RRU

V200R001

User Guide

Issue	01
Date	2008-04-18
Part Number	00394301

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About This Document

Purpose

This document describes the RRU hardware and provides instructions in hardware installation, cable connections, hardware installation check, and hardware maintenance. This document is applicable to RRU3804 and RRU3801E.

Product Versions

The following table lists the product versions related to this document.

Product Name	Product Version
RRU	V100R009
	V100R010
	V200R001

Intended Audience

This document is intended for:

- NodeB installers
- System engineers
- Site maintenance engineers

Change History

For changes in the document, refer to **Changes in RRU User Guide**.

Organization

1 Safety Information

2 RRU and SRXU Hardware

This describes the RRU equipment, SRXU equipment, and related cables.

3 Installing RRU and SRXU Hardware

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This describes how to install the hardware, route the cables, and check the hardware installation of the RRU and SRXU.

4 Maintaining RRU and SRXU Hardware

After the RRU and SRXU are deployed, accepted, and put into use, routine maintenance is performed to ensure the functionality of the modules.

Conventions

1. Symbol Conventions

The following symbols may be found in this document. They are defined as follows

Symbol	Description
DANGER	Indicates a hazard with a high level of risk that, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium or low level of risk which, if not avoided, could result in minor or moderate injury.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could cause equipment damage, data loss, and performance degradation, or unexpected results.
TIP	Indicates a tip that may help you solve a problem or save your time.
NOTE	Provides additional information to emphasize or supplement important points of the main text.

2. General Conventions

Convention	Description
Times New Roman	Normal paragraphs are in Times New Roman.
Boldface	Names of files,directories,folders,and users are in **boldface**. For example,log in as user **root** .
Italic	Book titles are in *italics*.
`Courier New`	Terminal display is in Courier New.

3. Command Conventions

Convention	Description
Boldface	The keywords of a command line are in **boldface**.
Italic	Command arguments are in *italic*.

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Convention	Description
[ ]	Items (keywords or arguments) in square brackets [ ] are optional.
{x | y | ...}	Alternative items are grouped in braces and separated by vertical bars.One is selected.
[x | y | ...]	Optional alternative items are grouped in square brackets and separated by vertical bars.One or none is selected.
{ x | y | ... } *	Alternative items are grouped in braces and separated by vertical bars.A minimum of one or a maximum of all can be selected.
[x | y | ...] *	Alternative items are grouped in braces and separated by vertical bars.A minimum of zero or a maximum of all can be selected.

4. GUI Conventions

Convention	Description
Boldface	Buttons,menus,parameters,tabs,window,and dialog titles are in **boldface**. For example,click **OK**.
>	Multi-level menus are in **boldface** and separated by the ">" signs. For example,choose **File** > **Create** > **Folder** .

5. Keyboard Operation

Convention	Description
Key	Press the key.For example,press **Enter** and press **Tab**.
Key1+Key2	Press the keys concurrently.For example,pressing **Ctrl+Alt+A** means the three keys should be pressed concurrently.
Key1,Key2	Press the keys in turn.For example,pressing Alt,A means the two keys should be pressed in turn.

6. Mouse Operation

Action	Description
Click	Select and release the primary mouse button without moving the pointer.
Double-click	Press the primary mouse button twice continuously and quickly without moving the pointer.
Drag	Press and hold the primary mouse button and move the pointer to a certain position.

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1 Safety Information

1.1 Safety Precautions

This section describes certain safety precautions and helps to choose the measurement device and testing device. Read and follow these safety precautions before installing, operating, and maintaining Huawei devices.

Following All Safety Precautions

Before any operation, read the instructions and precautions in this document carefully to minimize the possibility of accidents.

The Danger, Caution, and Note items in the package of documents do not cover all the safety precautions that must be followed. They only provide the generic safety precautions for operations.

Symbols

DANGER

This symbol indicates that casualty or serious accident may occur if you ignore the safety instruction.

CAUTION

This symbol indicates that serious or major injury may occur if you ignore the safety instruction.

NOTE

This symbol indicates that the operation may be easier if you pay attention to the safety instruction.

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Complying with the Local Safety Regulations

When operating the device, comply with the local safety regulations. The safety precautions provided in the documents are supplementary. You must comply with the local safety regulations.

General Installation Requirements

The personnel in charge of installation and maintenance must be trained and master the correct operating methods and safety precautions before beginning work.

The rules for installing and maintaining the device are as follows:

- Only the trained and qualified personnel can install, operate and maintain the device.
- Only the qualified specialists are allowed to remove the safety facilities, and repair the device.
- Any replacement of the device or part of the device (including the software) or any change made to the device must be performed by qualified or authorized personnel of Huawei.
- Any fault or error that might cause safety problems must be reported immediately to the personnel in charge.

Grounding Requirements

The following requirements are applicable to the device to be grounded:

- Ground the device before installation and remove the ground cable after uninstallation.
- Do not operate the device in the absence of a ground conductor. Do not damage the ground conductor.
- The unit (or system) must be permanently connected to the protection ground before operation. Check the electrical connection of the device before operation and ensure that the device is reliably grounded.

Safety of Personnel

Ensure the following:

- When lightning strikes, do not operate the device and cables.
- When lightning strikes, unplug the AC power connector. Do not use the fixed terminal or touch the terminal or antenna connector.

NOTE

The previous two requirements are suitable for the wireless fixed terminal.

- To prevent electric shock, do not connect safety extra-low voltage (SELV) circuits to telecommunication network voltage (TNV) circuits.
- To prevent laser radiation from injuring your eyes, never look into the optical fiber outlet with unaided eyes.
- To prevent electric shock and burns, wear the electrostatic discharge (ESD) clothing, gloves and wrist strap, and remove conductors such as jewelry and watch before operation.

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Device Safety

- Before operation, the device must be secured on the floor or other fixed objects, such as the walls and the mounting racks.
- Do not block ventilation openings while the system is running.
- When installing the panel, tighten the screw with the tool.

1.2 Electricity Safety

High Voltage

DANGER

- The high voltage power supply provides power for running the system. Direct contact with the high voltage power supply or contact through damp objects may result in fatal danger.
- Non-standard and improper high voltage operations may result in fire and electric shock.

- The personnel who install the AC facility must be qualified to perform operations on high voltage and AC power supply facilities.
- When installing the AC power supply facility, follow the local safety regulations.
- When operating the AC power supply facility, follow the local safety regulations.
- When operating the high voltage and AC power supply facilities, use the specific tools instead of common tools.
- When the operation is performed in a damp environment, ensure that water is kept off the device. If the cabinet is damp or wet, shut down the power supply immediately.

Thunderstorm

The following requirements are suitable only for the wireless base station or the device with an antenna or GPS antenna.

DANGER

In a thunderstorm, do not perform operations on high voltage and AC power supply facilities or on a steel tower and mast.

High Electrical Leakage

CAUTION

Ground the device before powering on the device. Otherwise, the personnel and device are in danger.

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If the "high electrical leakage" flag is stuck to the power terminal of the device, you must ground the device before powering it on.

Power Cable

CAUTION

Do not install and remove the power cable with a live line. Transient contact between the core of the power cable and the conductor may generate electric arc or spark, which may cause fire or eye injury.

- Before installing or removing the power cable, turn off the power switch.
- Before connecting the power cable, ensure that the power cable and label comply with the requirements of the actual installation.

Fuse

CAUTION

To ensure that the system runs safely, when a fuse blows, replace it with a fuse of the same type and specifications.

Electrostatic Discharge

CAUTION

The static electricity generated by the human body may damage the electrostatic sensitive components on the circuit board, such as the large-scale integrated circuit (LIC).

In the following situations, the human body generates a static electromagnetic field:

- Movement of body parts
- Clothes friction
- Friction between shoes and the ground
- Holding plastic in hand

The static electromagnetic field will remain within the human body for a long time.

Before contacting the device, plug boards, circuit boards, and application specific integrated circuits (ASICs), wear a grounded ESD wrist strap. It can prevent the sensitive components from being damaged by the static electricity in the human body.

Figure 1-1shows how to wear an ESD wrist strap.

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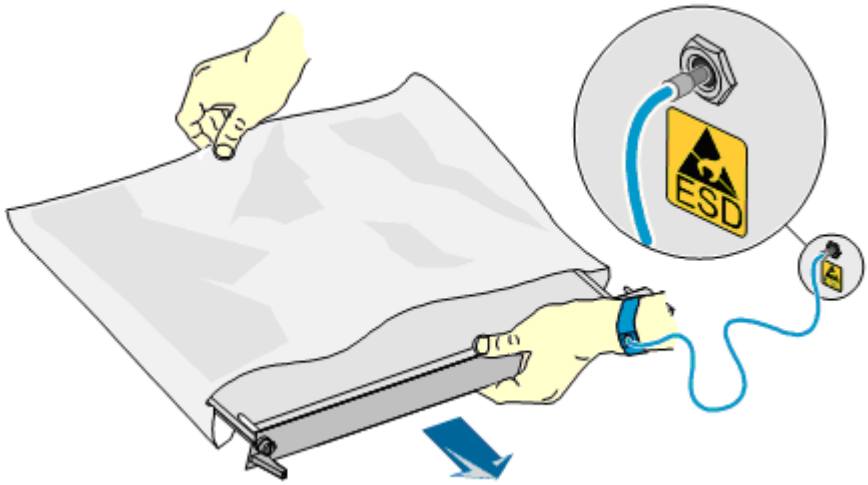
Figure 1-1 Wearing an ESD wrist strap



1.3 Inflammable Environment

DANGER

Do not place the device in the environment that has inflammable and explosive air or fog. Do not perform any operation in this environment.

Any operation of the electrical device in the inflammable environment causes danger.

1.4 Battery

Storage Battery

DANGER

Before handling the storage battery, read the safety precautions for the handling and connection of the storage battery.

Incorrect operation of storage batteries may cause danger. During operation, ensure the following:

- Prevent any short-circuit.
- Prevent the electrolyte from overflowing and leakage.

Electrolyte overflow may damage the device. It will corrode the metal parts and the circuit boards, and ultimately damage the device and cause short-circuit of the circuit boards.

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General Operations

Before installing and maintaining the storage battery, ensure the following:

- Use special insulation tools.
- Use eye protection devices and operate with care.
- Wear rubber gloves and an apron in case of an electrolyte overflow.
- Always keep the battery upright when moving. Do not place the battery upside down or tilt it.

Short-Circuit

DANGER

Short-circuit of the battery may cause injury. Although the voltage of a battery is low, high transient current generated by short-circuit will release a surge of power.

Keep metal objects away from the battery to prevent short circuit. If they have to be used, disconnect the battery in use before performing any other operation.

Harmful Gas

CAUTION

- Do not use unsealed lead-acid storage batteries, because the gas emitted from it may result in fire or device corrosion.
- Lay the storage battery horizontally and fix it properly.

The lead-acid storage battery in use will emit flammable gas. Therefore, store it in a place with good ventilation and take precautions against fire.

High Temperature

CAUTION

High temperature may result in distortion, damage, and electrolyte overflow of the battery.

When the temperature of the battery exceeds 60°C, check whether there is acid overflow. If acid overflow occurs, handle the acid immediately.

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Acid

CAUTION

If the acid overflows, it should be absorbed and neutralized immediately.

When handling a leaky battery, protect against the possible damage caused by the acid. Use the following materials to absorb and neutralize acid spills:

- Sodium bicarbonate (baking soda): $NaHCO_3$
- Sodium carbonate (soda): Na_2CO_3

Antacids must be used according to the instructions provided by the battery manufacturer.

Lithium Battery

CAUTION

There is danger of explosion if the battery is incorrectly replaced.

- Replace the lithium battery with the same or equivalent type recommended by the manufacturer.
- Dispose of the used battery according to the instructions provided by the manufacturer.
- Do not dispose of the lithium battery in fire.

1.5 Radiation

Electromagnetic Field Exposure

CAUTION

High power radio-frequency signals are harmful to human body.

Before installing or maintaining an antenna on a steel tower or mast with a large number of transmitter antennas, the operator should coordinate with all parties to ensure that the transmitter antennas are shut down.

The base transceiver station (BTS) has RF radiation (radiation hazard). Suggestions for the installation and operation of BTSs are given in the following section. Operators are also required to comply with the related local regulations on erecting BTSs.

- The antenna should be located in an area that is inaccessible to the public where the RF radiation exceeds the stipulated value.

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- If the areas where RF radiation exceeds the stipulated value are accessible to workers, ensure that workers know where these areas are. They can shut down the transmitters before entering these areas. Such areas may not exist; but if they exist, the areas must be within a range of less than 10 m around the antennas.
- Each forbidden zone should be indicated by a physical barrier and striking sign to warn the public or workers.

Laser

CAUTION

When handling optical fibers, do not stand close to, or look into the optical fiber outlet with unaided eyes.

Laser transceivers or transmitters are used in the optical transmission system and associated test tools. Because the laser that is transmitted through the optical fiber produces a small beam of light, it has a very high power density and is invisible to human eyes. If a beam of light enters the eye, the retina may be damaged.

Normally, staring into the end of an unterminated optical fiber or broken optical fiber with the unaided eyes from a distance of more than 150 mm [5.91 in.] will not cause eye injury. Eyes may, however, be damaged if an optical tool such as a microscope, magnifying glass or eye loupe is used to stare into the bare optical fiber end.

Read the following guidelines to prevent laser radiation:

- Only the trained and authorized personnel can perform the operation.
- Wear a pair of eye-protective glasses when you are handling lasers or optical fibers.
- Ensure that the optical source is switched off before disconnecting optical fiber connectors.
- Never look into the end of an exposed optical fiber or an open connector if you cannot ensure that the optical source is switched off.
- To ensure that the optical source is switched off, use an optical power meter.
- Before opening the front door of an optical transmission system, ensure that you are not exposed to laser radiation.
- Never use an optical tool such as a microscope, a magnifying glass, or an eye loupe to look into the optical fiber connector or end.

Read the following instructions before handling optical fibers:

- Only the trained personnel can cut and splice optical fibers.
- Before cutting or splicing an optical fiber, ensure that the optical fiber is disconnected from the optical source. After disconnecting the optical fiber, use protecting caps to protect all the optical connectors.

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1.6 Working at Heights

CAUTION

When working at heights, ensure that the objects do not fall.

When working at heights, ensure that the following requirements must be met:

- The personnel who work at heights must be trained.
- The operating machines and tools should be carried and handled safely to prevent them from falling.
- Safety measures, such as wearing a helmet and a safety belt, should be taken.
- In cold regions, warm clothes should be worn before working at heights.
- Ensure that the lifting appliances are well prepared for working at heights.

Lifting Weights

CAUTION

Do not access the areas under the arm of the crane and the goods in suspension when lifting weights.

- Ensure that the operators have been trained and qualified.
- Check the weight lifting tools and ensure that they are intact.
- Lift the weight only when the weight lifting tools are firmly mounted onto the weight-bearing object or the wall.
- Use a concise instruction to prevent incorrect operation.
- The angle between the two cables should be less than or equal to 90° in the lifting of weights (See **Figure 1-2**).

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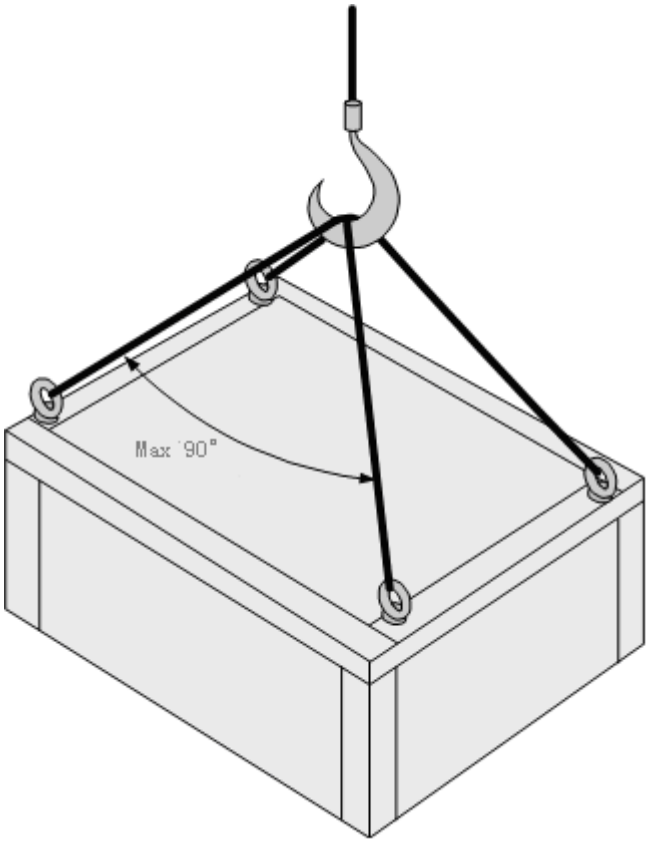
Figure 1-2 Lifting a weight



Safety Guide on Ladder Use

Checking the Ladder

- Check the ladder before using it. Check the maximum weight that the ladder can support.
- Never overload the ladder.

Placing the Ladder

- The slant angle is preferred to be 75°. The slant can be measured with the angle square or with arms, as shown in **Figure 1-3**. When using a ladder, place the wider end of the ladder on the ground and take protective measures on the base of the ladder against slippage. Place the ladder on a stable ground.

When climbing the ladder, ensure the following:

- The gravity of the body does not shift from the edge of the ladder.
- Keep balance on the ladder before performing any operation.
- Do not climb higher than the fourth highest step of the ladder.

If you tend to climb to the roof, the length of the ladder should be at least one meter higher than the eave, as shown in **Figure 1-4**.

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Figure 1-3 Slant angle

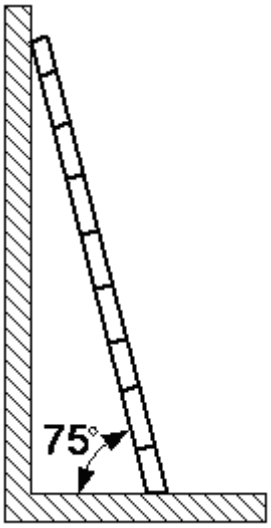
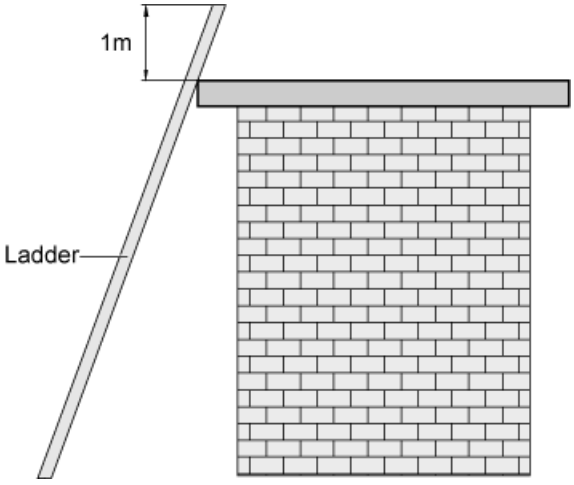


Figure 1-4 One meter higher than the eave



1.7 Mechanical Safety

Drilling

CAUTION

Do not drill on the cabinet without permission. Inappropriate drilling on the cabinet may damage the electromagnetic shielding and internal cables. Metal shavings from the drilling may result in a short-circuit of the circuit board if they get into the cabinet.

- Before drilling a hole on the cabinet, remove the cables from the cabinet.
- During the drilling, wear blinkers to protect your eyes.

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- During the drilling, wear the protective gloves.
- Prevent the metal shavings from getting into the cabinet. After drilling, clean the metal shavings in time.

Handling Sharp Objects

CAUTION

When carrying the device by hand, wear the protective gloves to prevent injury by sharp objects.

Handling Fans

- When replacing a component, place the component, screw, and tool at a safe place to prevent them from falling into the running fan.
- When replacing the ambient equipment around the fan, do not place the finger or board into the running fan until the fan is switched off and stops running.

Moving Heavy Objects

Wear the protective gloves when moving heavy objects.

CAUTION

- Be careful when moving heavy objects.
- When moving the chassis outwards, be aware about the unfixed or heavy objects on the chassis to prevent injury.

- Two persons should be available to move a chassis; one person must not move a heavy chassis. When moving a chassis, keep your back straight and move stably to prevent a sprain.
- When moving or lifting a chassis, hold the handle or bottom of the chassis. Do not hold the handle of the installed modules in the chassis, such as the power module, fan module, or board.

1.8 Others

Inserting and Removing a Board

CAUTION

When inserting a board, wear the ESD wrist strap or gloves. Insert the board gently to prevent any bent pins on the backplane.

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- Insert the board along the guide rail.
- Avoid contact of one board with another to prevent short-circuit or damage.
- Do not remove the active board before powering off.
- When holding a board in hand, do not touch the board circuit, components, connectors, or connection slots.

Bundling Signal Cables

CAUTION

Bundle the signal cables separately from the strong current cables or high voltage cables.

Cabling Requirements

At a very low temperature, movement of the cable may damage the plastic skin of the cable. To ensure the construction safety, comply with the following requirements:

- When installing cables, ensure that the environment temperature is above 0°C.
- If cables are stored in the place below 0°C, move the cables into a place at a room temperature and store the cables for more than 24 hours before installation.
- Move the cables with care, especially at a low temperature. Do not drop the cables directly from the vehicle.

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2 RRU and SRXU Hardware

About This Chapter

This describes the RRU equipment, SRXU equipment, and related cables.

2.1 RRU Equipment
The RRU is a remote radio unit.

2.2 SRXU Equipment
The SRXU is an extended RF interface module that provides two RX channels for RF signals.

2.3 RRU Cables
The RRU cables include the PGND cable, power cable, AISG multi-wire cable, AISG extension cable, CPRI optical cable, RF jumper, and alarm cable.

2.4 SRXU Cables
The SRXU cables include the PGND cable, power cable, AISG multi-wire cable, AISG extension cable, CPRI optical cable, and RF jumper.

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2.1 RRU Equipment

The RRU is a remote radio unit.

The RRU has the following functions:

- The RRU receives RF signals from the antenna system, down-converts the signals to IF signals, and then transmits them to the BBU or the macro NodeB after amplification, analog-to-digital conversion, digital down-conversion, matched filtering, and Digital Automatic Gain Control (DAGC).
- The RRU receives downlink baseband signals from the BBU or the macro NodeB, forwards data from its cascaded RRU, performs filtering and digital-to-analog conversion, and up-converts RF signals to the transmitting frequency band.
- The RRU multiplexes RX and TX signals over RF channels and filters the RX signals and TX signals. This enables the RX signals and TX signals to share the same antenna path.

2.1.1 Appearance of the RRU
The RRU features a modular structure with its ports at the module bottom and on the cabling cavity.

2.1.2 LEDs on the RRU
The LEDs, on the LED panel of the RRU, indicate the running status of the RRU.

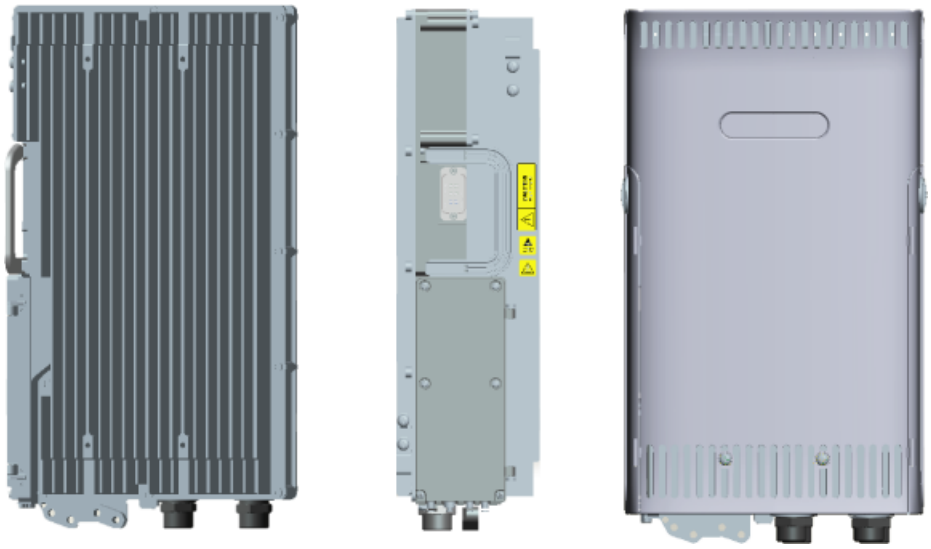
2.1.3 Panels of the RRU
The RRU has a bottom panel, a cabling cavity panel, and an LED panel.

2.1.1 Appearance of the RRU

The RRU features a modular structure with its ports at the module bottom and on the cabling cavity.

Figure 2-1 shows the RRU. On the left is a front view of the RRU without the housing, in the middle is a side view of the RRU without the housing, and on the right is a front view of the RRU housing.

Figure 2-1 RRU



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2.1.2 LEDs on the RRU

The LEDs, on the LED panel of the RRU, indicate the running status of the RRU.

For the positions of the LEDs on the RRU, refer to **2.1.3 Panels of the RRU**.

Table 2-1 describes the LEDs and their status.

Table 2-1 LEDs on the RRU

Label	Color	Status	Description
RUN	Green	ON	The module has power input, yet the module is faulty.
		OFF	The module has no power input or is reporting alarms.
		1s ON, 1s OFF	The module is operational.
		0.5s ON, 0.5s OFF	Software is being loaded to the module.
ALM	Red	ON	The RRU is reporting alarms (excluding VSWR-related alarms).
		OFF	The module is operational.
TX_ACT	Green	ON	The module is running.
		OFF	No specific meaning
VSWR	Red	ON	VSWR-related alarms are reported.
		OFF	No VSWR-related alarm is reported.
CPRI_W	Red/green	ON (green)	The CPRI link is normal.
		ON (red)	The optical module receives local alarms related to LOS.
		0.5s ON, 0.5s OFF (red)	The CPRI link is out of lock.
		OFF	The optical module is not in position or is powered off.
CPRI_E	Red/green	ON (green)	The CPRI link is normal.
		ON (red)	The optical module receives local alarms related to LOS.
		0.5s ON, 0.5s OFF (red)	The CPRI link is out of lock.

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Label	Color	Status	Description
		OFF	The optical module is not in position or is powered off.

2.1.3 Panels of the RRU

The RRU has a bottom panel, a cabling cavity panel, and an LED panel.

Figure 2-2 shows the panels of the RRU.

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Figure 2-2 Panels of the RRU

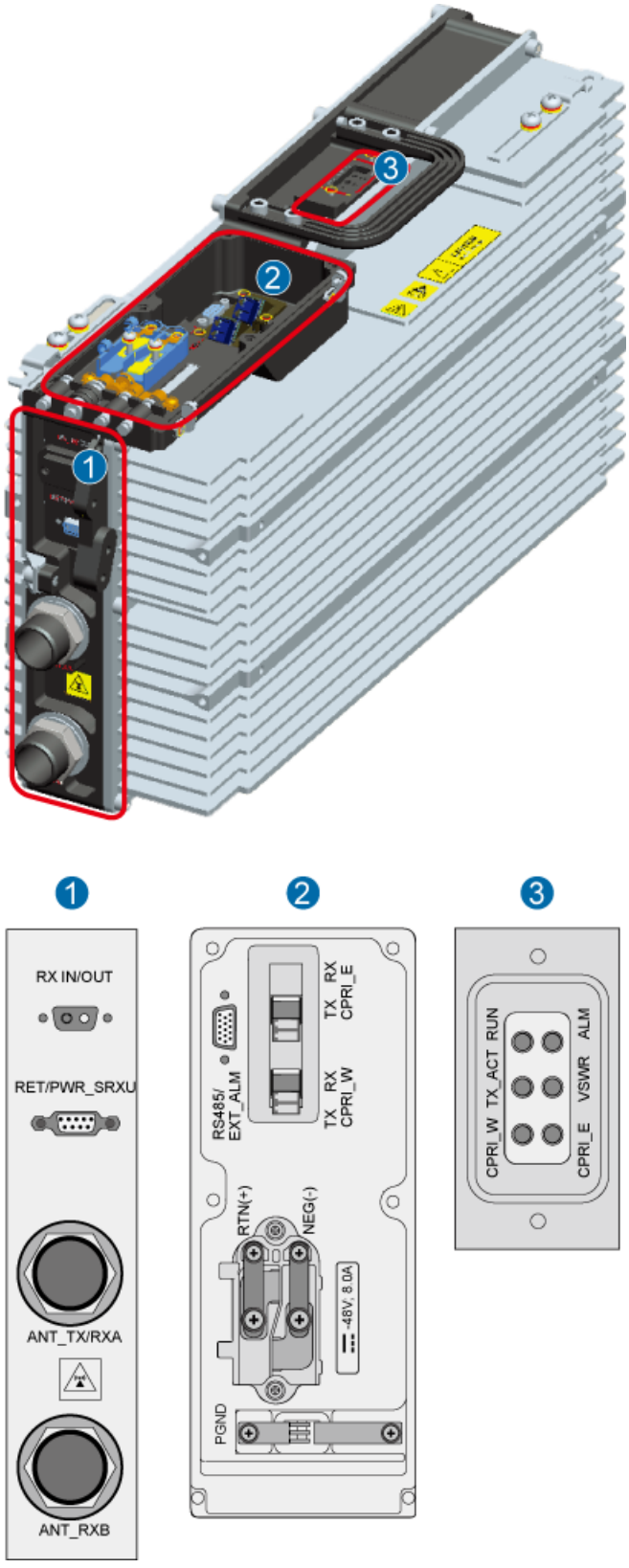

Table 2-2 describes the ports and LEDs on the panels of the SRXU.

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Table 2-2 Ports and LEDs on the panels of the RRU

No.	Item	Label	Remarks
1	Ports at the bottom	RX_IN/OUT	Port for interconnection between combined cabinets
		RET/PWR_SRXU	Port for the RET antenna or power output to the SRXU
		ANT_TX/RXA	Port for main TX/RX diversity
		ANT_RXB	Port for RX diversity
2	Ports on the cabling cavity	RS485/EXT_ALM	Port for alarms
		CPRI_E	Optical ports
		CPRI_W	
		RTN(+)	Ports for power supply
		NEG(-)	
		PGND	Grounding bolt
3	LED	RUN	For details, refer to **2.1.2 LEDs on the RRU**.
		ALM	
		TX_ACT	
		VSWR	
		CPRI_W	
		CPRI_E	

2.2 SRXU Equipment

The SRXU is an extended RF interface module that provides two RX channels for RF signals.

The SRXU receives RF signals from the antenna system, down-converts the RF signals to IF signals, and then transmits them to the RRU after amplification, analog-to-digital conversion, digital down-conversion, matched filtering, and DAGC. The RRU forwards the signals to the BBU or the macro NodeB.

2.2.1 Appearance of the SRXU

The SRXU features a modular structure with its ports at the module bottom and on the cabling cavity.

2.2.2 LEDs on the SRXU

The LEDs, on the LED panel of the SRXU, indicate the running status of the SRXU.

2.2.3 Panels of the SRXU

The SRXU has a bottom panel, a cabling cavity panel, and an LED panel.

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2.2.1 Appearance of the SRXU

The SRXU features a modular structure with its ports at the module bottom and on the cabling cavity.

Figure 2-3 shows the SRXU. On the left is a front view of the SRXU, and on the right is a side view of the SRXU.

Figure 2-3 SRXU

2.2.2 LEDs on the SRXU

The LEDs, on the LED panel of the SRXU, indicate the running status of the SRXU.

For the positions of the LEDs on the SRXU, refer to **2.2.3 Panels of the SRXU**.

Table 2-3 describes the LEDs and their status.

Table 2-3 LEDs on the SRXU

Label	Color	Status	Description
RUN	Green	ON	The module has power input, yet the module is faulty.
		OFF	The module has no power input, or the module is faulty.
		1s ON, 1s OFF	The module is operational.
		0.5s ON, 0.5s OFF	Software is being loaded to the module.
ALM	Red	ON	The module is reporting alarms.
		OFF	The module is operational.
CPRI_W	Red/green	ON (green)	The CPRI link is normal.
		ON (red)	The optical module receives local alarms related to LOS.
		0.5s ON, 0.5s OFF (red)	The CPRI link is out of lock.

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Label	Color	Status	Description
		OFF	The optical module is not in position or is powered off.
CPRI_E	Red/green	ON (green)	The CPRI link is normal.
		ON (red)	The optical module receives local alarms related to LOS.
		0.5s ON, 0.5s OFF (red)	The CPRI link is out of lock.
		OFF	The optical module is not in position or is powered off.

2.2.3 Panels of the SRXU

The SRXU has a bottom panel, a cabling cavity panel, and an LED panel.

Figure 2-4 shows the panels of the SRXU.

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Figure 2-4 Panels of the SRXU

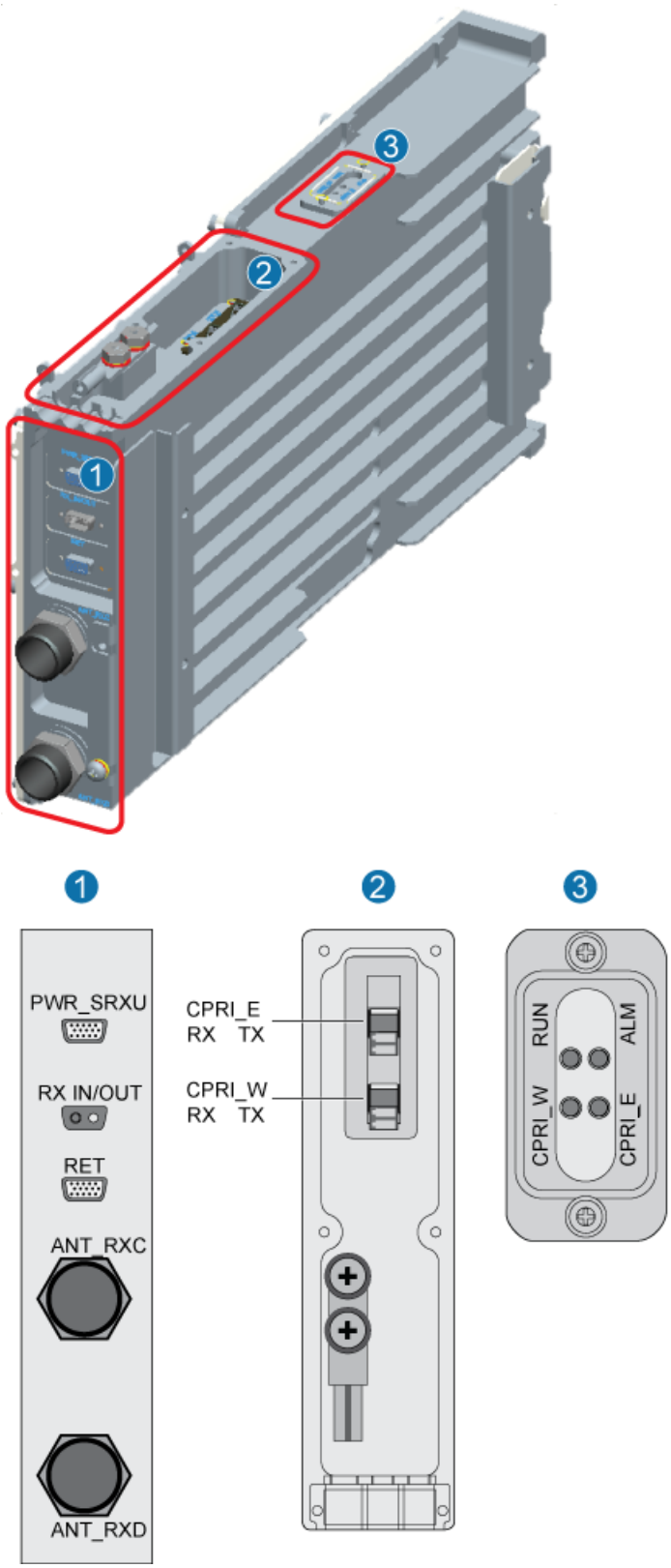

Table 2-4 describes the ports and LEDs on the panels of the SRXU.

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Table 2-4 Ports and LEDs on the panels of the SRXU

No.	Item	Label	Description
1	Ports at the bottom	PWR_SRXU	Socket for power supply
		ANT_RXC	Port for RX diversity
		ANT_RXD	Port for RX diversity
		RX_IN/OUT	Port for interconnection between combined cabinets
		RET	Port for the RET antenna
2	Ports on the cabling cavity	CPRI_E	Optical ports
		CPRI_W	
		PGND	Grounding bolt
3	LEDs	RUN	For details, refer to **2.1.2 LEDs on the RRU**.
		ALM	
		CPRI_W	
		CPRI_E	

2.3 RRU Cables

The RRU cables include the PGND cable, power cable, AISG multi-wire cable, AISG extension cable, CPRI optical cable, RF jumper, and alarm cable.

2.3.1 PGND cable of the RRU

The PGND cable ensures the grounding of the RRU.

2.3.2 Power Cable of the RRU

The RRU uses a shielded -48 V DC power cable. The cable feeds external -48 V DC power to the RRU.

2.3.3 CPRI Optical Cable

This describes the CPRI optical cable. It connects the BBU3836 to the RRU and transmits CPRI signals between them.

2.3.4 AISG Multi-Wire Cable of the RRU/SRXU

The five-meter-long AISG multi-wire cable connects the RRU/SRXU to the Remote Control Unit (RCU). If both RRU and SRXU are installed, the AISG multi-wire cable only connects the SRXU and the RCU. This cable is optional.

2.3.5 AISG Extension Cable of the RRU/SRXU

When the distance between the RCU and the RRU/SRXU is longer than 5 m, the AISG multi-wire cable is not long enough to cover the distance. In this case, the AISG extension cable is used. The AISG extension cable is 15 m long.

2.3.6 RF Jumper of the RRU/SRXU

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The RF jumper of the RRU can be categorized into two types: feeder jumper and interconnect jumper. The interconnect jumper is optional, depending on the site configuration.

2.3.7 Alarm Cable of the RRU
The cable transmits the 2-channel Boolean alarm signals and 1-channel RS485 signals from external devices to the RRU. Thus, the external signals are monitored.

2.3.1 PGND cable of the RRU

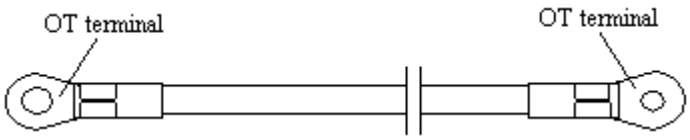
The PGND cable ensures the grounding of the RRU.

Appearance

The green and yellow PGND cable is a single cable with a cross-sectional area of 16 mm^2. Both ends of the cable are OT terminals. If you prepare the cable by yourself, it is recommended to use a copper-based cable with a minimum cross-sectional area of 16 mm^2.

Figure 2-5 shows the PGND cable.

Figure 2-5 PGND cable



OT terminals need to be added on site. You can determine the color of the cable and whether to use 2-hole terminals according to local standards.

Figure 2-6 shows the 2-hole terminal.

Figure 2-6 2-hole terminal

Installation Position

One end of the PGND cable is connected to the grounding bolt on the RRU, and the other end is connected to the nearest grounding bar.

2.3.2 Power Cable of the RRU

The RRU uses a shielded -48 V DC power cable. The cable feeds external -48 V DC power to the RRU.

Appearance

The cable has two OT terminals at one end and bare wire at the other end, as shown in **Figure 2-7**.

The OT terminals need to be made on site.

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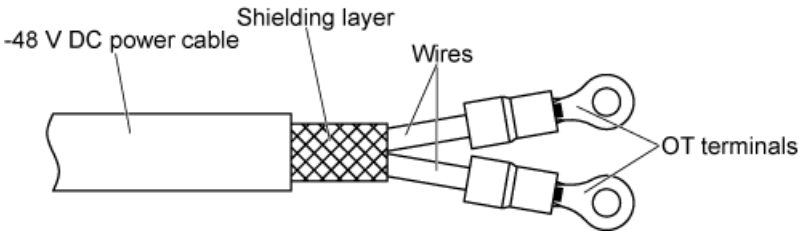
Figure 2-7 –48 V DC power cable



Pin Assignment

The -48 V DC power cable is a 2-wire cable. **Table 2-5** and **Table 2-6** describes the pin assignment for the wires of the -48 V DC power cable.

Table 2-5 Pin assignment for the wires of the –48 V DC power cable (North American Standard)

Wire Type	Wire Color
NEG	Blue
RTN	Black

Table 2-6 Pin assignment for the wires of the –48 V DC power cable (European Standard)

Wire Type	Wire Color
NEG	Blue
RTN	Brown

Installation Position

At one end of the cable, the OT terminal on the blue wire is connected to the NEG(-) port on the cabling cavity of the RRU, and the OT terminal on the black or brown wire is connected to the RTN(+) port on the cabling cavity of the RRU.

At the other end of the cable, a proper terminal is made depending on field requirements and is then connected to the power supply on site.

2.3.3 CPRI Optical Cable

This describes the CPRI optical cable. It connects the BBU3836 to the RRU and transmits CPRI signals between them.

Appearance

The CPRI optical cable is a multi-mode 2-wire cable with DLC connectors at both ends.

Figure 2-8 shows the CPRI optical cable.

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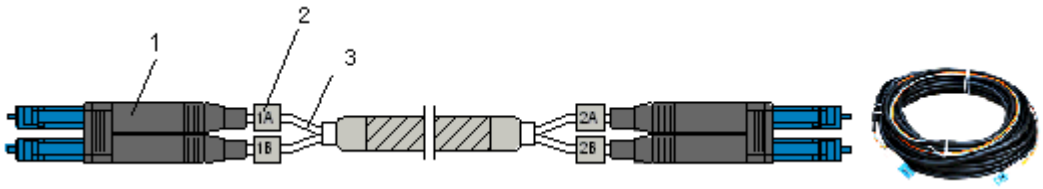
Figure 2-8 CPRI optical cable



(1) DLC connector	(2) Label on the fiber tail
(3) Fiber tail	

Pin Assignment

Table 2-7 describes the pin assignment for the fiber tails of the CPRI optical cable.

Table 2-7 Pin assignment for the fiber tails of the CPRI optical cable

Label	Color	Connect to...
1A	Orange	RX port on the RRU
1B	Gray	TX port on the RRU
2A	Orange	TX port on the WBBPa
2B	Gray	RX port on the WBBPa

Installation Position

Table 2-8 describes the installation positions of the CPRI optical cable.

Table 2-8 Installation positions of the CPRI optical cable

One End	The Other End
CPRI port on the WBBPa	**CPRI_W** port on the RRU

2.3.4 AISG Multi-Wire Cable of the RRU/SRXU

The five-meter-long AISG multi-wire cable connects the RRU/SRXU to the Remote Control Unit (RCU). If both RRU and SRXU are installed, the AISG multi-wire cable only connects the SRXU and the RCU. This cable is optional.

Appearance

The cable has a waterproof DB9 connector at one end and a standard AISG female connector at the other end, as shown in Figure 2-9.

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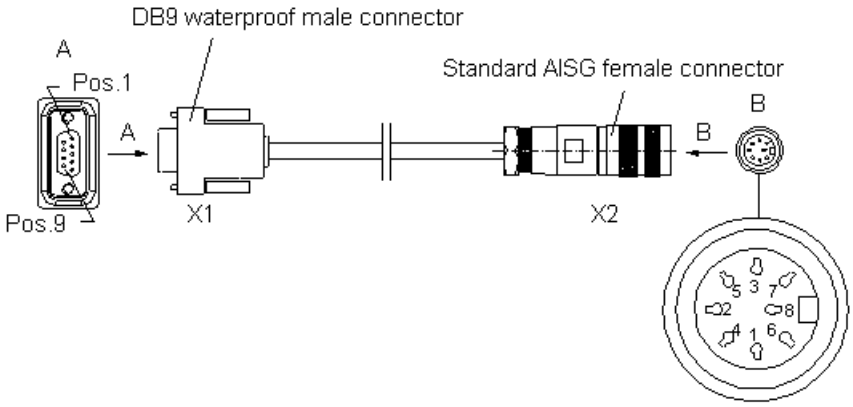
Figure 2-9 AISG multi-wire cable



Pin Assignment

Table 2-9 describes the pin assignment for the wires of the AISG multi-wire cable.

Table 2-9 Pin assignment for the wires of the AISG multi-wire cable

X1 End	X2 End	Wire Type	Remarks
X1.1	X2.1	Twisted pair	+12 V
X1.7	X2.7	Twisted pair	DC-GND
X1.9			AISG_Switch
X1.3	X2.3	Twisted pair	RS485 -
X1.5	X2.5		RS485 +

Installation Position

If only the RRU is installed, the waterproof DB9 connector is linked to the RET/PWR_SRXU port at the bottom of the RRU, and the standard AISG female connector is linked to the corresponding connector on the RCU or to the AISG extension cable.

If both the RRU and the SRXU are installed, the waterproof DB9 connector is linked to the RET port at the bottom of the SRXU, and the standard AISG female connector is linked to the corresponding connector on the RCU or to the AISG extension cable.

2.3.5 AISG Extension Cable of the RRU/SRXU

When the distance between the RCU and the RRU/SRXU is longer than 5 m, the AISG multi-wire cable is not long enough to cover the distance. In this case, the AISG extension cable is used. The AISG extension cable is 15 m long.

Appearance

The cable has a standard AISG male connector at one end and a standard AISG female connector at the other end, as shown in Figure 2-10.

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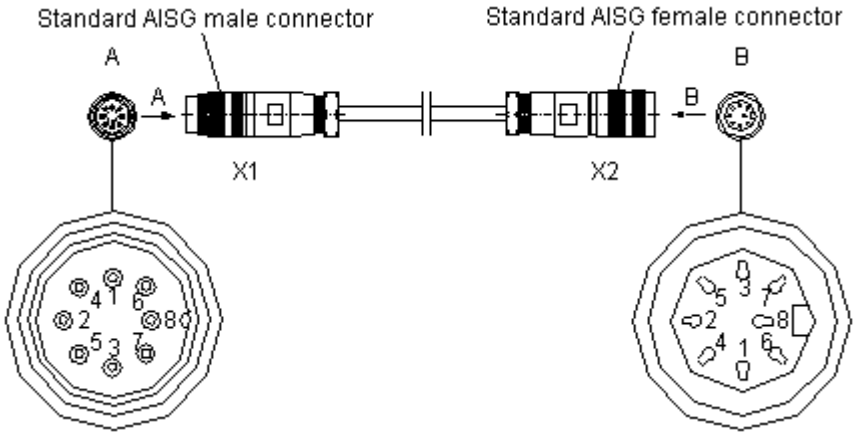
Figure 2-10 AISG extension cable



Pin Assignment

Table 2-10 describes the pin assignment for the wires of the AISG extension cable.

Table 2-10 Pin assignment for the wires of the AISG extension cable

X1 End	X2 End	Wire Color	Wire Type	Remarks
X1.1	X2.1	White and blue	Twisted pair	+12 V
		Blue		
X1.7	X2.7	White and orange	Twisted pair	DC Return A
		Orange		
X1.3	X2.3	White and green	Twisted pair	RS485 B
X1.5	X2.5	Green		RS485 A
X1.6	X2.6	White and brown	Twisted pair	+24 V
		Brown		

Installation Position

The AISG female connector is linked to the corresponding connector on the RCU, and the AISG male connector is linked to the AISG female connector of the AISG multi-wire cable.

2.3.6 RF Jumper of the RRU/SRXU

The RF jumper of the RRU can be categorized into two types: feeder jumper and interconnect jumper. The interconnect jumper is optional, depending on the site configuration.

2.3.6.1 Antenna Jumper of the RRU/SRXU
The antenna jumper transmits and receives RF signals.

2.3.6.2 Interconnect Jumper of the RRU/SRXU

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The interconnect jumper transmits RF signals between two RRUs or two SRXUs.

2.3.6.3 RF Jumper Connections of the RRU
One end of the RF jumper is connected to the RF ports on the RRU and the other end to the feeder. Which RF port to use depends on the networking modes.

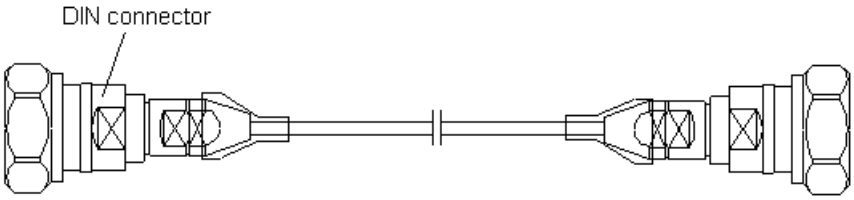
Antenna Jumper of the RRU/SRXU

The antenna jumper transmits and receives RF signals.

Appearance

The antenna jumper has a DIN male connector at each end, as shown in **Figure 2-11**.

Figure 2-11 Feeder jumper



Installation Position

The antenna jumper with indefinite length is selected according to the distance between the antenna and the RRU/SRXU. Connectors are made on site.

- When the distance between the antenna and the RRU/SRXU is shorter than 14 m, the RRU/SRXU is directly connected to the antenna through the antenna jumper.
- When the distance between the antenna and the RRU/SRXU is longer than 14 m, the antenna jumper should be shorter than 2 m. If you prepare the jumper by yourself, it is recommended that the feeder jumper be 2 m long at most. Ensure that the antenna jumper is connected to the feeder before being connected to the RRU/SRXU and the antenna.

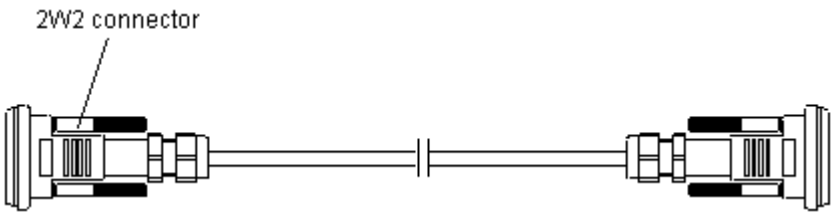
Interconnect Jumper of the RRU/SRXU

The interconnect jumper transmits RF signals between two RRUs or two SRXUs.

Appearance

The interconnect jumper is 2 m long and it has a 2W2 connector at each end, as shown in **Figure 2-12**.

Figure 2-12 Interconnect jumper



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Installation Position

The 2W2 connectors at the two ends of the interconnect jumper are linked to the ports labeled RX_IN/OUT on two RRUs or two SRXUs respectively.

RF Jumper Connections of the RRU

One end of the RF jumper is connected to the RF ports on the RRU and the other end to the feeder. Which RF port to use depends on the networking modes.

Table 2-11 describes the connections of the RF jumpers in different RRU networking modes.

Table 2-11 RF jumper connections of the RRU

Typical Networking Mode	Antenna Type and Quantity of RRUs	Cable Connection
1 x 1 in no TX diversity mode 1 x 2 in no TX diversity mode	• One RRU • One dual polarization antenna	• Two antenna jumpers • The DIN connectors of the two feeder jumpers link to the ANT_TX/RXA and ANT_RXB ports at the bottom of the RRU.
2 x 1 in no TX diversity mode 2 x 2 in no TX diversity mode	• Two RRUs • Two dual polarization antennas	• Four antenna jumpers • The DIN connectors of the four antenna jumpers are linked to the ANT_TX/RXA ports and ANT_RXB ports on RRU 0 and RRU 1.
1 x 1 in TX diversity mode 1 x 2 in TX diversity mode	• Two RRUs • One dual polarization antenna	• Two feeder jumpers and one interconnect jumper • The DIN connectors of the two feeder jumpers are linked to the ANT_TX/RXA ports on RRU 0 and RRU 1. • The interconnect jumper is connected to the RX_IN/OUT ports on RRU 0 and RRU 1 that are combined.
3 x 1 in no TX diversity mode 3 x 2 in no TX diversity mode	• Three RRUs • Three dual polarization antennas	• Six antenna jumpers • The DIN connectors of the six antenna jumpers are linked to the ANT_TX/RXA ports and ANT_RXB ports on RRU 0, RRU 1, and RRU 2.

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Typical Networking Mode	Antenna Type and Quantity of RRUs	Cable Connection
4-way RX diversity	• One RRU • One SRXU	• Two antenna jumpers and one DC power cable • The DIN connectors of the two antenna jumpers are linked to the ANT_RXC and ANT_RXD ports at the bottom of the SRXU. • One end of the DC power cable is connected to the RET/PWR_SRXU port at the bottom of the RRU, and the other end is connected to the PWR_SRXU socket at the bottom of the SRXU.

2.3.7 Alarm Cable of the RRU

The cable transmits the 2-channel Boolean alarm signals and 1-channel RS485 signals from external devices to the RRU. Thus, the external signals are monitored.

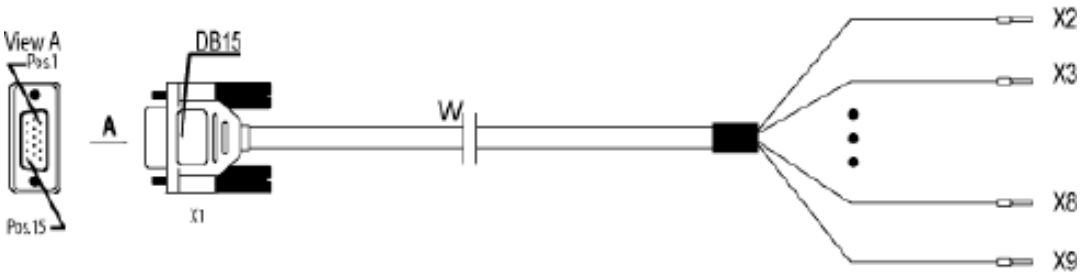
Appearance

The cable has a DB15 male connector at one end and eight cord end terminals at the other end, as shown in **Figure 2-13**.

NOTE

If the cord end terminals of the cable do no match the ports on the external devices, cut off the cord end terminals and make proper terminals on site.

Figure 2-13 Alarm cable



Pin Assignment

The cable can transmit 2-channel Boolean alarm signals and 1-channel RS485 signals. **Table 2-12** describes the pin assignment for the wires of the alarm cable.

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Table 2-12 Pin assignment for the wires of the alarm cable

X1 End	Cord End Terminal	Wire Color	Wire Type	Label
X1.2	X2	White and blue	Twisted pair	SWITCH_INPUT0+
X1.3	X3	Blue		GND
X1.6	X4	White and orange	Twisted pair	SWITCH_INPUT1+
X1.7	X5	Orange		GND
X1.10	X6	White and green	Twisted pair	RS485_TX-
X1.11	X7	Green		RS485_TX+
X1.13	X8	White and brown	Twisted pair	RS485_RX-
X1.14	X9	Brown		RS485_RX+

Installation Position

The DB15 male connector is linked to the RS485/EXT_ALM port on the cabling cavity of the RRU, and the other end of the cable is connected to the ports for Boolean alarm signals on the external device.

2.4 SRXU Cables

The SRXU cables include the PGND cable, power cable, AISG multi-wire cable, AISG extension cable, CPRI optical cable, and RF jumper.

2.4.1 PGND Cable of the SRXU
The PGND cable ensures the grounding of the SRXU.

2.4.2 Power Cable of the SRXU
The SRXU uses a shielded DC power cable. The cable feeds power from the RRU to the SRXU.

2.4.3 AISG Multi-Wire Cable of the RRU/SRXU
The five-meter-long AISG multi-wire cable connects the RRU/SRXU to the Remote Control Unit (RCU). If both RRU and SRXU are installed, the AISG multi-wire cable only connects the SRXU and the RCU. This cable is optional.

2.4.4 AISG Extension Cable of the RRU/SRXU
When the distance between the RCU and the RRU/SRXU is longer than 5 m, the AISG multi-wire cable is not long enough to cover the distance. In this case, the AISG extension cable is used. The AISG extension cable is 15 m long.

2.4.5 CPRI Optical Cable
This describes the CPRI optical cable. It connects the BBU3836 to the RRU and transmits CPRI signals between them.

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2.4.6 RF Jumper of the RRU/SRXU

The RF jumper of the RRU can be categorized into two types: feeder jumper and interconnect jumper. The interconnect jumper is optional, depending on the site configuration.

2.4.1 PGND Cable of the SRXU

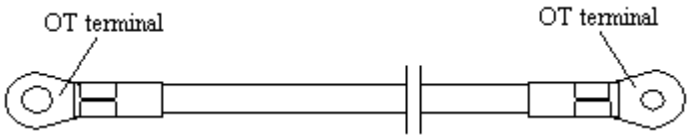
The PGND cable ensures the grounding of the SRXU.

Appearance

The green and yellow PGND cable is a single cable with a cross-sectional area of 16 mm^2. Both ends of the cable are OT terminals.

Figure 2-14 shows the PGND cable.

Figure 2-14 PGND cable



OT terminals need to be added on site. You can determine the color of the cable and whether to use 2-hole terminals according to local standards.

Figure 2-15 shows the 2-hole terminal.

Figure 2-15 2-hole terminal

Installation Position

One end of the PGND cable is connected to the grounding bolt on the SRXU, and the other end is connected to the grounding bolt on the RRU.

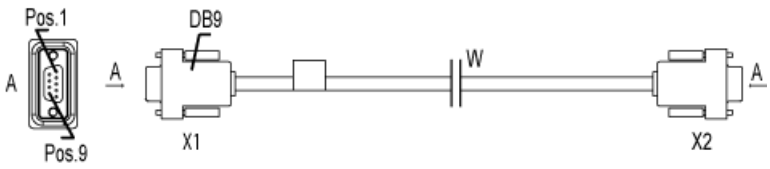
2.4.2 Power Cable of the SRXU

The SRXU uses a shielded DC power cable. The cable feeds power from the RRU to the SRXU.

Appearance

The cable has a waterproof DB9 connector at each end, as shown in **Figure 2-16**.

Figure 2-16 DC power cable



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Pin Assignment

Table 2-13 describes the pin assignment for the wires of the DC power cable.

Table 2-13 Pin assignment for the wires of the DC power cable

X1 End	X2 End	Wire Color	Wire Type	Remarks
X1.6	X2.6	White and blue	Twisted pair	DC Power Cable
		Blue		
X1.7	X2.7	White and orange	Twisted pair	GND
		Orange		

Installation Position

One end of the DC power cable is connected to the RET/PWR_SRXU port at the bottom of the RRU, and the other end is connected to the PWR_SRXU socket at the bottom of the SRXU.

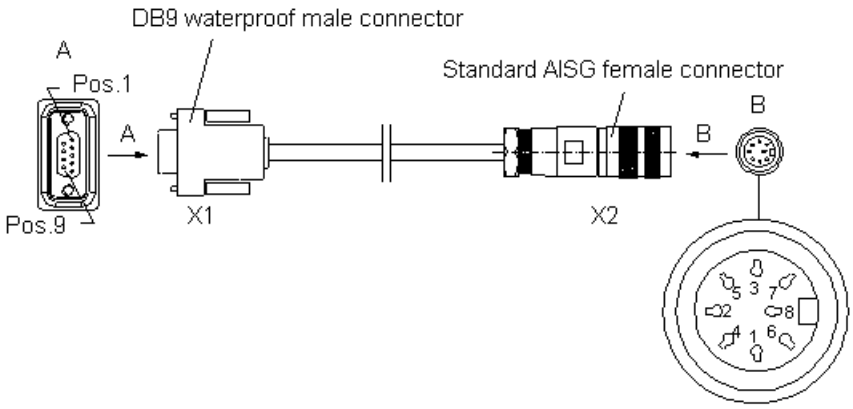
2.4.3 AISG Multi-Wire Cable of the RRU/SRXU

The five-meter-long AISG multi-wire cable connects the RRU/SRXU to the Remote Control Unit (RCU). If both RRU and SRXU are installed, the AISG multi-wire cable only connects the SRXU and the RCU. This cable is optional.

Appearance

The cable has a waterproof DB9 connector at one end and a standard AISG female connector at the other end, as shown in Figure 2-17.

Figure 2-17 AISG multi-wire cable



Pin Assignment

Table 2-14 describes the pin assignment for the wires of the AISG multi-wire cable.

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Table 2-14 Pin assignment for the wires of the AISG multi-wire cable

X1 End	X2 End	Wire Type	Remarks
X1.1	X2.1	Twisted pair	+12 V
X1.7	X2.7	Twisted pair	DC-GND
X1.9			AISG_Switch
X1.3	X2.3	Twisted pair	RS485 -
X1.5	X2.5		RS485 +

Installation Position

If only the RRU is installed, the waterproof DB9 connector is linked to the RET/PWR_SRXU port at the bottom of the RRU, and the standard AISG female connector is linked to the corresponding connector on the RCU or to the AISG extension cable.

If both the RRU and the SRXU are installed, the waterproof DB9 connector is linked to the RET port at the bottom of the SRXU, and the standard AISG female connector is linked to the corresponding connector on the RCU or to the AISG extension cable.

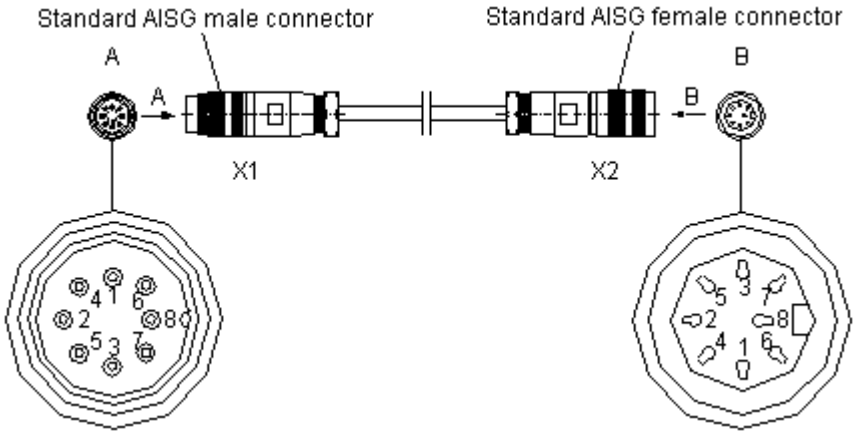
2.4.4 AISG Extension Cable of the RRU/SRXU

When the distance between the RCU and the RRU/SRXU is longer than 5 m, the AISG multi-wire cable is not long enough to cover the distance. In this case, the AISG extension cable is used. The AISG extension cable is 15 m long.

Appearance

The cable has a standard AISG male connector at one end and a standard AISG female connector at the other end, as shown in **Figure 2-18**.

Figure 2-18 AISG extension cable



Pin Assignment

Table 2-15 describes the pin assignment for the wires of the AISG extension cable.

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Table 2-15 Pin assignment for the wires of the AISG extension cable

X1 End	X2 End	Wire Color	Wire Type	Remarks
X1.1	X2.1	White and blue	Twisted pair	+12 V
		Blue		
X1.7	X2.7	White and orange	Twisted pair	DC Return A
		Orange		
X1.3	X2.3	White and green	Twisted pair	RS485 B
X1.5	X2.5	Green		RS485 A
X1.6	X2.6	White and brown	Twisted pair	+24 V
		Brown		

Installation Position

The AISG female connector is linked to the corresponding connector on the RCU, and the AISG male connector is linked to the AISG female connector of the AISG multi-wire cable.

2.4.5 CPRI Optical Cable

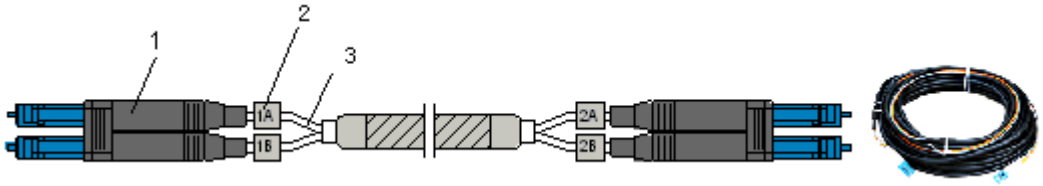
This describes the CPRI optical cable. It connects the BBU3836 to the RRU and transmits CPRI signals between them.

Appearance

The CPRI optical cable is a multi-mode 2-wire cable with DLC connectors at both ends.

Figure 2-19 shows the CPRI optical cable.

Figure 2-19 CPRI optical cable



(1) DLC connector	(2) Label on the fiber tail
(3) Fiber tail	

Pin Assignment

Table 2-16 describes the pin assignment for the fiber tails of the CPRI optical cable.

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Table 2-16 Pin assignment for the fiber tails of the CPRI optical cable

Label	Color	Connect to...
1A	Orange	RX port on the RRU
1B	Gray	TX port on the RRU
2A	Orange	TX port on the WBBPa
2B	Gray	RX port on the WBBPa

Installation Position

Table 2-17 describes the installation positions of the CPRI optical cable.

Table 2-17 Installation positions of the CPRI optical cable

One End	The Other End
CPRI port on the WBBPa	**CPRI_W** port on the RRU

2.4.6 RF Jumper of the RRU/SRXU

The RF jumper of the RRU can be categorized into two types: feeder jumper and interconnect jumper. The interconnect jumper is optional, depending on the site configuration.

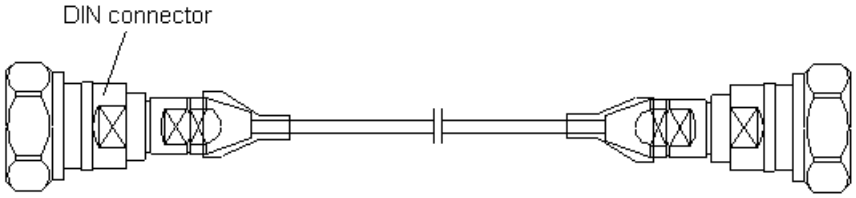
Antenna Jumper of the RRU/SRXU

The antenna jumper transmits and receives RF signals.

Appearance

The antenna jumper has a DIN male connector at each end, as shown in Figure 2-20.

Figure 2-20 Feeder jumper



Installation Position

The antenna jumper with indefinite length is selected according to the distance between the antenna and the RRU/SRXU. Connectors are made on site.

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- When the distance between the antenna and the RRU/SRXU is shorter than 14 m, the RRU/SRXU is directly connected to the antenna through the antenna jumper.
- When the distance between the antenna and the RRU/SRXU is longer than 14 m, the antenna jumper should be shorter than 2 m. If you prepare the jumper by yourself, it is recommended that the feeder jumper be 2 m long at most. Ensure that the antenna jumper is connected to the feeder before being connected to the RRU/SRXU and the antenna.

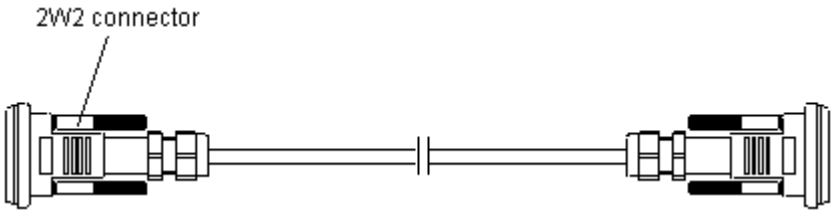
Interconnect Jumper of the RRU/SRXU

The interconnect jumper transmits RF signals between two RRUs or two SRXUs.

Appearance

The interconnect jumper is 2 m long and it has a 2W2 connector at each end, as shown in **Figure 2-21**.

Figure 2-21 Interconnect jumper



Installation Position

The 2W2 connectors at the two ends of the interconnect jumper are linked to the ports labeled RX_IN/OUT on two RRUs or two SRXUs respectively.

RF Jumper Connections of the RRU

One end of the RF jumper is connected to the RF ports on the RRU and the other end to the feeder. Which RF port to use depends on the networking modes.

Table 2-18 describes the connections of the RF jumpers in different RRU networking modes.

Table 2-18 RF jumper connections of the RRU

Typical Networking Mode	Antenna Type and Quantity of RRUs	Cable Connection
1 x 1 in no TX diversity mode	• One RRU • One dual polarization antenna	• Two antenna jumpers • The DIN connectors of the two feeder jumpers link to the ANT_TX/RXA and ANT_RXB ports at the bottom of the RRU.
1 x 2 in no TX diversity mode		
2 x 1 in no TX diversity mode	• Two RRUs • Two dual polarization antennas	• Four antenna jumpers • The DIN connectors of the four antenna jumpers are linked to the

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Typical Networking Mode	Antenna Type and Quantity of RRUs	Cable Connection
2 x 2 in no TX diversity mode		ANT_TX/RXA ports and ANT_RXB ports on RRU 0 and RRU 1.
1 x 1 in TX diversity mode 1 x 2 in TX diversity mode	• Two RRUs • One dual polarization antenna	• Two feeder jumpers and one interconnect jumper • The DIN connectors of the two feeder jumpers are linked to the ANT_TX/RXA ports on RRU 0 and RRU 1. • The interconnect jumper is connected to the RX_IN/OUT ports on RRU 0 and RRU 1 that are combined.
3 x 1 in no TX diversity mode 3 x 2 in no TX diversity mode	• Three RRUs • Three dual polarization antennas	• Six antenna jumpers • The DIN connectors of the six antenna jumpers are linked to the ANT_TX/RXA ports and ANT_RXB ports on RRU 0, RRU 1, and RRU 2.
4-way RX diversity	• One RRU • One SRXU	• Two antenna jumpers and one DC power cable • The DIN connectors of the two antenna jumpers are linked to the ANT_RXC and ANT_RXD ports at the bottom of the SRXU. • One end of the DC power cable is connected to the RET/PWR_SRXU port at the bottom of the RRU, and the other end is connected to the PWR_SRXU socket at the bottom of the SRXU.

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3 Installing RRU and SRXU Hardware

About This Chapter

This describes how to install the hardware, route the cables, and check the hardware installation of the RRU and SRXU.

3.1 Information About the Installation
This describes the installation modes and space requirements of the RRU and SRXU.

3.2 Procedure for Installing the RRU and SRXU
The procedure for installing the RRU and SRXU varies with the installation scenarios. The procedure involves making preparations, installing the RRU and SRXU, connecting related cables, checking the hardware installation, and installing the housing of the RRU and SRXU.

3.3 Preparing for the NodeB Installation
This describes how to prepare for the NodeB installation. Before installing the NodeB, you need to unpack the NodeB and prepare necessary tools.

3.4 Installing the RRU on the Ground or Rooftop
When the RRU needs to be installed on the ground or rooftop, it supports one-module, two-module centralized, and three-module centralized installation modes.

3.5 Installing the RRU on the Tower
Before installing the RRU on the tower, you need to assemble the parts and then lift them up to the tower.

3.6 Installing the SRXU
This describes how to install the SRXU on the RRU in one-module, two-module centralized, or three-module centralized installation mode.

3.7 Installing RRU and SRXU Cables
This describes how to install the cables of the RRU and SRXU and how to open and close the cover plate of the RRU or SRXU cabling cavity.

3.8 Powering On the RRU/SRXU
This describes how to power on the RRU/SRXU. The RRU, supplied with -48 V DC power, feeds power to the SRXU through a power cable. During power-on, you need to check the status of the LEDs on the RRU/SRXU.

3.9 Installing the Housing of the RRU and SRXU

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After the SRXU is fixed to the RRU, install the housing after checking the hardware installation.

3.10 Checklists for Hardware Installation of Distributed NodeBs and Mini NodeBs
This describes the checklists for hardware installation and cable connections.

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3.1 Information About the Installation

This describes the installation modes and space requirements of the RRU and SRXU.

3.1.1 Installation Modes of the RRU and SRXU
The RRU supports one-module, two-module centralized, and three-module centralized installation modes. It can be mounted on a metal pole or wall. If an SRXU is configured, the SRXU must be fixed to the RRU.

3.1.2 Space Requirements of the RRU and SRXU
In different installation modes, the RRU and SRXU have the minimal space requirements for cabling and OM. Based on the engineering practice, Huawei offers the recommended space requirements.

3.1.3 Cabling Specifications for the NodeB
This describes the cabling specifications for the power cables and PGND cables. The power cables and signal cables must be routed in compliance with the cabling specifications to avoid electromagnetic interference to the signals.

3.1.4 Requirements for the RRU Cabling on a Tower
This describes the requirements for the RRU cabling on a tower. Routing RRU cables on a tower should meet certain requirements to prevent damages to the cables or prevent interference to the signals.

3.1.5 Connections of RRU and SRXU Cables
This describes the cable connections between the RRU, SRXU, and other devices such as BBU3806, external power supply, and antenna system.

3.1.6 Labels for DBS3836 Cables
This presents the types, appearance, and installation of the labels for DBS3836 cables. The labels are attached to the power cable of the BBU3836, power cable of the RRU, E1 cable, CPRI optical cable, and alarm cable.

3.1.1 Installation Modes of the RRU and SRXU

The RRU supports one-module, two-module centralized, and three-module centralized installation modes. It can be mounted on a metal pole or wall. If an SRXU is configured, the SRXU must be fixed to the RRU.

NOTE

The metal pole or the wall on which the RRU is mounted must meet the following requirements:

- The depth of the metal ranges from 30 mm to 40 mm and the outer diameter of the pole ranges from 60 mm to 114 mm.
- The wall is made of the concrete and the minimum weight bearing capacity of the wall is 100 kg.

Installation Modes of One RRU

Figure 3-1 shows the installation modes of one RRU.

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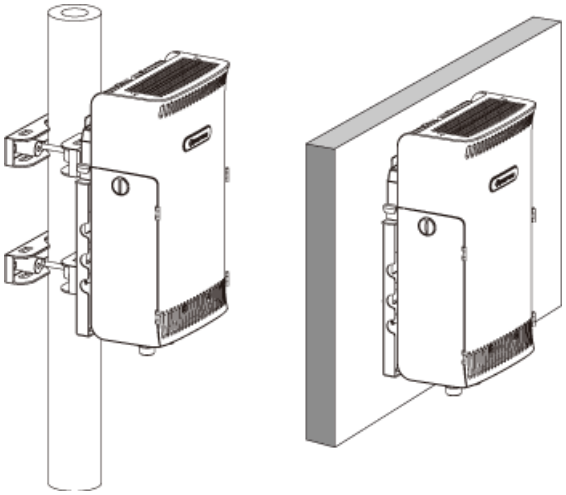
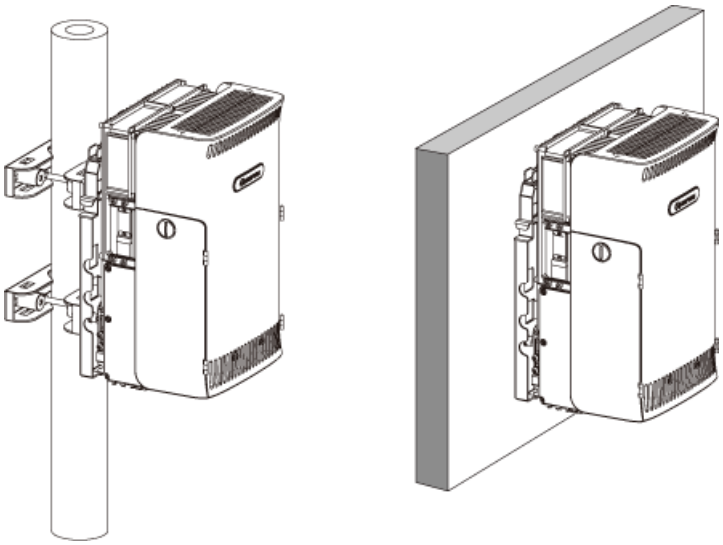
Figure 3-1 Installation modes of one RRU



Installation Modes of One RRU and One SRXU

Figure 3-2 shows the installation modes of one RRU and one SRXU.

Figure 3-2 Installation modes of one RRU and one SRXU



Installation Modes of Two RRUs

Figure 3-3 shows the installation modes of two RRUs.

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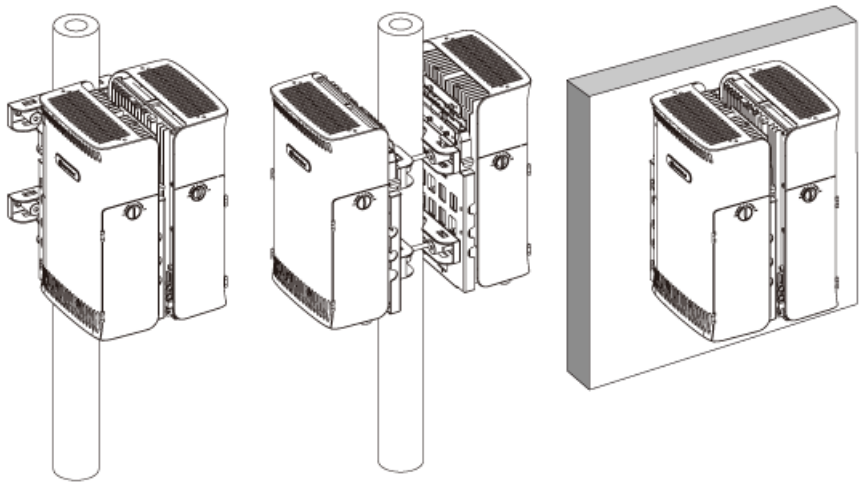
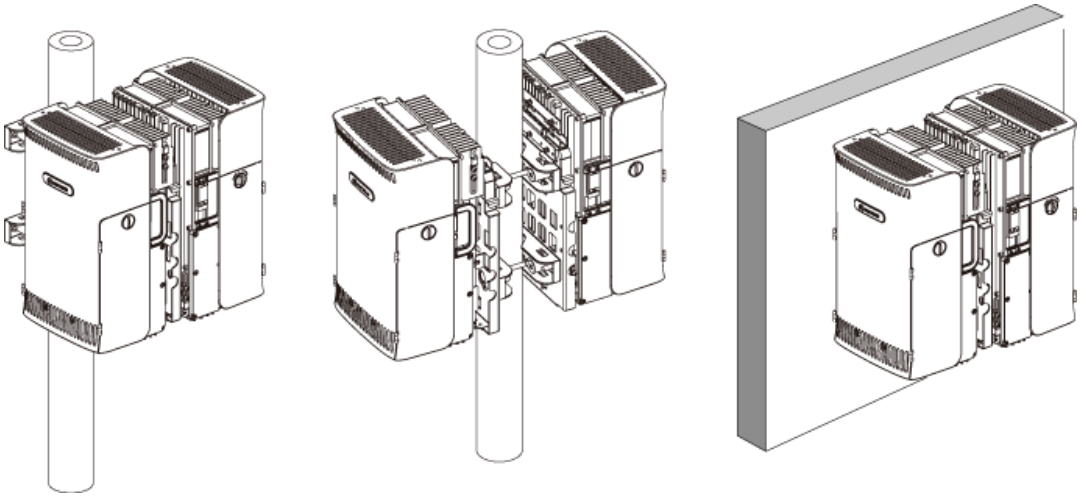
Figure 3-3 Installation modes of two RRUs



Installation Modes of Two RRUs and Two SRXUs

Figure 3-4 shows the installation modes of two RRUs and two SRXUs.

Figure 3-4 Installation modes of two RRUs and two SRXUs



Installation Modes of Three RRUs

Figure 3-5 shows the installation modes of three RRUs.

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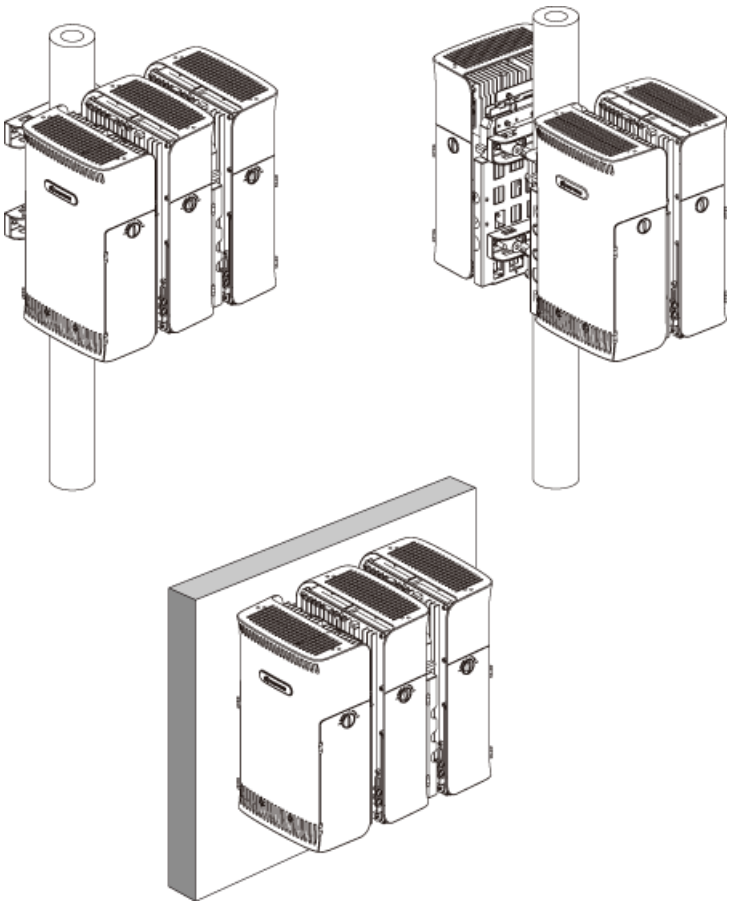
Figure 3-5 Installation modes of three RRUs



Installation Modes of Three RRUs and Three SRXUs

Figure 3-6 shows the installation modes of three RRUs and three SRXUs.

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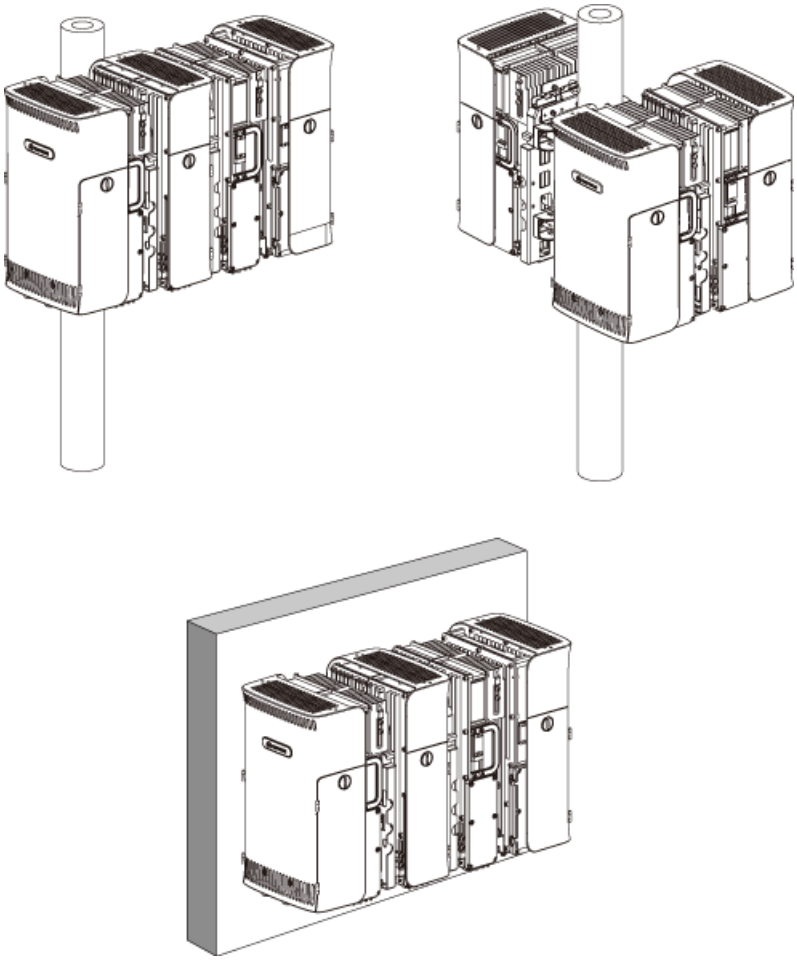
Figure 3-6 Installation modes of three RRUs and three SRXUs



NOTE

The RRU can be also installed in an indoor centralized rack. For details about how to install the RRU in the indoor centralized rack, refer to *Indoor Centralized Installation Guide*.

3.1.2 Space Requirements of the RRU and SRXU

In different installation modes, the RRU and SRXU have the minimal space requirements for cabling and OM. Based on the engineering practice, Huawei offers the recommended space requirements.

NOTE

The following figures related to the space requirements assume that the cabling cavities are on the left side of the RRU and SRXU. If the RRU and SRXU are installed with the cabling cavities on the right, the horizontal space requirements are opposite to what are shown in the figures.

Space Requirements of One RRU with and Without the SRXU

Figure 3-7 shows the recommended space requirements of one RRU with and without the SRXU.

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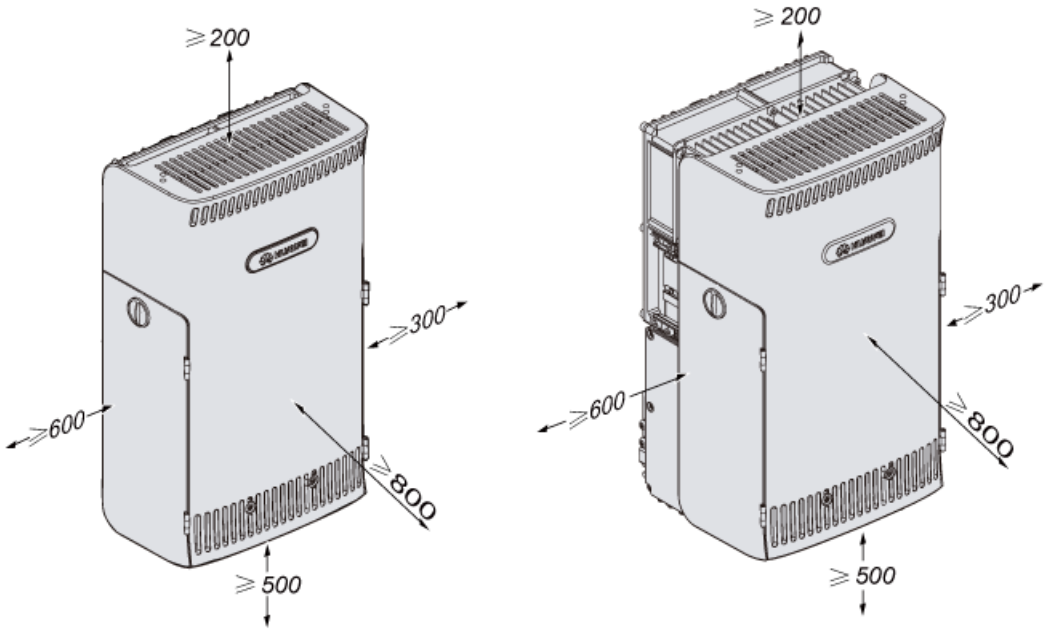
Figure 3-7 Recommended space requirements of one RRU with and without the SRXU (unit: mm)



The recommended space around the equipment is as follows:

- At least 500 mm under the equipment for cabling. It is recommended that the space is 1,200 mm between the bottom and the ground for easy maintenance.
- At least 800 mm in front of the equipment for maintenance.
- At least 200 mm above the equipment for maintenance.
- At least 600 mm on the left of the equipment for maintenance.
- At least 300 mm on the right of the equipment for maintenance.
- Regardless of whether the SRXU is fixed to the RRU, the space requirements are the same.

Figure 3-8 shows the minimal space requirements of one RRU with and without the SRXU.

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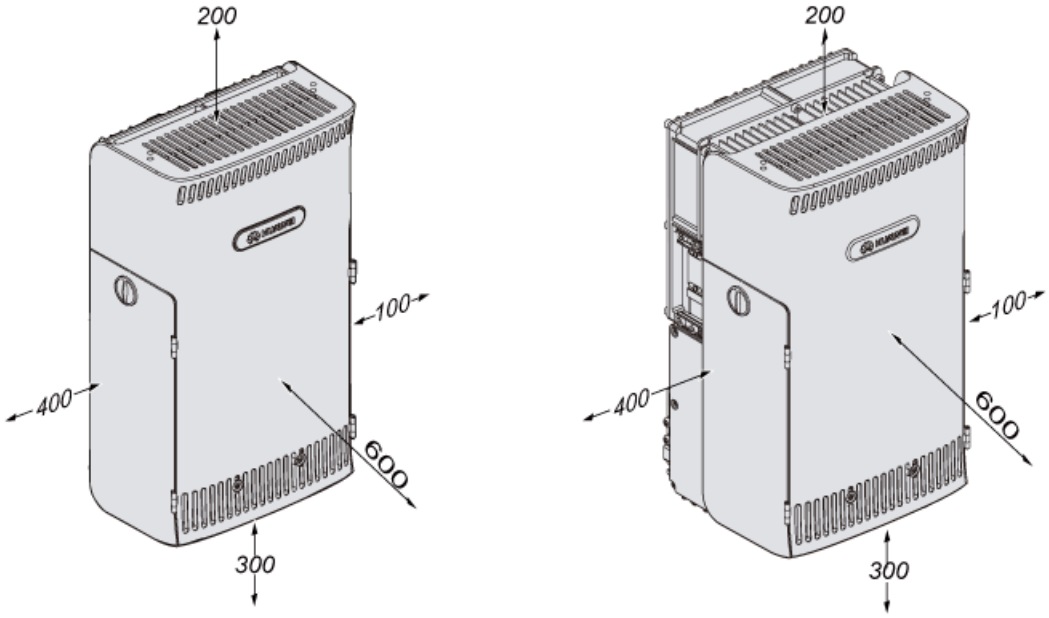
Figure 3-8 Minimal space requirements of one RRU with and without the SRXU (unit: mm)

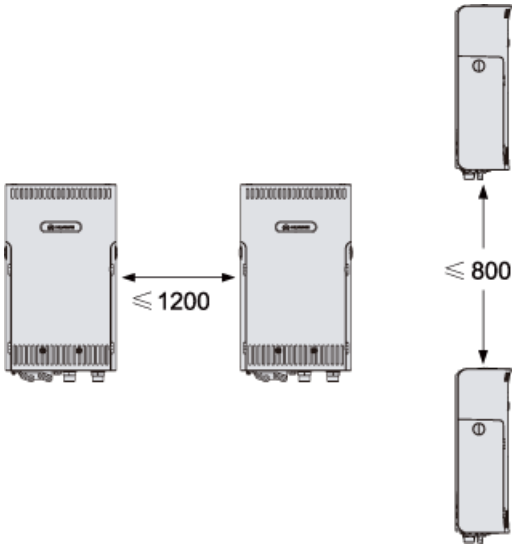


The minimal space around the equipment is as follows:

- 300 mm under the equipment for cabling. It is recommended that the space is 1,200 mm between the equipment bottom and the ground for easy maintenance.
- 600 mm in front of the equipment for maintenance.
- 200 mm above the equipment for maintenance.
- 400 mm on the left of the equipment for maintenance.
- 100 mm on the right of the equipment for maintenance.

When two RRUs need to be combined, space requirements of each RRU must be met. In addition, the space between the two RRUs should stay within the range shown in **Figure 3-9**.

Figure 3-9 Space requirements of two combined RRUs (unit: mm)



The space between the two RRUs is as follows:

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- When two RRUs are installed horizontally, the space is 1,200 mm at most.
- When two RRUs are installed vertically, the space is 800 mm at most.

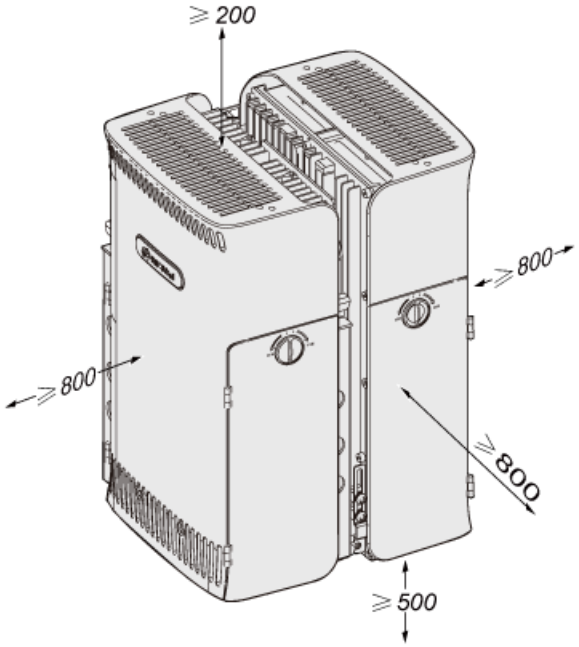
NOTE

The space requirements of two combined SRXUs are the same as those of two combined RRUs.

Space Requirements of Multiple RRUs with and Without the SRXUs

Figure 3-10 shows the recommended space requirements of multiple RRUs with and without the SRXUs.

Figure 3-10 Recommended space requirements of multiple RRUs with and without the SRXUs (unit: mm)



The recommended space around the equipment is as follows:

- At least 500 mm under the equipment for cabling. It is recommended that the space is 1,200 mm between the bottom and the ground for easy maintenance.
- At least 800 mm in front of the equipment for maintenance.
- At least 200 mm above the equipment for maintenance.
- At least 800 mm on the left of the equipment for maintenance.
- At least 800 mm on the right of the equipment for maintenance.
- Regardless of whether the SRXUs are fixed to the RRU, the space requirements are the same.
- Regardless of whether the RRUs are in two-module or three-module centralized installation mode, the space requirements are the same.

Figure 3-11 shows the minimal space requirements of multiple RRUs with and without the SRXUs.

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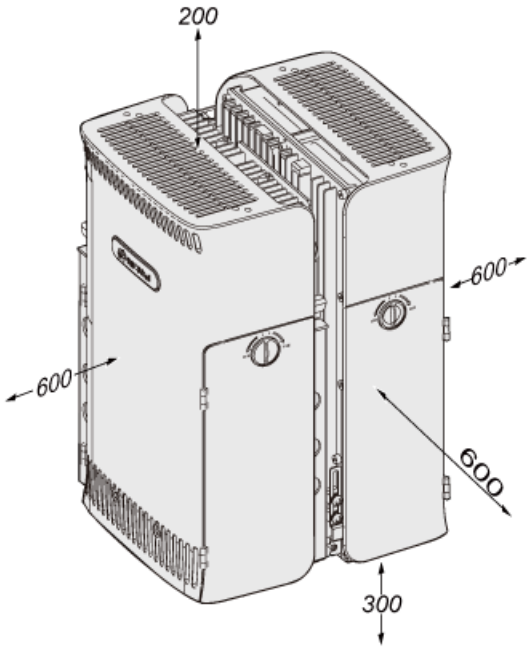
Figure 3-11 Minimal space requirements of multiple RRUs with and without the SRXUs (unit: mm)



The minimal space around the equipment is as follows:

- 300 mm under the equipment for cabling. It is recommended that the space is 1,200 mm between the equipment bottom and the ground for easy maintenance.
- 600 mm in front of the equipment for maintenance.
- 200 mm above the equipment for maintenance.
- 600 mm on the left of the equipment for maintenance.
- 600 mm on the right of the equipment for maintenance.

3.1.3 Cabling Specifications for the NodeB

This describes the cabling specifications for the power cables and PGND cables. The power cables and signal cables must be routed in compliance with the cabling specifications to avoid electromagnetic interference to the signals.

Requirements for Bending Radius of the Cables

Cable		Requirements for the Bending Radius
Feeder	1/2" feeder	⩾ 127 mm
	7/8" feeder	⩾ 250 mm
	5/4" feeder	⩾ 380 mm
	13/8" feeder	⩾ 510 mm
Jumper	1/4" jumper	⩾ 35 mm

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Cable		Requirements for the Bending Radius
	1/2" jumper	≥ 50 mm
Single-jacket cable	2.5 mm ≤ D ≤ 4.5 mm	R ≥ 2D
	D ≥ 4.5 mm	R ≥ 3D
Two-wire or multi-wire cables with/without shielding layers	6.5 mm ≤ D ≤ 12.5 mm	R ≥ 2D
	D ≥ 12.5 mm	R ≥ 3D
Optical cable		R ≥ 20D

NOTE

In the preceding table, D refers to the diameter of the cable jacket and R refers to the bending radius of the cable.

Requirements for Binding Cables

- Cables of different types are bound separately. The cables cannot be coiled.
- The cables are tightly and neatly bundled. Ensure that the jackets of the cables are not damaged.
- Two adjacent cable ties are spaced 200 mm and face the same direction. The cable ties at the same position are placed at the same level. All cuts of the cable ties are smooth without sharp projections.
- Attach labels or nameplates to both ends of the cables after they are installed.

General Cabling Specifications

- Cables of different types are routed separately.
- Cables of different types are not crossed.
- The space between cables of different types are greater than 30 mm when the cables are routed parallel inside the cabinet. The space between cables of different types are greater than 100 mm when the cables are routed parallel outside the cabinet. If such requirements cannot be met, If such requirements cannot be met, the cables must be separated with specified objects.

Cabling Specifications for Power Cables and PGND Cables

- The optical cables are routed in compliance with the engineering design and general cabling specifications.
- If the cable is not long enough, replace the cable. Do not add connectors or solder joints to lengthen the cable.
- The cables are insulated if they are bound to and routed on the metal cable rack.
- Fuses or switches are not allowed on the cables.
- The -48 V power cable and the GND cable are bound together.

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- Both ends of the PGND cables are anti-corrosive and antirust. Connections of the PGND cables are secure.
- The low-voltage AC power cable for the NodeB is covered with a metallic conduit and buried in the ground for at least 50 m before they are led into the equipment room. Note that if such cables are shorter than 50 m, they must be completely buried in the ground. If such cables are routed overhead and led into the room, surge protection for the connectors of the AC power cables are affected.
- The PGND cables are buried in the ground or routed indoors. The PGND cables cannot be routed overhead before they are led into the equipment room.

Cabling Specifications for E1/T1 Cables

- The optical cables are routed in compliance with the engineering design and general cabling specifications.
- The E1/T1 cables cannot be routed overhead outdoors.
- If the E1/T1 cables are routed outdoors, coat the E1/T1 cables with PVC jackets and route them underground based on the site conditions.
- If the E1/T1 cables routed outdoors are longer than 5 m, a surge protection box is required.
- The proper cable surpluses are reserved when the E1/T1 cables are curved.
- The idle wires of the E1/T1 cables are grounded properly in the equipment room.

Cabling Specifications for Optical Cables

- The optical cables are routed in compliance with the engineering design and general cabling specifications.
- Reserve proper cable surpluses where the optical cables are curved.
- Do not stretch, step, or place heavy objects on the optical cables. Keep the cables away from sharp objects to avoid damage. The optical cable that is curved or pressed or the optical connector which is damaged cannot be used.
- Extra optical cables are coiled on the specific device such as the fiber coiler. Coil extra optical cables properly. Do not bend the cables forcibly to avoid damaging the cables.
- Use protection tubes to coat the bare fibers.
- The idle connectors of the optical cables are covered with dustproof caps.
- If one end of the optical cable is connected to an optical device, do not look directly at the end face of the optical connector. Otherwise, you may damage your eyes.
- Fill soft materials such as fireproof cottons in the optical cable inlets at the top of the cabinet to protect the optical cables.
- You need to check whether the optical connectors are clean before installation. If the optical connectors are dirty, clean them by using the dustfree cloth or fiber cleaner.

3.1.4 Requirements for the RRU Cabling on a Tower

This describes the requirements for the RRU cabling on a tower. Routing RRU cables on a tower should meet certain requirements to prevent damages to the cables or prevent interference to the signals.

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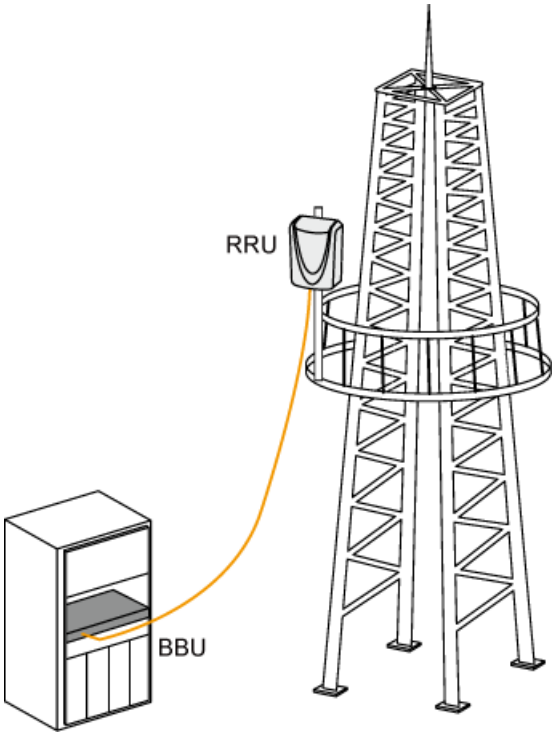
Scenario of RRU Cabling on a Tower

In RRU installation scenarios, if you choose to install the RRU on the mast of a tower, you need to route the RRU cables on the tower. **Figure 3-12** shows the installation scenario.

Figure 3-12 Scenario of RRU cabling on a tower



In this scenario, you should install the following cables on the tower:

- CPRI optical cable between the BBU and the RRU.
- RRU power cable.

Requirements for Routing Cables Through the Cable Hole at the Bottom of the Cabinet

Routing RRU cables through the cable hole at the bottom of the cabinet should meet the following requirements:

- If you route the cable through the cable hole at the bottom of the cabinet, coat the cable with the PVC protection tube, as shown in **Figure 3-13**.

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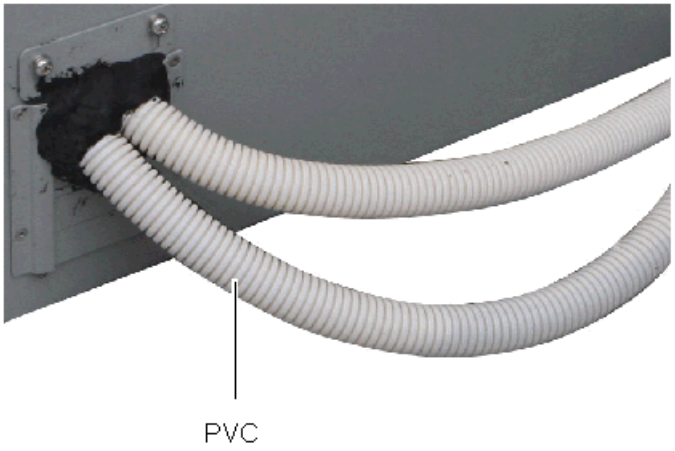
Figure 3-13 PVC protection tube



- If you route the cable coated with the protection tube on the ground or in the cable trough, do not step on or crush the cable.

Requirements for Routing Cables in the Cable Rack

Routing RRU cables in the cable rack should meet the following requirements:

- Use the cable clip to fasten the cables.
- Route the cables in a planned way. Do not let the cables occupy too much space.
- The cables should be put in order according to the routing direction, and then should be fastened using the cable clips.
- Determine the installation points of the clips according to the field requirements. Usually the distance between two clips should be less than or equal to 1.5 m. Install the clips with even spacing and in the same direction.
- The clip should be vertical to the cables and should not be bent. The cables fastened by the same clip should be parallel, as shown in **Figure 3-14**.

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Figure 3-14 Installing the cable clip

- Do not fasten the screws on the clip until the cables are properly arranged and routed.

Figure 3-15 shows routing the cables in the cable rack.

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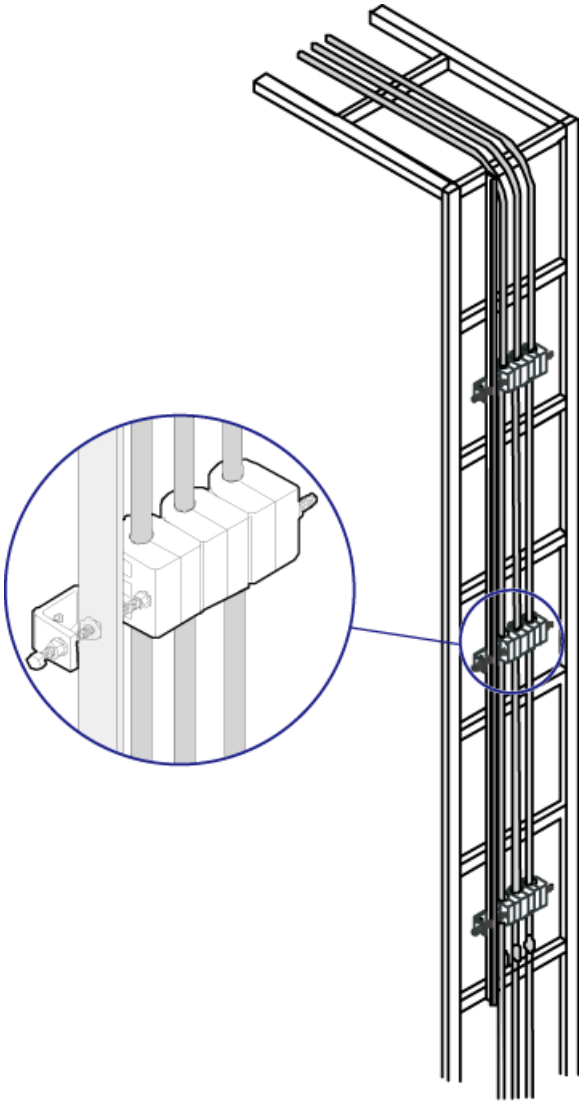
Figure 3-15 Routing the cables in the cable rack



Requirements for Routing Cables on the Tower

Routing RRU cables on the tower should meet the following requirements:

- Use the cable clip to fasten the cables.
- Route the cables in a planned way. Do not let the cables occupy too much space.
- Arrange the cables in order from top down to ensure that the cables are not twisted or tangled with other cables. Then use clips to fasten the cables.
- Determine the installation points of the clips according to the field requirements. Usually the distance between two clips should be less than or equal to 1.5 m. Install the clips with even spacing and in the same direction.

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- The clip should be vertical to the cables and should not be bent. The cables fastened by the same clip should be parallel, as shown in **Figure 3-16**.
- **Figure 3-16** Installing the cable clip on the tower

- Do not fasten the screws on the clip until the cables are properly arranged and routed.

Figure 3-17 shows routing the cables in the cable rack.

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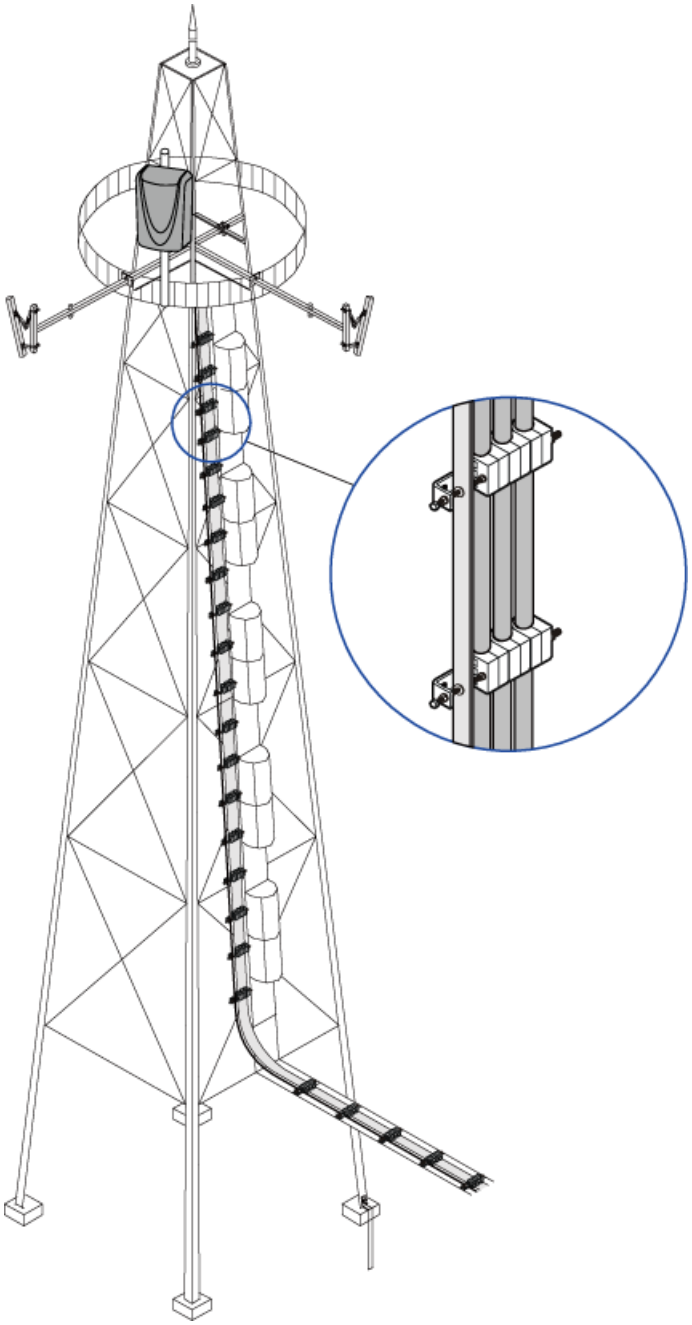
Figure 3-17 Routing the cables in the cable rack



3.1.5 Connections of RRU and SRXU Cables

This describes the cable connections between the RRU, SRXU, and other devices such as BBU3806, external power supply, and antenna system.

Cable Connections of One RRU with and Without the SRXU

Figure 3-18 and **Figure 3-19** show the cable connections of one RRU with and without the SRXU.

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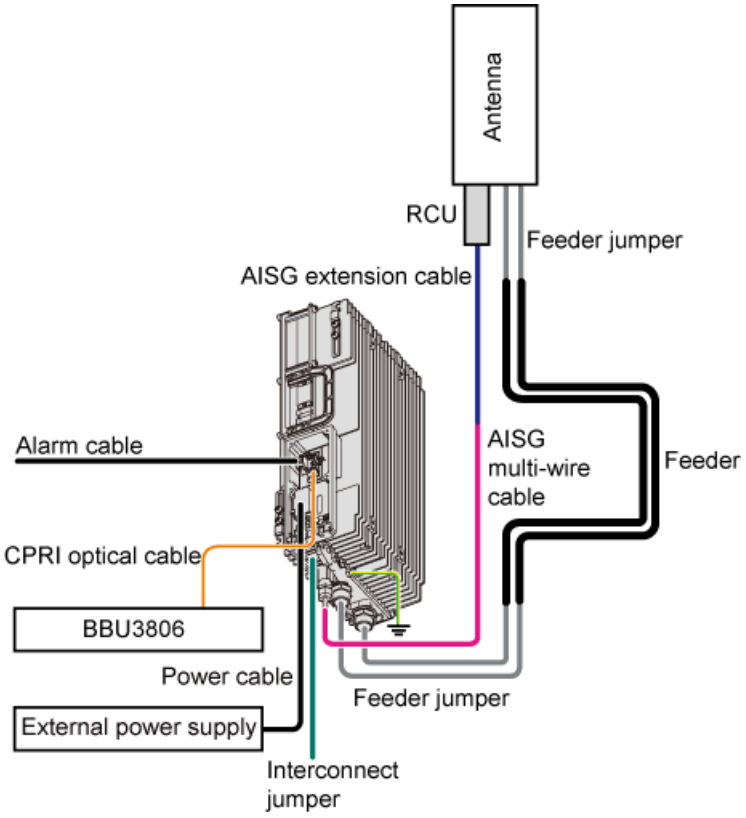
Figure 3-18 Cable connections of one RRU without the SRXU



NOTE

- When one RRU is installed, the PGND cable is connected to the grounding bolt on the RRU module.
- The AISG multi-wire cable connects the RRU to the RCU. When the distance between the RRU and the RCU is too long, the AISG extension cable is used between the AISG multi-wire cable and the RCU.
- The antenna jumper directly connects the RRU to the antenna. When the distance between the RRU and the antenna is longer than 14 m, the feeder is required.

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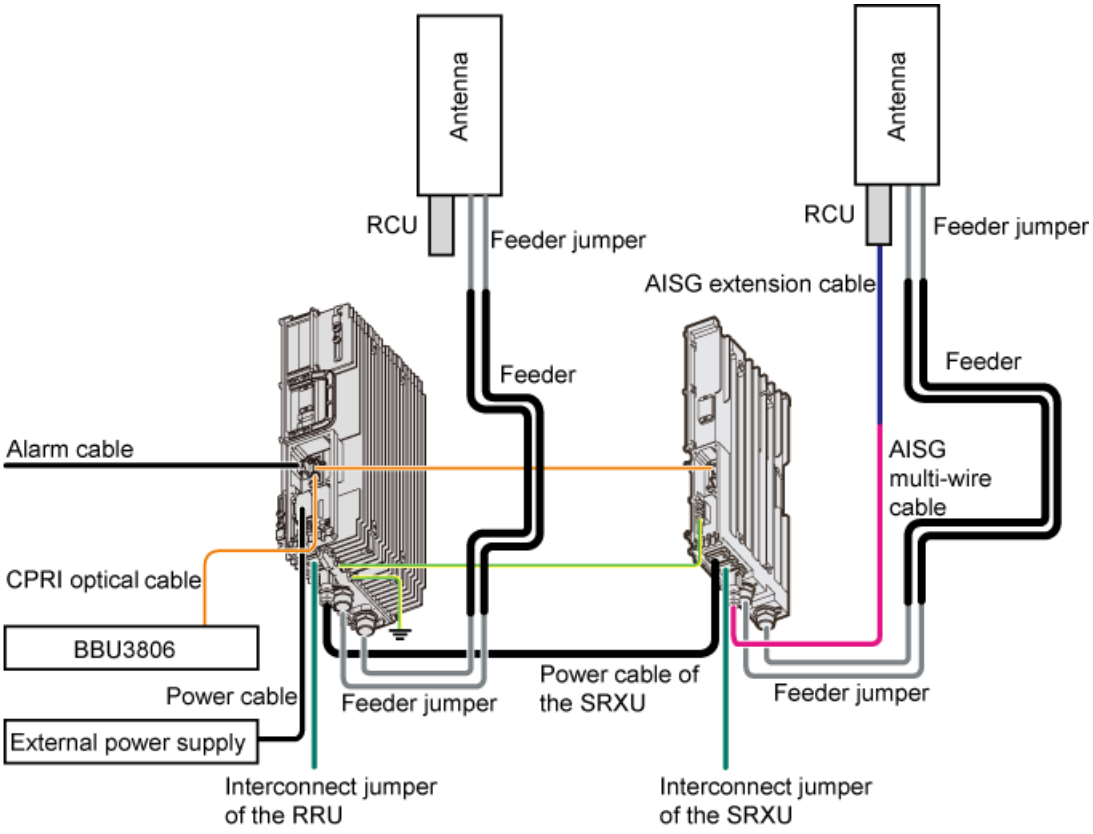
Figure 3-19 Cable connections of one RRU with the SRXU



NOTE

Interconnect jumper is used to implement the interconnection between combined RRUs or between combined SRXUs. The interconnection between the RRU and the SRXU, however, cannot be implemented.

Cable Connections of Multiple RRUs with and Without the SRXUs

Figure 3-20 and **Figure 3-21** show the cable connections of multiple RRUs with and without the SRXUs.

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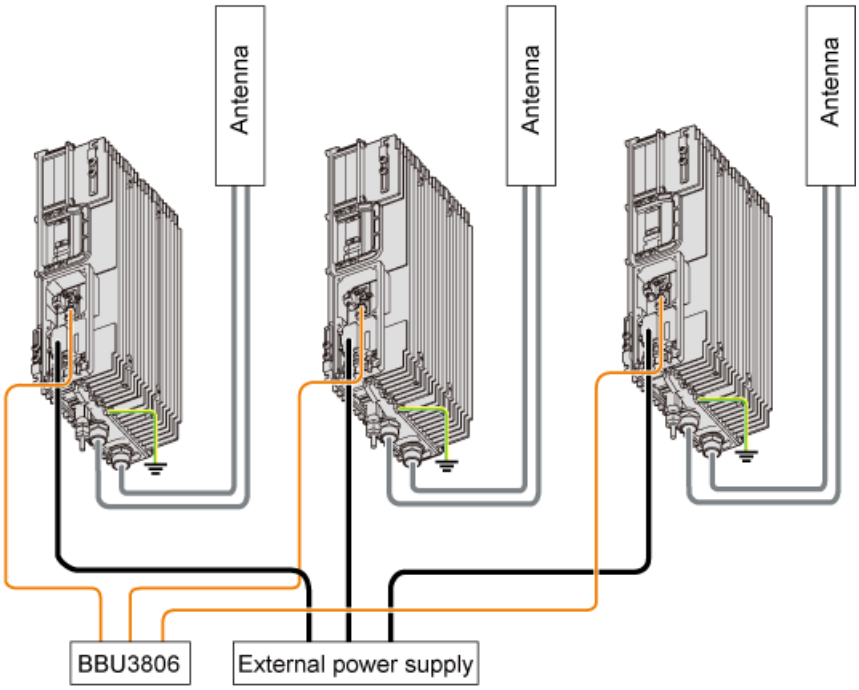
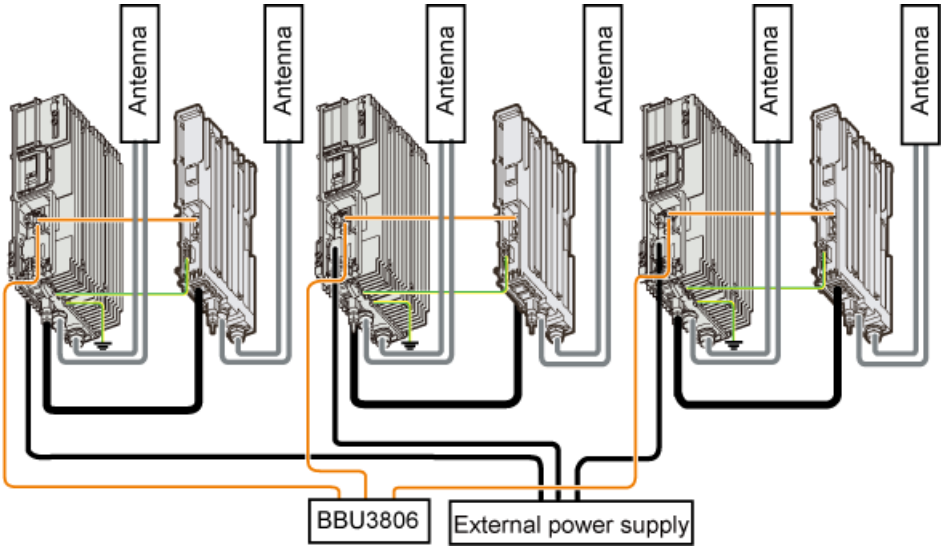
Figure 3-20 Cable connections of multiple RRUs without the SRXUs



NOTE

- The interconnect jumper connects two RRUs and implements the networking in TX diversity mode.

Figure 3-21 Cable connections of multiple RRUs with the SRXUs



NOTE

Interconnect jumper is used to implement the interconnection between combined RRUs or between combined SRXUs. The interconnection between the RRU and the SRXU, however, cannot be implemented.

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3.1.6 Labels for DBS3836 Cables

This presents the types, appearance, and installation of the labels for DBS3836 cables. The labels are attached to the power cable of the BBU3836, power cable of the RRU, E1 cable, CPRI optical cable, and alarm cable.

Labels for the Cables

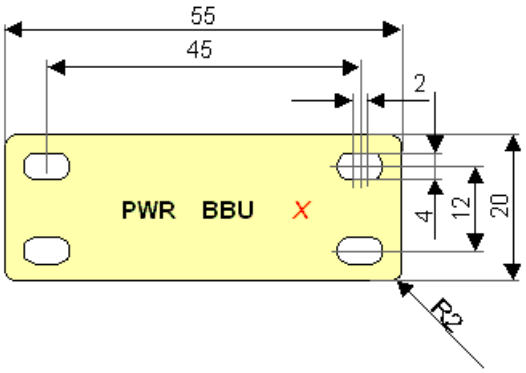
- Label for the BBU power cable

  Quantity of delivered labels: quantity of BBU power cables x 2

  Installation positions of the labels: 3 cm away from each end of the power cable

  Same labels are attached to both ends of the power cable. **X** ranges from 0 to 3, indicating BBU0 through BBU3, as shown in **Figure 3-22**.

  Figure 3-22 Label for the BBU power cable (unit: mm)



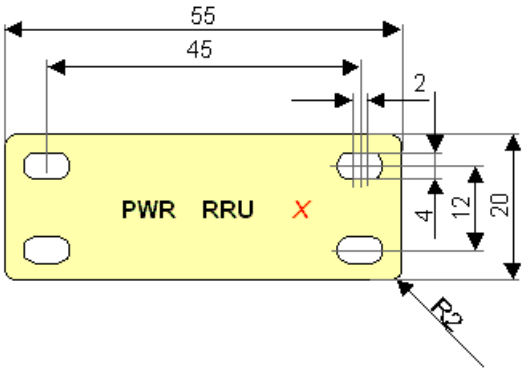
- Label for the RRU power cable

  Quantity of delivered labels: quantity of RRU power cables x 2

  Installation positions of the labels: 3 cm away from each end of the power cable

  Same labels are attached to both ends of the power cable. **X** ranges from 0 to 5, indicating RRU0 through RRU5, as shown in **Figure 3-23**.

  Figure 3-23 Label for the RRU power cable (unit: mm)



- Label for the E1 cable

  Quantity of delivered labels: quantity of E1 cables x 2

  Installation positions of the labels: 3 cm away from each end of the E1 cable

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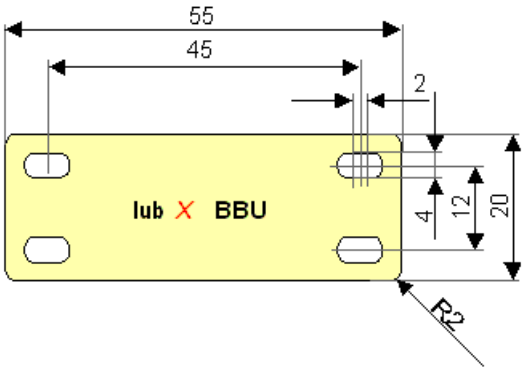
Same labels are attached to both ends of the E1 cable. **X** ranges from 0 to 3, indicating Iub0 through Iub3, as shown in **Figure 3-24**.

Figure 3-24 Label for the E1 cable (unit: mm)



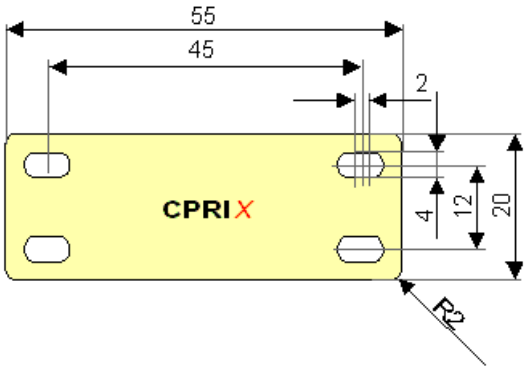
- Label for the CPRI optical cable

  Quantity of delivered labels: quantity of CPRI optical cables x 2

  Installation positions of the labels: 3 cm away from each end of the CPRI optical cable

  Same labels are attached to both ends of the CPRI optical cable. **X** ranges from 0 to 5, indicating the optical ports on the BBU and RRU, as shown in **Figure 3-25**.

Figure 3-25 Label for the CPRI optical cable (unit: mm)



- Label for the alarm cable

  Quantity of delivered labels: quantity of RRU alarm cables x 2

  Installation positions of the labels: near the cable hole where the RRU alarm cable is routed out of the cabling cavity

  A label is attached near the cable hole where the RRU alarm cable is routed out of the cabling cavity. **X** ranges from 0 to 5, indicating RRU0 through RRU5, as shown in **Figure 3-26**.

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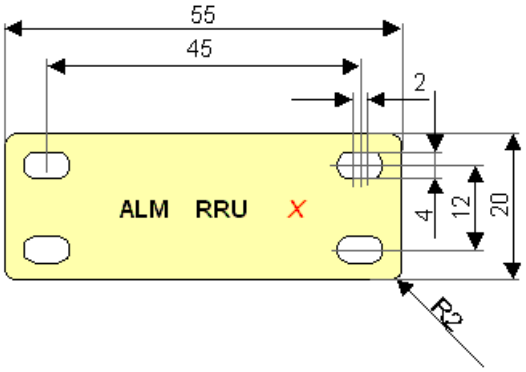
Figure 3-26 Label for the RRU alarm cable (unit: mm)

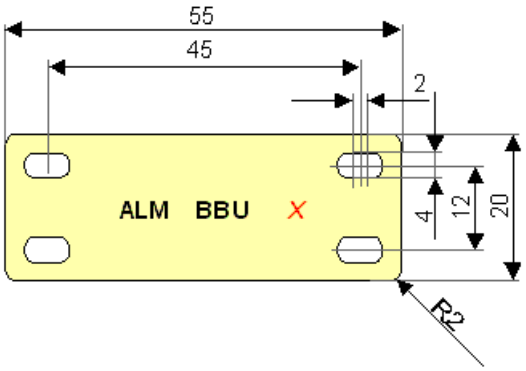


Quantity of delivered labels: quantity of BBU alarm cables x 2

Installation positions of the labels: near the cable hole where the BBU alarm cable is routed out of the cabling cavity

A label is attached near the cable hole where the BBU alarm cable is routed out of the cabling cavity. **X** ranges from 0 to 5, indicating BBU0 through BBU5, as shown in **Figure 3-27**.

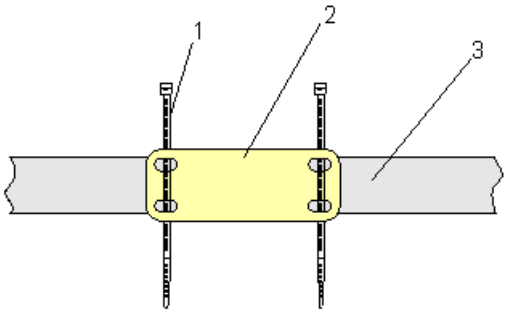
Figure 3-27 Label for the BBU alarm cable (unit: mm)



Attaching a Label to a Cable

1. Lead a cable tie through each pair of holes in the label, as shown in **Figure 3-28**. The cable ties should be led in the same direction for better appearance.

Figure 3-28 Leading cable ties through the holes



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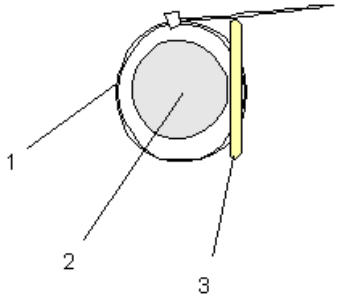
(1) Cable tie	(2) Label	(3) Cable

2. Bind the label to the cable, as shown in **Figure 3-29**. Cut off the surplus part of each cable tie.

Figure 3-29 Binding the label to the cable



(1) Cable tie	(2) Cable	(3) Label

NOTE

Ensure that the labels are arranged in an orderly and neat manner and the cable ties are installed in the same direction. An extra length ranging from 3 mm to 5 mm should be left for each cable tie.

3.2 Procedure for Installing the RRU and SRXU

The procedure for installing the RRU and SRXU varies with the installation scenarios. The procedure involves making preparations, installing the RRU and SRXU, connecting related cables, checking the hardware installation, and installing the housing of the RRU and SRXU.

Context

CAUTION

After the NodeB is installed, it must be powered on within 48 hours.

NOTE

Contact Huawei engineers for confirmation if:

- You choose to prepare the devices, cables, and connectors by yourself.
- You need to shorten the cable of a specified length.

Procedure

Step 1 Unpack the RRU and SRXU, check the items in the package, and prepare tools and instruments.

Step 2 Install the RRU. The installation mode of the RRU varies with the installation scenarios.

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- **3.4 Installing the RRU on the Ground or Rooftop**

If...	Then...
Only one RRU needs to be installed,	Go to **3.4.1 Installing a Single RRU**.
Two RRUs need to be installed,	Go to **3.4.2 Install Two RRUs**.
Three RRUs need to be installed,	Go to **3.4.3 Install Three RRUs**.

- **3.5 Installing the RRU on the Tower**

Step 3 Check whether the SRXU needs to be installed. Perform the next step accordingly.

If...	Then...
The SRXU needs to be installed,	Go to **Step 4**.
The SRXU does not need to be installed,	Go to **Step 5**.

Step 4 Install the SRXU. For details, refer to **3.6 Installing the SRXU**.

Step 5 Install RRU and SRXU cables. For details, refer to **3.7 Installing RRU and SRXU Cables**.

Step 6 Check RRU and SRXU hardware installation. For details, refer to **Checking RRU and SRXU Hardware Installation**.

Step 7 Install the housing of the RRU and SRXU. For details, refer to **3.9 Installing the Housing of the RRU and SRXU**.

----End

3.3 Preparing for the NodeB Installation

This describes how to prepare for the NodeB installation. Before installing the NodeB, you need to unpack the NodeB and prepare necessary tools.

3.3.1 Unpacking Inspection for the NodeB
This describes how to unpack the NodeB and check the integrity of the equipment. This is a prerequisite for the successful installation.

3.3.2 Tools and Instruments for NodeB Installation
This describes the general tools, special tools, and instruments required for the NodeB installation.

3.3.1 Unpacking Inspection for the NodeB

This describes how to unpack the NodeB and check the integrity of the equipment. This is a prerequisite for the successful installation.

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Context

CAUTION

When transporting, moving or installing the equipment, components, or parts, you must:

- Avoid collision with doors, walls, shelves, and other objects.
- Avoid touching the uncoated metal surface of the equipment, components, or parts with sweat soaked or dirty gloves.

Procedure

Step 1 Check the models and the quantity of components inside the packing case according to the packing list.

If…	Then…
The quantity matches with the packing list,	Go to **Step 2**.
The quantity does not match with the packing list,	Find out the cause and contact the local Huawei office.

Step 2 Check whether the packing case is in good condition.

If…	Then…
The packing case is in good condition,	Go to **Step 3**.
The packing case is damaged or soaked,	Find out the cause and contact the local Huawei office.

Step 3 Open the packing case. Check the shipped components according to the *Packing List*, and then perform the next step according to the checking result.

If…	Then…
The shipped components match with the packing list,	Sign the *packing list* with the customer.
There is any short shipment, wrong shipment, or damage to the goods,	Fill in the *Cargo Problems Report*.

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CAUTION

To protect the equipment and find out the cause in the case of goods damage, you must

- Store the unpacked equipment and packing materials indoors.
- Take photos of the storage environment, rusted or corroded devices, and packing cases and materials, and then file the photos.

----End

3.3.2 Tools and Instruments for NodeB Installation

This describes the general tools, special tools, and instruments required for the NodeB installation.

Table 3-1 lists the tools and instruments that need to be prepared before installation.

Table 3-1 Tools and instruments

General tools	Measuring tools	Long tape, 50 mm ribbon tape, 5 m measuring tape, 400 mm level bar, and level instrument
	Marking tools	Marking pen and pencil
	Drilling tools	Percussion drill (with the Φ6, Φ8, Φ10, Φ12, Φ14, and Φ16 bits) and vacuum cleaner
	Clamping tools	Straight screwdrivers (M3-M6) Cross screwdrivers (M3-M6) Adjustable wrench Socket wrenches (M6, M8, M12, M14, M17, and M19) Double offset ring wrenches (M6, M8, M12, M14, M17, and M19) Combination wrench M17 and M19 Long-arm wrench
	Pliers	Sharp-nose pliers, diagonal pliers, pincer pliers, hand-held electric drill, file, handsaw, crowbar, rubber hammer, and claw hammer
	Auxiliary tools	Brush, tweezers, paper knife, bellows, plumb, soldering iron, solder wires, fork, ladder, heat blower, solder absorber, insulating tape, and USB memory
Special tools	Earth resistance tester, ESD wrist strap, a pair of ESD gloves, wire stripper, a clamping pincers, feeder cutter, a pair of crimping pliers for SMB, RJ-45 connector crimping pliers, wire punchdown tool, wire cutter, non-conductive screwdriver, safety knife, stripper for 75-ohm coaxial cables, a pair of connector crimping pliers for 75-ohm coaxial cables, and a pair of multi-purpose crimping pliers	

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Instruments	Multimeter, 500 V megohmmeter (for testing insulation resistance), BER tester, and optical power meter

NOTE

The instruments must be checked and certified before put into use.

3.4 Installing the RRU on the Ground or Rooftop

When the RRU needs to be installed on the ground or rooftop, it supports one-module, two-module centralized, and three-module centralized installation modes.

3.4.1 Installing a Single RRU
This describes how to install a single RRU module and its mounting plate. The single RRU can be installed on a metal pole or wall.

3.4.1 Installing a Single RRU

This describes how to install a single RRU module and its mounting plate. The single RRU can be installed on a metal pole or wall.

Procedure

Step 1 Install the mounting plate of the RRU. The operation varies with the installation mode.

If...	Then...
The RRU needs to be installed on a metal pole,	Go to **3.4.1.1 Installing the Mounting Plates of the Single RRU on the Metal Pole**.
The RRU needs to be installed on a wall,	Go to **3.4.1.2 Installing the Mounting Plate of the Single RRU on the Wall**.

Step 2 Perform the operations in **3.4.1.3 Installing the Single RRU Module**.

----End

Installing the Mounting Plates of the Single RRU on the Metal Pole

This describes how to install the mounting plates on the metal pole.

Prerequisite

The metal pole is ready and the pole diameter is between 60 mm and 114 mm.

Procedure

Step 1 Determine the position of the mounting plate by referring to the engineering design and **3.1.2 Space Requirements of the RRU and SRXU**.

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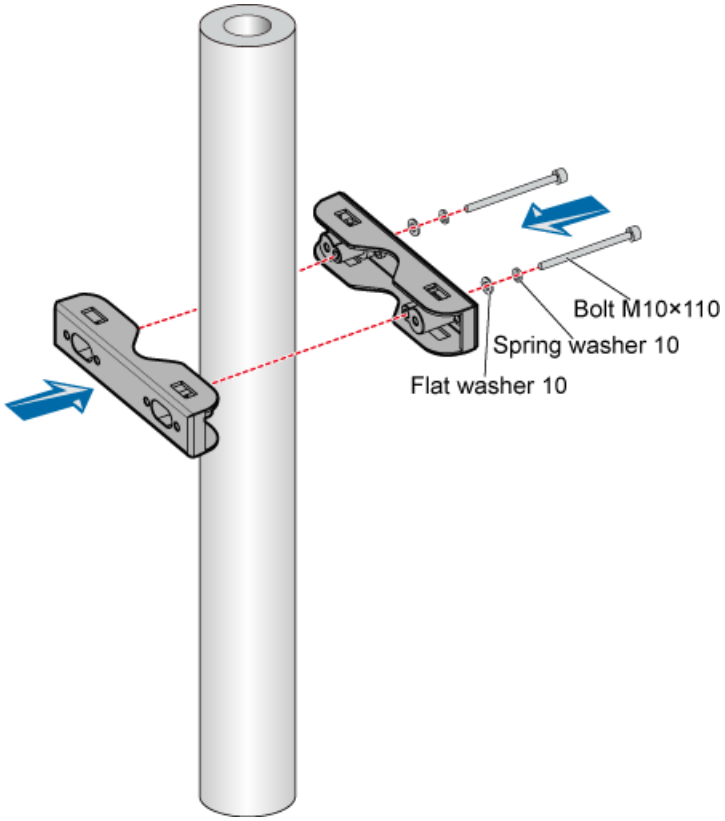
NOTE

It is recommended that the upper fixture assembly be 1,200 mm to 1,600 mm above the ground.

Step 2 Mount the upper fixture assembly on the metal pole. Ensure that the four ends of the fixture assembly are on the same plane, as shown in **Figure 3-30**.

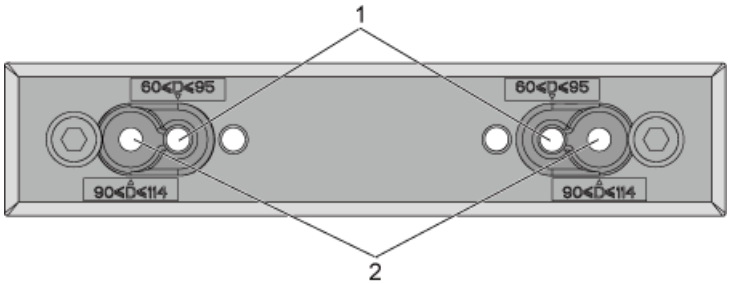
Figure 3-30 Mounting the upper fixture assembly



NOTE

Two pairs of holes can be used for mounting the fixture assembly, as shown in **Figure 3-31**. If the 60-95 mm bolts are used, use pair 1. If the 90-114 mm bolts are used, use pair 2.

Figure 3-31 Holes in the fixture assembly



Step 3 Use the level bar to check whether the four ends of the fixture assembly are on the same plane. Use the tape measure to check whether the two pole fixtures are parallel.

NOTE

If the difference between L1 and L2, as shown in **Figure 3-32**, is beyond ±1 mm, the two pole fixtures are not parallel.

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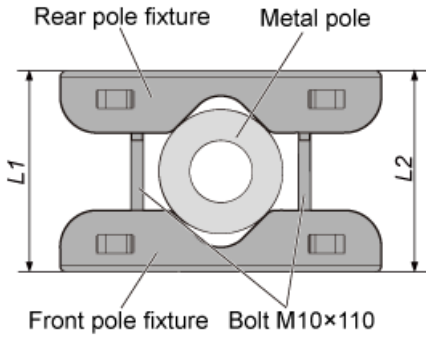
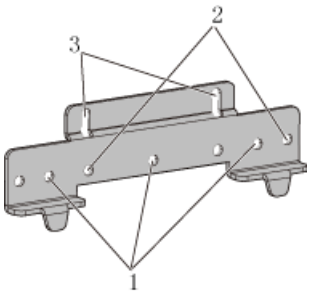
Figure 3-32 Measuring L1 and L2



If...	Then...
The pole fixtures are neither horizontal nor parallel,	Go to **Step 2** to adjust the fixture assembly.
The pole fixtures are horizontal and parallel,	Go to **Step 4**.

Step 4 Use the holes numbered 1 in **Figure 3-33**.

Figure 3-33 Holes in the multi-purpose attachment plate



Step 5 Use three screws M6 x 20 to secure the multi-purpose attachment plate to the mounting plate, as shown in **Figure 3-34**.

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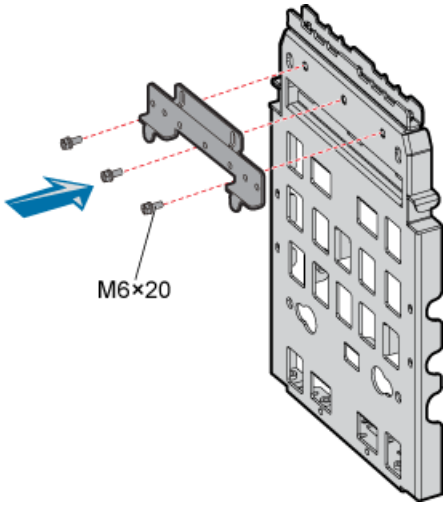
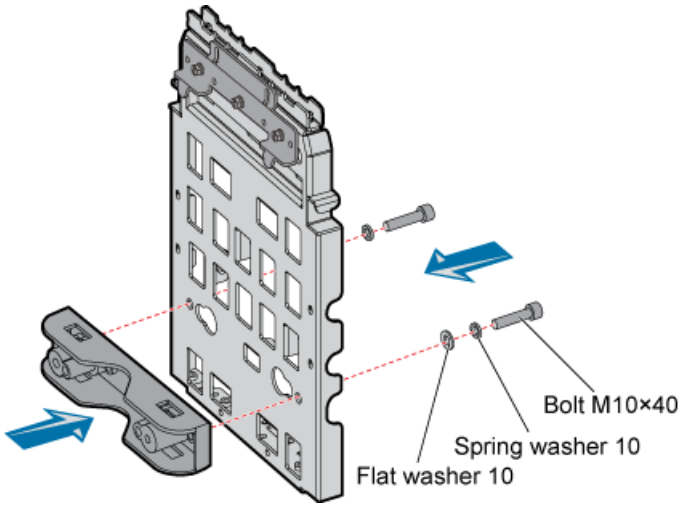
Figure 3-34 Securing the multi-purpose attachment plate to the mounting plate



Step 6 Install the third pole fixture on the mounting plate at the lower part of its back by tightening two bolts M10 x 40, as shown in **Figure 3-35**.

Figure 3-35 Installing the third pole fixture



Step 7 Install the mounting plate by fitting the tabs on the mounting plate into the anchor slots in the pole fixture, as shown in **Figure 3-36**.

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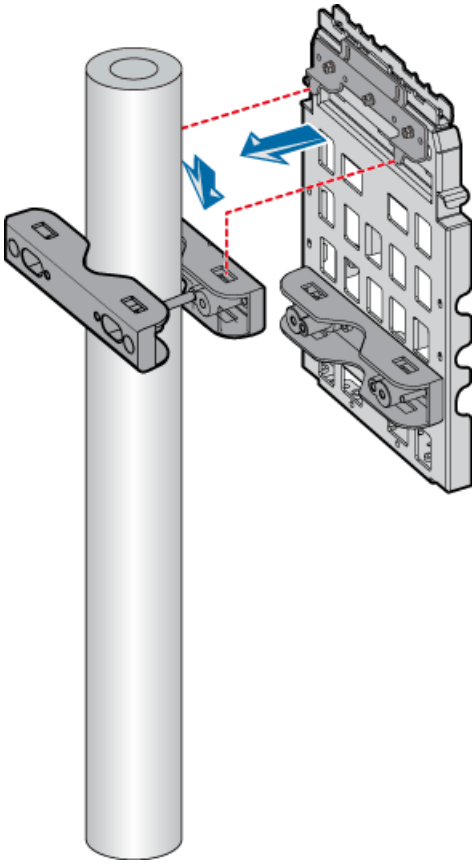
Figure 3-36 Installing the mounting plate



Step 8 Mount the fourth pole fixture to the metal pole by tightening two bolts M10 x 110 between the third and the fourth pole fixtures, as shown in **Figure 3-37**.

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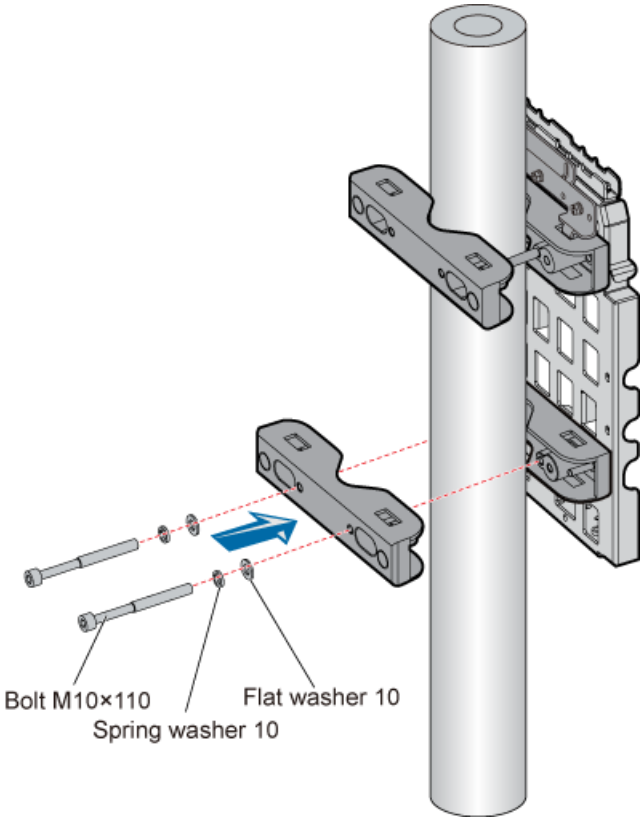
Figure 3-37 Mounting the lower fixture assembly



NOTE

Two pairs of holes can be used for mounting the fixture assembly, as shown in **Figure 3-31**. If the 60-95 mm bolts are used, use pair 1. If the 90-114 mm bolts are used, use pair 2.

----End

Installing the Mounting Plate of the Single RRU on the Wall

This describes how to install the mounting plate on the wall.

Procedure

Step 1 Determine the position of the mounting plate.

1. Determine the position of the mounting plate by referring to the engineering design and **3.1.2 Space Requirements of the RRU and SRXU**. **Figure 3-38** shows the installed expansion bolt assemblies and the RRU.

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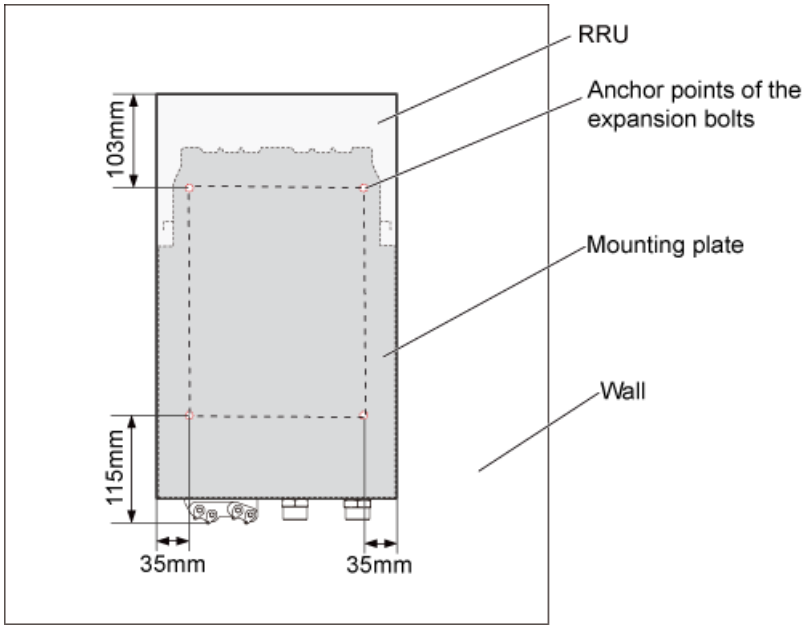
Figure 3-38 Installed expansion bolt assemblies and the RRU

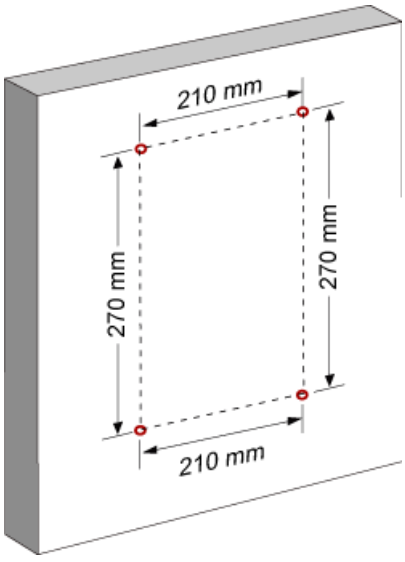


NOTE

It is recommended that the bottom of the mounting plate be 1,200 mm to 1,600 mm above the ground.

2. Place the mounting plate against the wall, and then use the marking pen to mark the four anchor points. You can also mark four points according to the inter-hole distance, as shown in **Figure 3-39**.

Figure 3-39 Determining the anchor points



Step 2 Drill a hole at each anchor point and install the expansion bolt assembly, as shown in **Figure 3-40**.

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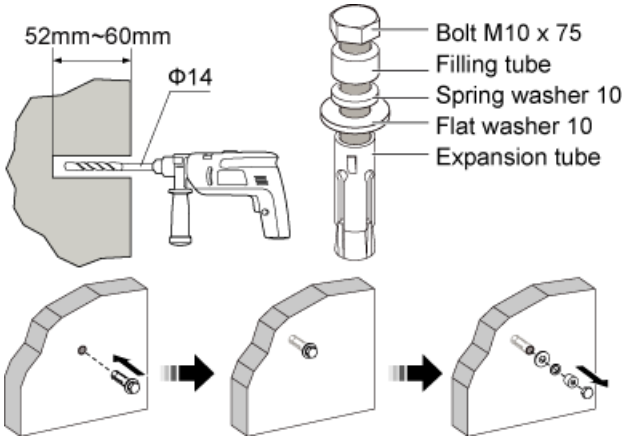
Figure 3-40 Drilling a hole and installing the expansion bolt assembly



1. Use the percussion drill with a Φ14 bit to drill four holes at the anchor points.

CAUTION

Protect yourself when drilling holes in the wall. Flying dust may hurt your eyes or you may inhale the dust.

NOTE

The drilled holes must be 52 mm to 60 mm deep.

2. After the holes are drilled, use the cleaner to clean the dust both inside and around the holes. If the inter-hole distance is too long or too short, locate and drill holes again.
3. Screw the expansion bolt slightly and put it into the hole. Hammer the assembly until the expansion tube is completely buried into the hole.
4. Remove the bolt M10 x 75, filling tube, spring washer 10, and flat washer 10 in turn.

CAUTION

After disassembling the expansion bolt assembly, ensure that the top of the expansion tube is completely buried into the wall. If it is not completely buried, the mounting plate cannot be steady on the wall.

Step 3 Secure the mounting plate, as shown in **Figure 3-41**.

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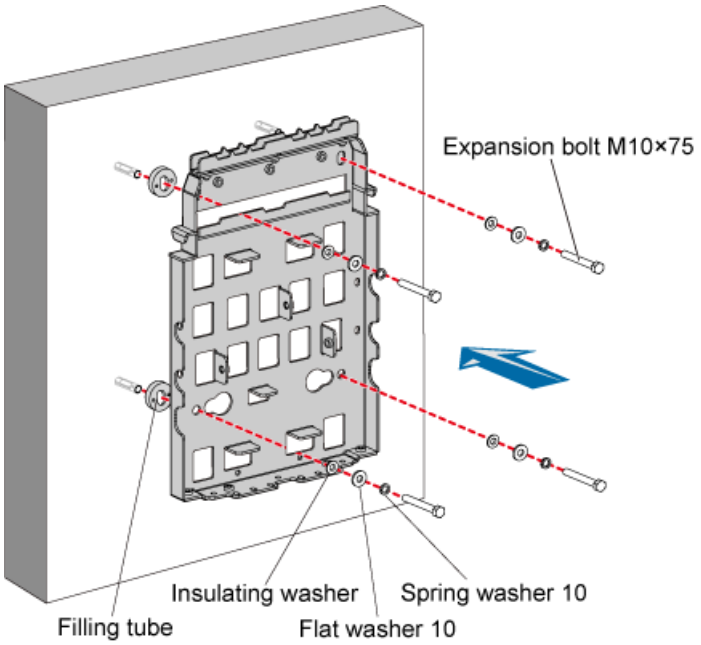
Figure 3-41 Securing the mounting plate



1. Place the mounting plate against the wall, and then align the mounting plate with the four marked anchor points.
2. Lead each bolt M10 x 75 through the spring washer 10, flat washer 10, and insulating washer in turn. Then, lead each assembled bolt through the hole in the mounting plate, insulating block, and finally into the expansion tube through the hole in the wall.

CAUTION

When installing the bolt, remove the filling tube, and then use the insulating washer and insulating block that are delivered with the mounting plate, as shown in **Figure 3-42**.

Figure 3-42 Filling tube, insulating washer, and insulating block

3. Use the wrench to fix the mounting plate to the wall by tightening the bolts clockwise.

----End

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Installing the Single RRU Module

This describes how to install the RRU module on a metal pole. Regardless of whether the mounting plate is installed on a metal pole or on a wall, the procedures for installing the module are the same.

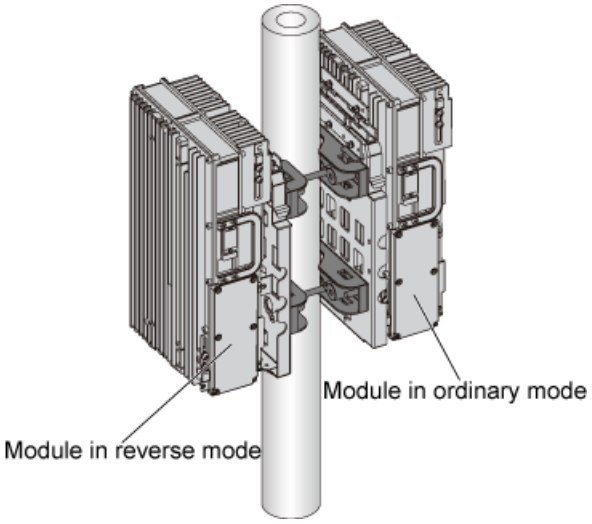
Prerequisite

- The RRU mounting plate is installed.
- If the RRU needs to be installed on a metal pole, the metal pole is already grounded.

Context

The RRU module can be installed in either ordinary mode or reverse mode. In reverse mode, the front of the RRU is fixed to the mounting plate. **Figure 3-43** shows two RRUs with one in ordinary mode and the other in reverse mode.

Figure 3-43 One RRU in ordinary mode and the other in reverse mode



NOTE

- Before delivery, the plastic housing of the RRU is already fixed to the module. The previous figure omits the plastic housing for a better illustration of ordinary and reverse modes.
- Before delivery, the plastic housing of the RRU is fixed in the assumption that the RRU needs to be installed in ordinary mode. If you want to install the RRU in reverse mode, remove the plastic housing first. For detailed procedure, refer to **3.4.2.3 Installing the Two RRU Modules**.

Procedure

Step 1 Use two screws M6 x 20 to secure the attachment plate to the module, as shown in **Figure 3-44**.

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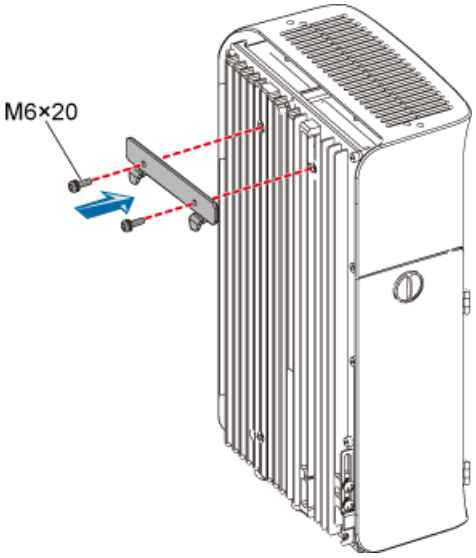
Figure 3-44 Securing the attachment plate



CAUTION

When installing the attachment plate, protect the plastic housing from being scratched.

- If you find that the plastic housing is put face down when unpacking the RRU, install the attachment plate before taking out the RRU.
- If you find that the plastic housing is put face up, lay cardboards or packing bags on the ground. Then, take out the RRU and install the attachment plate.

Step 2 Fit the tabs on the attachment plate into the anchor slots of the mounting plate, as shown in **Figure 3-45**.

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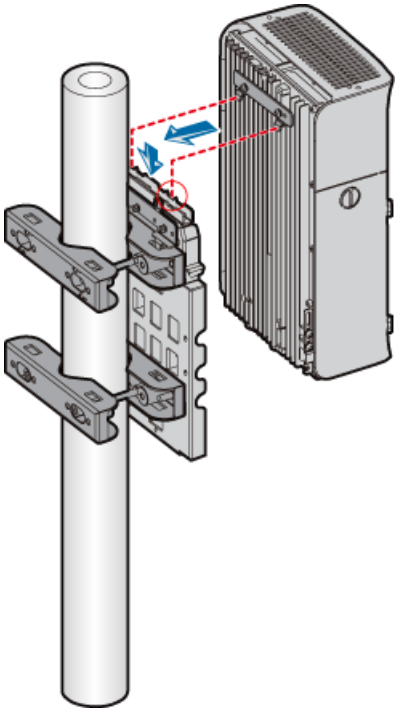
Figure 3-45 Installing the module



CAUTION

The tabs on the attachment plate must be fitted into the middle pair of anchor slots in the mounting plate.

Step 3 Lead two screws M6 x 20 through the holes in the bottom of the module. Then, secure the module to the mounting plate, as shown in **Figure 3-46**.

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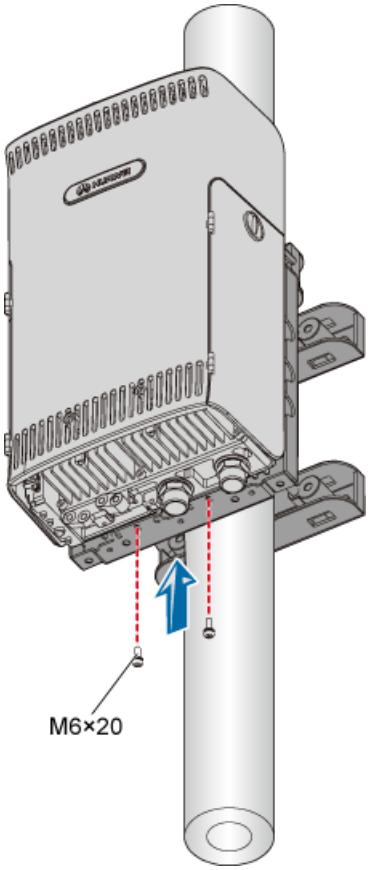
Figure 3-46 Securing the module



----End

3.4.2 Install Two RRUs

This describes how to install two RRU modules and their mounting plates. The two RRUs can be installed on a metal pole or wall.

Procedure

Step 1 Install the mounting plate of the RRU. The operation varies with the installation mode.

If...	Then...
The RRU needs to be installed on a metal pole,	Go to **3.4.2.1 Installing the Mounting Plates of the Two RRUs on the Metal Pole**.
The RRU needs to be installed on a wall,	Go to **3.4.2.2 Installing the Mounting Plates of the Two RRUs on the Wall**.

Step 2 Install the two RRU modules. For details, refer to **3.4.2.3 Installing the Two RRU Modules**.

----End

3.4.2.1 Installing the Mounting Plates of the Two RRUs on the Metal Pole
This describes how to install the mounting plates on the metal pole.

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