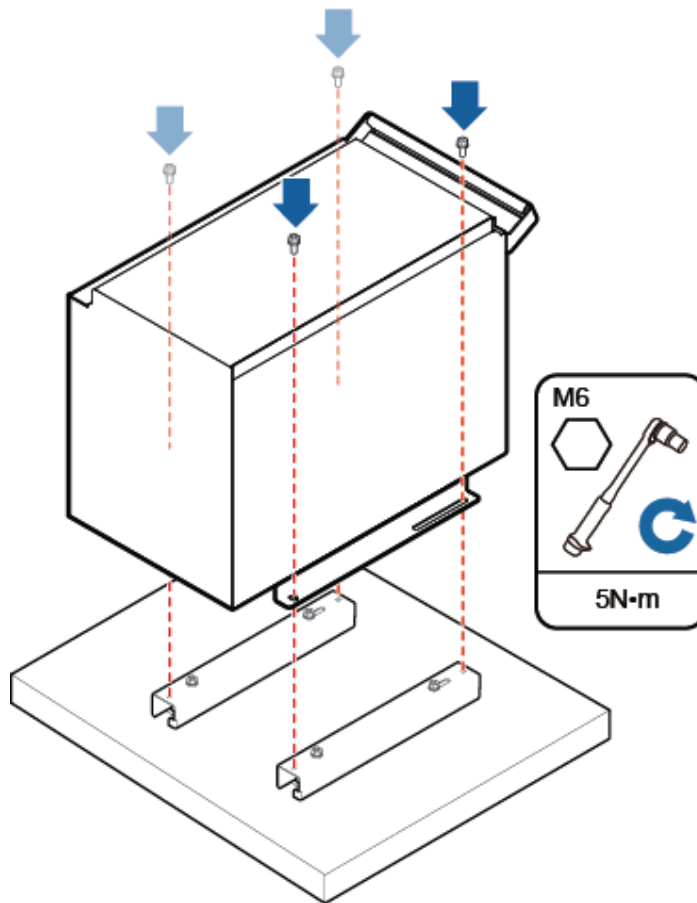
- Step 4** Use a hexagon screwdriver to remove the attachment plate from the bottom of the cabinet, reinstall the attachment plate onto the side of the cabinet, and tighten the four stainless screws to 5 N·m (44.25 lbf·in.), as shown in [Figure 14-35](#).

Figure 14-35 Installing the attachment plate onto the side of the cabinet



Step 5 Install the cabinet onto the mounting bracket, as shown in [Figure 14-36](#).

Figure 14-36 Installing the cabinet onto the mounting bracket



---End

14.4 Installing Cabinet Cables

This chapter describes the procedure for installing cabinet cables.

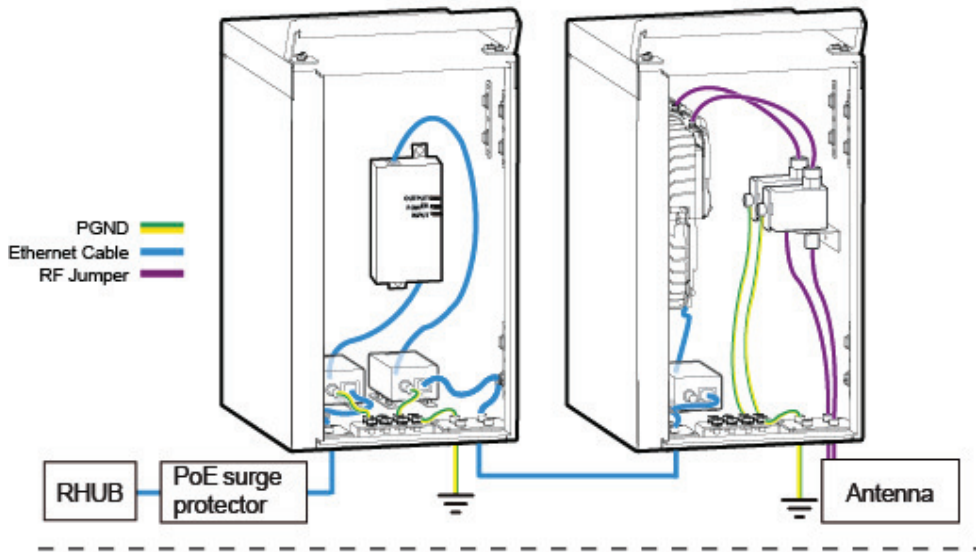
14.4.1 Cable Connections

This section describes the cable connections for the cabinet.

- At horizontal installation, ensure that all cable outlets can be protected against the rain.
- After cable connections are complete, apply firestop putty to all cable outlets on the cabinet for waterproofing.

Figure 14-37 shows the cable connections for the cabinet.

Figure 14-37 Cable connections when a pRRU3901 is installed
Single Ethernet cable used



Dual Ethernet cables used

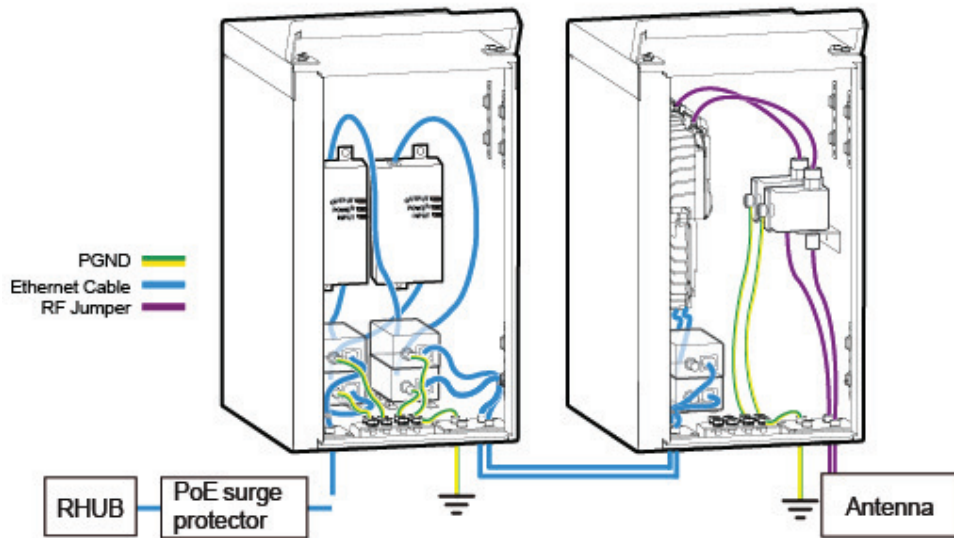
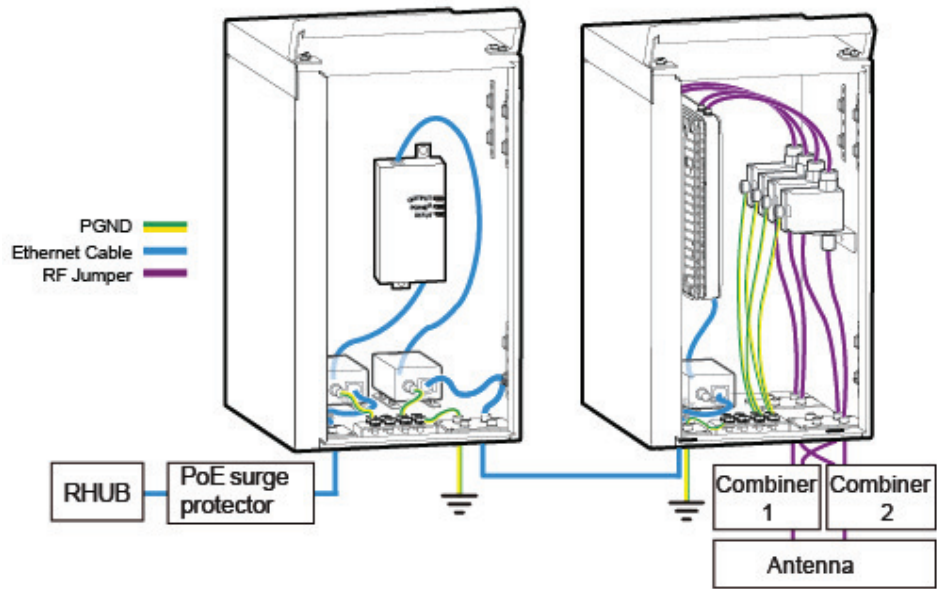
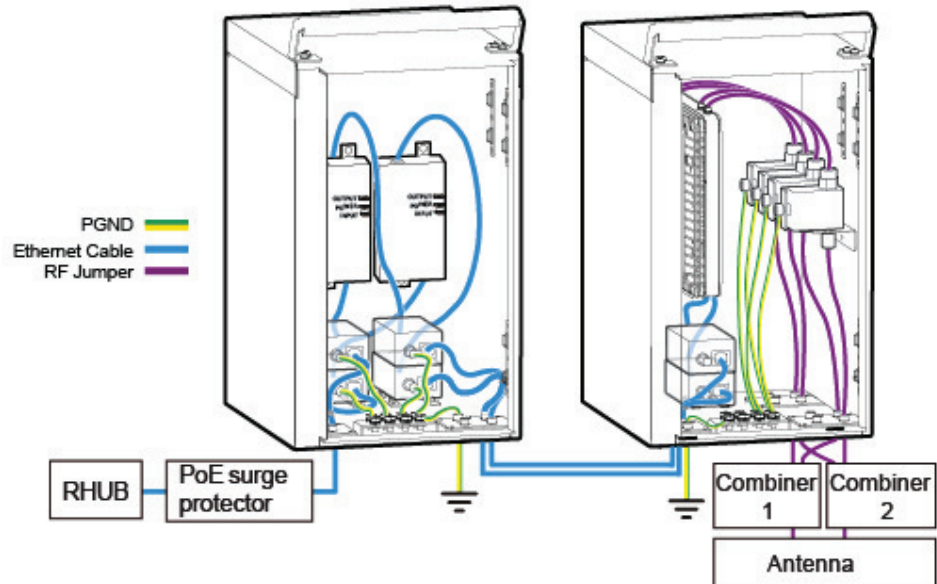


Figure 14-38 Cable connections when a pRRU3902 is installed
Single Ethernet cable used



Dual Ethernet cables used



 **NOTE**

- For details about installation of RHUB Ethernet cables in the cabinet, see [6.4.6 Installing Ethernet Cable](#). For details about installation of pRRU3901 Ethernet cables in the cabinet, see [7.5.7 Installing an Ethernet Cable](#). For details about installation of pRRU3902 Ethernet cables in the cabinet, see [8.4.5 Installing a pRRU3902 Ethernet Cable](#).
- For details about installation of pRRU3901 RF jumpers in the cabinet, see [7.5.8 Installing an RF jumpers \(Optional\)](#). For details about installation of pRRU3902 RF jumpers in the cabinet, see [8.4.7 Installing a pRRU3902 RF Jumper \(Optional\)](#).
- For details about installation of PoE surge protector PGND cables, see [12 \(Optional\) Installing the PoE Surge Protector and Cables](#). For details about installation of RF surge protector PGND cables, see [13 \(Optional\) Installing the RF Surge Protector and Cables](#).

14.4.2 Installing a PGND Cable for the Cabinet

This section describes the procedure for installing a PGND cable for the cabinet.

Prerequisites

The OT terminals at both ends of the PGND cable are prepared.

Context

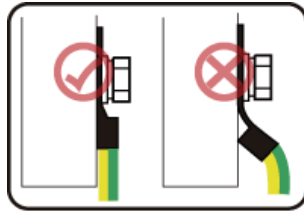
The yellow and green or green PGND cable is a single cable. The cross-sectional area of the PGND cable is 6 mm² (0.009 in.²). Both ends of the cable are OT terminals, as shown in [Figure 14-39](#).

Figure 14-39 Exterior of a PGND cable

 **NOTE**

- If the PGND cable is provided by the customer, a copper-core cable with a minimum cross-sectional area of 6 mm² (0.009 in.²) or 10 AWG is recommended.
- The OT terminals at both ends of the PGND cable are assembled at the site.
- The M6 OT terminal has the default size. You can replace it with another OT terminal of the expected size based on the site requirement.
- Ensure proper grounding of the cabinet using a PGND cable.
- When installing the PGND cable, tightly press the OT terminal in the correct direction, as shown in [Figure 14-40](#).

Figure 14-40 Correct direction of an OT terminal for the PGND cable

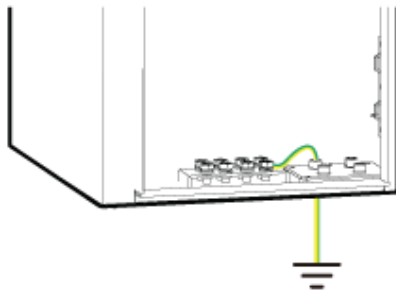


EIR22C6001

Procedure

- Step 1** Use a torque screwdriver or Phillips screwdriver to secure the M4 OT terminal at one end of the PGND cable to the ground screw on the cabinet panel with a torque of 1.4 N•m. If the OT terminal is a one-hole OT terminal, connect it to the ground screw on the lower part of the cabinet panel, as shown in [Figure 14-41](#).

Figure 14-41 Installing the PGND cable for the cabinet



- Step 2** Use a torque screwdriver or Phillips screwdriver to secure the M6 OT terminal at one end of the PGND cable to the wiring terminal on the ground bar at the site with a torque of 1.4 N•m.

---End

15 Appendix

About This Chapter

This chapter describes reference information during installation.

[15.1 MAC Collection Template](#)

This section describes the MAC collection template for a pRRU3901 with three transmission ports.

[15.2 Assembling a Shielded RJ45 Connector and an Ethernet Cable](#)

This section describes how to assemble a shielded RJ45 connector and an Ethernet cable. A straight-through cable is used as an example.

[15.3 DBS3900 LampSite Engineering Label](#)

This section describes the content and presents the exterior of DBS3900 LampSite engineering labels.

[15.4 Attaching an L-Shaped Label](#)

This section describes the procedure and precautions to be taken for attaching an L-shaped label.

[15.5 Attaching a Sign Plate Label](#)

This section describes the procedures and precautions for attaching a sign plate label.


15.1 MAC Collection Template

This section describes the MAC collection template for a pRRU3901 with three transmission ports.

The MAC collection template is used to record the installation position, MAC address of the site at the initial installation stage to facilitate subsequent commissioning and maintenance.

Table 15-1 shows the MAC collection template.

Table 15-1 MAC collection template

No.	Site Number	Site Name	WIFI MAC	Location Information
<i>Sample</i>	<i>01</i>	<i>pRRU3901</i>		<i>xx floor, xx building, xx mansion</i>
<p>Note: The MAC collection template is essential to the engineering stage and subsequent maintenance, especially when multiple devices are installed at a short distance. This is because the template defines the radio network to access. Maintain this template with caution.</p>				

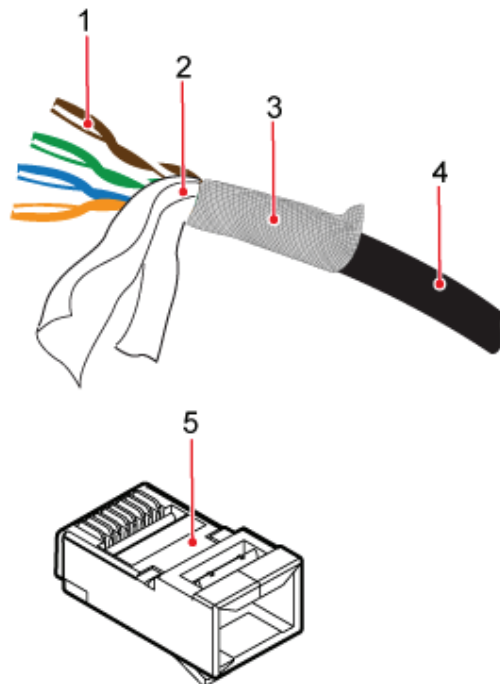
15.2 Assembling a Shielded RJ45 Connector and an Ethernet Cable

This section describes how to assemble a shielded RJ45 connector and an Ethernet cable. A straight-through cable is used as an example.

Context

Figure 15-1 shows the components of an RJ45 connector and an Ethernet cable.

Figure 15-1 Components of an RJ45 connector and an Ethernet cable



(1) Core wire (2) Aluminum foil (3) Braided layer (4) Outer jacket (5) RJ45 connector

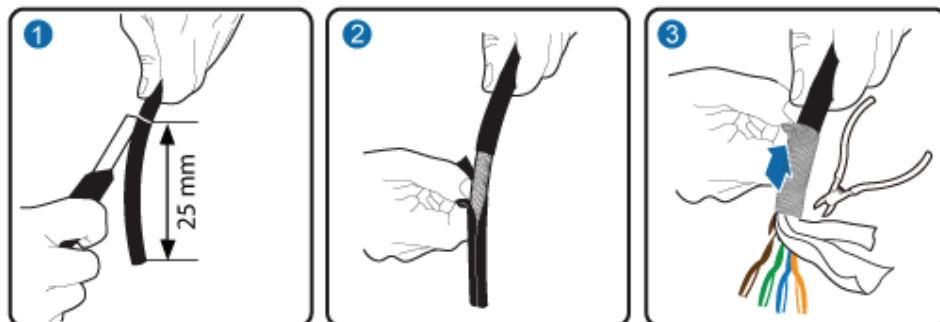
Procedure

Step 1 Remove the outer jacket (25 mm) of the Ethernet cable, tip the braided layer outwards evenly, and cut off the aluminum foil and guard space. See [Figure 15-2](#).

 **NOTE**

- Do not damage the shield layer when removing the jacket.
- Do not damage the insulation layer of the Ethernet cable when removing the shield layer.

Figure 15-2 Removing the jacket of an Ethernet cable



Step 2 Sequence the twisted pair wires neatly by color, and cut the wire end evenly, with a remaining length of 16 mm. See [Figure 15-3](#).

Figure 15-3 Arranging twisted pair wires

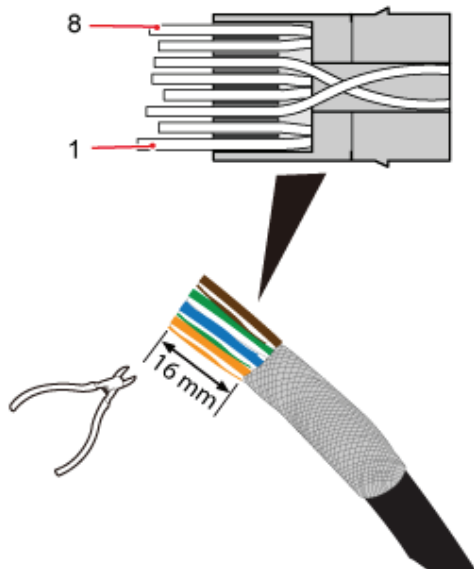
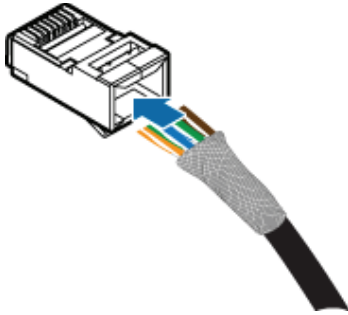


Table 15-2 Pin assignment

Pin SN	Wire Color
1	White and orange
2	Orange
3	White and green
4	Blue
5	White and blue
6	Green
7	White and brown
8	Brown

Step 3 Insert the sequenced twisted pair wires into the RJ45 connector. See [Figure 15-4](#).

Figure 15-4 Inserting wires into the RJ45 connector

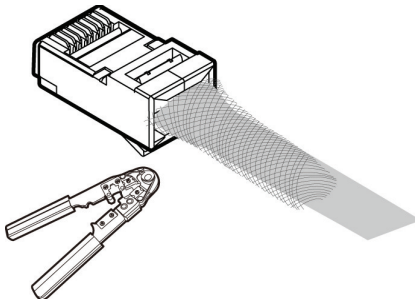


 **NOTICE**

- When inserting the wires, ensure that the braided layer that was tipped outwards has inserted inside the connector.
 - Observe the side or front of the RJ45 connector to ensure that the core wires are inserted to the bottom of the RJ45 connector.
-

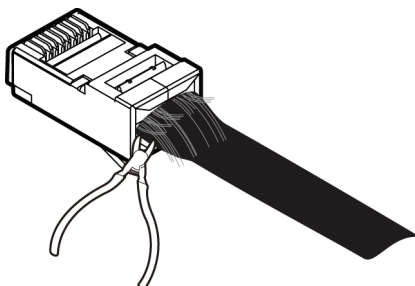
Step 4 Use a crimping tool to crimp the connector. See [Figure 15-5](#).

Figure 15-5 Crimping the connector



Step 5 Use a cable cutter to evenly cut off the protruding braided layer of the connector along the wire holder. See [Figure 15-6](#).

Figure 15-6 Cutting off the excess braided layer



----End

15.3 DBS3900 LampSite Engineering Label


This section describes the content and presents the exterior of DBS3900 LampSite engineering labels.

Label Content

The DBS3900 LampSite engineering labels include the RHUB power label, RHUB ground label, RHUB alarm or monitoring label, RHUB optical transmission label, and RHUB network transmission label, the pRRU power label, pRRU network transmission label, pRRU antenna label. The engineering labels are used for DBS3900 LampSite units RHUB and pRRU for indoor scenarios.

By default, blank labels are delivered for DBS3900 LampSite and must be filled in onsite. [Table 15-3](#) describes the content of engineering labels.

Table 15-3 DBS3900 LampSite Engineering Label Content

NE	Label Content		Description	Corresponding port on the base station
RHUB	Power label	RHUBx PWR	Label for the RHUBx power cable. x specifies the number of RHUBs and cannot exceed the maximum RHUB number supported by the networking.	PWR
	Ground label	RHUBx PGND	Label for the RHUBx ground cable. x specifies the number of RHUBs and cannot exceed the maximum RHUB number supported by the networking.	
	Alarm or monitoring label	RHUBx EXT_ALM	Label for the RHUBx alarm cable. x specifies the number of RHUBs and cannot exceed the maximum RHUB number supported by the networking.	EXT-ALM

NE	Label Content		Description	Corresponding port on the base station
	Optical transmissi on label	RHUBx BBU/ RHUBa/ RHUBb	Label for the RHUBx CPRI cable. <ul style="list-style-type: none"> ● x specifies the number of RHUBs and cannot exceed the maximum RHUB number supported by the networking. ● a can be set to 0 or 1. 0 and 1 respectively correspond to CPRI0 port and CPRI1 port of the upper-level RHUB. ● b can be set to 0 or 1. 0 and 1 respectively correspond to CPRI0 port and CPRI1 port of the lower-level RHUB. 	CPRI0 or CPRI1
	Network transmissi on label	RHUBx CPRI_Ea	Label for the RHUBx Ethernet cable. <ul style="list-style-type: none"> ● x specifies the number of RHUBs and cannot exceed the maximum RHUB number supported by the networking. ● a can be set to 0 or 1. 0 and 1 respectively correspond to CPRI_E0 port and CPRI_E1 port of the pRRU. 	CPRI_E0 to CPRI_E7
pRRU	Power label	pRRUy PWR	Label for the pRRUy power cable. <p>y specifies the number of pRRUs and cannot exceed the maximum pRRU number supported by the networking.</p>	PWR or CPRI_E0

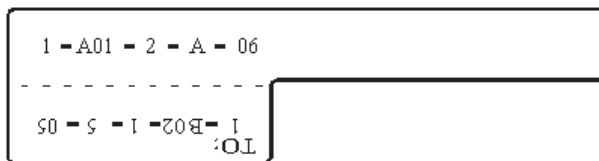
NE	Label Content		Description	Corresponding port on the base station
	Network transmission label	pRRUy CPRI_Ea	<p>Label for the pRRUy Ethernet cable.</p> <ul style="list-style-type: none"> ● y specifies the number of pRRUs and cannot exceed the maximum pRRU number supported by the networking. ● a can be set to 0 to 7, which respectively correspond to CPRI_E0 port to CPRI_E7 port of the RHUB. 	CPRI_E0 or CPRI_E1
	Antenna label	pRRUy ANTa	<p>Label for the pRRUy RF Jumper.</p> <ul style="list-style-type: none"> ● y specifies the number of pRRUs and cannot exceed the maximum pRRU number supported by the networking. ● a can be set to 0 to 5, which respectively correspond to ANT0 port and ANT5 port of the pRRU. 	ANT0 to ANT5

 **NOTE**

- In the label, **RHUB** and **pRRU** identify the specific DBS3900 LampSite NEs.
- If only one RHUB is deployed, mark it as RHUB0 on the label. If multiple RHUBs are deployed, mark them in ascending sequence, beginning with RHUB0.
- If only one pRRU is deployed, mark it as pRRU0 on the label. If multiple pRRUs are deployed, mark them in ascending sequence, beginning with pRRU0.
- For details about the maximum number of RHUBs and pRRUs in the DBS3900 LampSite solution, see *Typical Configurations* in *DBS3900 LampSite Technical Description*.

Label Structure

Using the RHUB power label as an example, [Figure 15-7](#) shows the structure of a DBS3900 LampSite engineering label.

Figure 15-7 Label structure

15.4 Attaching an L-Shaped Label

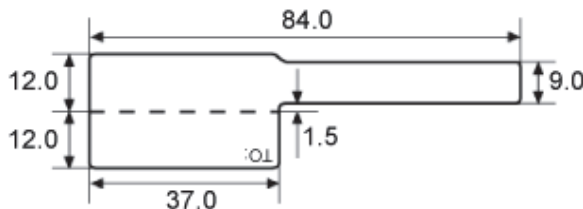
This section describes the procedure and precautions to be taken for attaching an L-shaped label.

Context

- This section applies to Huawei sign plate labels. If other engineering labels in accordance with local standards are used on site, follow the local standards for attaching sign plate labels.
- In the DBS3900 LampSite solution, blank L-Shaped engineering labels are delivered by default.
- The L-shaped label is usually used for the signal cable, E1/T1 cable, optical cable, and power cable. The description in this section takes the Ethernet cable in a base station as an example.

Procedure

- Step 1** Obtain the engineering label to be attached from the whole set of the L-shaped engineering labels, as shown in [Figure 15-8](#).

Figure 15-8 Engineering label to be attached

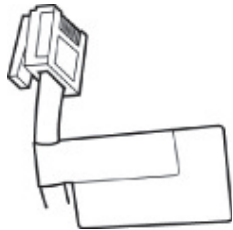
- Step 2** Attach the long end of the engineering label to the cable in the position 20 mm away from the connector, and then turn over the long end along the adhesive face. Ensure that the edges of the turned-over engineering label are in a line, as shown in [Figure 15-9](#).

NOTE

By default, the label is attached in the position 20 mm away from the connector. If required, you can change the position to make installation faster and more efficient. Consistency and neatness, however, must be maintained.

- Step 3** Adhere the long end to the labeling area. Ensure that the spacing between the cable and the labeling area is 2 mm to 3 mm.

Figure 15-9 Adhering the long end to the labeling area



- Step 4** Turn over the labeling area along the adhesive face from the bottom, and then finish attaching the engineering label, as shown in [Figure 15-10](#) and [Figure 15-11](#). Ensure that the edges of the turned-over labeling area are in a line.

Figure 15-10 Turning over the labeling area along the adhesive face

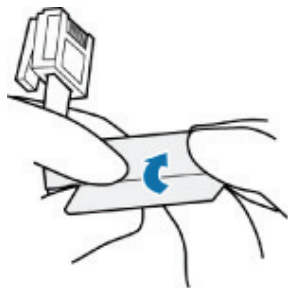
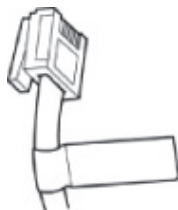


Figure 15-11 Attached engineering label



- Step 5** Fill in the attached blank label by referring to [15.3 DBS3900 LampSite Engineering Label](#).

----End

15.5 Attaching a Sign Plate Label

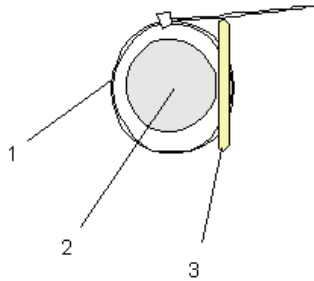
This section describes the procedures and precautions for attaching a sign plate label.

 **NOTE**

You may change the positions for attaching labels in actual situations. For example, you can bind a label where the cable is bent.

Step 2 Tighten the cable tie, securing the label on the cable, and then cut off the extra part of the cable tie, as shown in **Figure 15-14**.

Figure 15-14 Securing the label on the cable



(1): Cable tie

(2): Cable

(3): Label

 **NOTE**

- When you bind a label, ensure that the side with characters faces outwards.
- Ensure that the labels are attached in an orderly and neat manner. When you cut a cable tie, keep a surplus length of 5 mm to 10 mm (0.20 in. to 0.39 in.).

----**End**