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# 1 RRU3606 User Guide

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## About This Chapter

### Purpose

This describes hardware configuration, software installation, and routine maintenance of the RRU3606.

### Related Versions

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

Product Name	Related Versions
RRU3606	V400R006

### Intended Audience

This document is intended for:

- Field engineers
- System engineers

### Change History

Version	Record
01 (2008-02-25)	Initial release.

### Organization

[1.1 Safety Information](#)

[1.2 Hardware Configuration of the RRU3606](#)

This describes the configuration of equipment and cables of the RRU3606.

### [1.3 Installing Hardware for the RRU3606](#)

This describes the hardware installation, cable distribution, and installation checklist for the RRU3606.

### [1.4 Maintaining the RRU3606](#)

This describes how to maintain the RRU3606.

## 1.1 Safety Information

### 1.1.1 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.

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#### **CAUTION**

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

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#### **NOTE**

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

### 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.

## 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.

## 1.1.2 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.

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### 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.

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- 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.

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## 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).

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

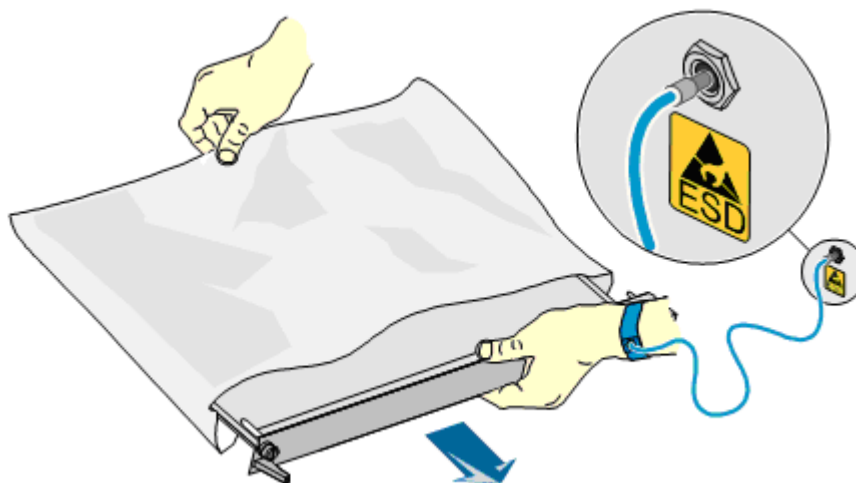
- Movement of body parts
- Clothes friction
- Friction between shoes and the ground
- Holding plastic in hand

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 1-1](#) shows how to wear an ESD wrist strap.



**Figure 1-1** Wearing an ESD wrist strap

## 1.1.3 Inflammable Environment



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.

## 1.1.4 Battery

### Storage Battery



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.

## 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.

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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.

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

## Acid



### CAUTION

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

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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):  $\text{NaHCO}_3$
- Sodium carbonate (soda):  $\text{Na}_2\text{CO}_3$

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

## Lithium Battery



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

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- 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.

## 1.1.5 Radiation

### Electromagnetic Field Exposure



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

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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.
- 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.

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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.

## 1.1.6 Working at Heights



### CAUTION

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

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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



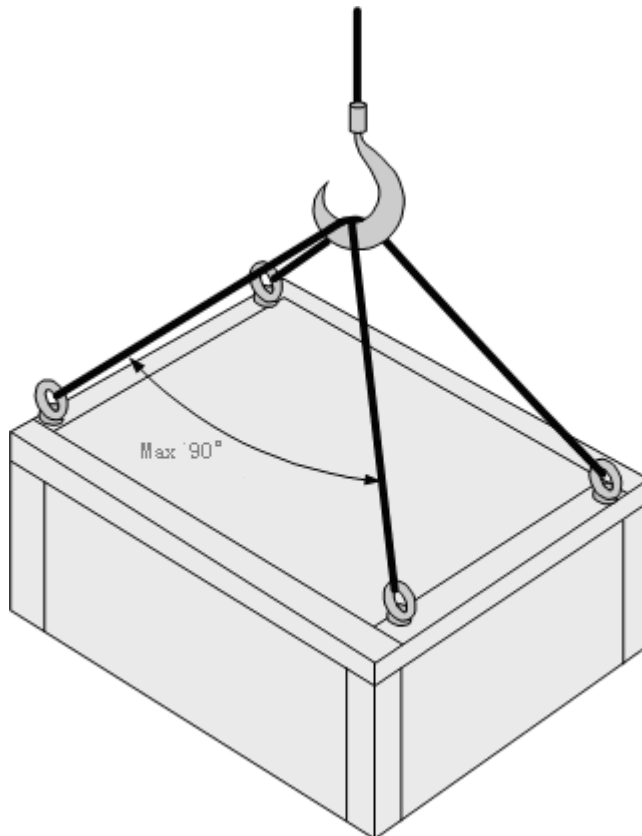
### CAUTION

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

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- 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  $90^\circ$  in the lifting of weights (See [Figure 1-2](#)).

**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

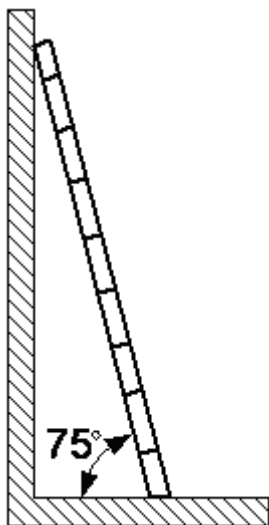
- The slant angle is preferred to be 75°. The slant can be measured with the angle square or with arms, as shown in **Figure 1-3**. When using a ladder, place the wider end of the ladder on the ground and take protective measures on the base of the ladder against slippage. Place the ladder on a stable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

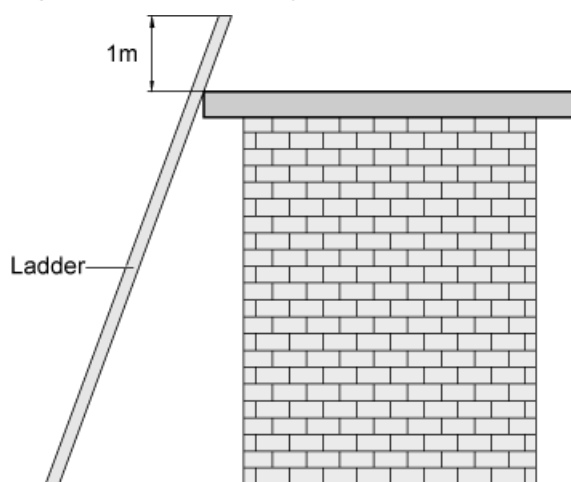
When climbing the ladder, ensure the following:

- 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**.

**Figure 1-3** Slant angle



**Figure 1-4** One meter higher than the eave

## 1.1.7 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.
- 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.

## 1.1.8 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.

- 
- 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.

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## 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.

## 1.2 Hardware Configuration of the RRU3606

This describes the configuration of equipment and cables of the RRU3606.

### 1.2.1 RRU3606

The RRU3606 transmits and receives radio signals to realize the communication between the wireless network and the MSs.

#### 1.2.2 RRU3606 Cables

This describes the PGND cable, power cable, CPRI optical cable, and alarm cable of the RRU3606.

### 1.2.1 RRU3606

The RRU3606 transmits and receives radio signals to realize the communication between the wireless network and the MSs.

The functions of the RRU3606 are described as follows:

- The RRU3606 receives RF signals from the antenna system, down-converts the signals to IF signals, and then transmits them to the BBU3900 or the macro BTS after amplification, analog-to-digital conversion, digital down-conversion, and matched filtering.
- The RRU3606 receives downlink baseband signals from the BBU3900 or the macro BTS, forwards data from its cascaded RRU3606, performs filtering and data conversion, and up-converts RF signals to meet the transmitting frequency requirements.
- The RRU3606 multiplexes RX and TX signals over RF channels, enabling the RX signals and TX signals to share the same antenna path. In addition, the RRU3606 filters the RX signals and TX signals.

#### 1.2.1.1 Appearance of the RRU3606

This describes the dimensions and appearance of the RRU3606.

#### 1.2.1.2 Panels of the RRU3606

The RRU3606 has a bottom panel, cabling cavity panel, and indicator panel.

#### 1.2.1.3 Physical Ports of the RRU3606

The physical ports of the RRU3606 are power supply ports, transmission ports, grounding ports, and RF ports.

#### 1.2.1.4 Technical Specifications of the RRU3606

This describes the technical specifications of the RRU3606.

## Appearance of the RRU3606

This describes the dimensions and appearance of the RRU3606.

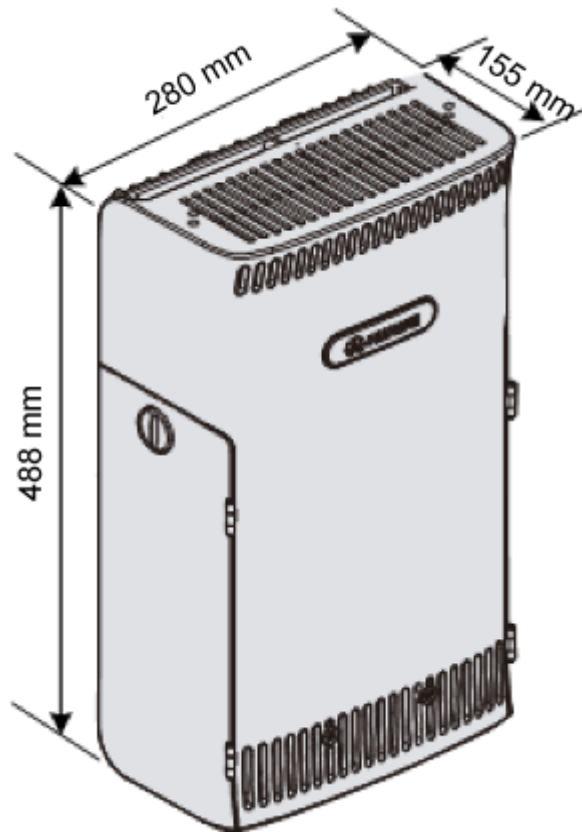
The dimensions of the RRU3606 are as follows:

- Height x Width x Depth (without the housing) = 480 mm [18.90 in.] x 270 mm [10.63 in.] x 140 mm [5.51 in.]
- Height x Width x Depth (with the housing) = 488 mm [19.21 in.] x 280 mm [11.02 in.] x 155 mm [6.10 in.]

The RRU3606 features a modular structure with its ports at the bottom of the RRU3606 and on the cabling cavity. [Figure 1-5](#) and [Figure 1-6](#) shows the appearance of the RRU3606.

**Figure 1-5** Appearance of the RRU3606 (without the housing)

**Figure 1-6** Appearance of the RRU3606 (with the housing)



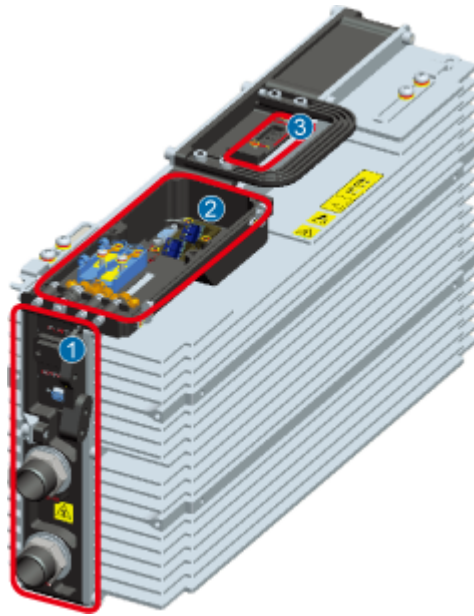
## Panels of the RRU3606

The RRU3606 has a bottom panel, cabling cavity panel, and indicator panel.

## Position of Panels of the RRU3606

[Figure 1-7](#) shows the panels of the RRU3606.

**Figure 1-7** Position of panels of the RRU3606



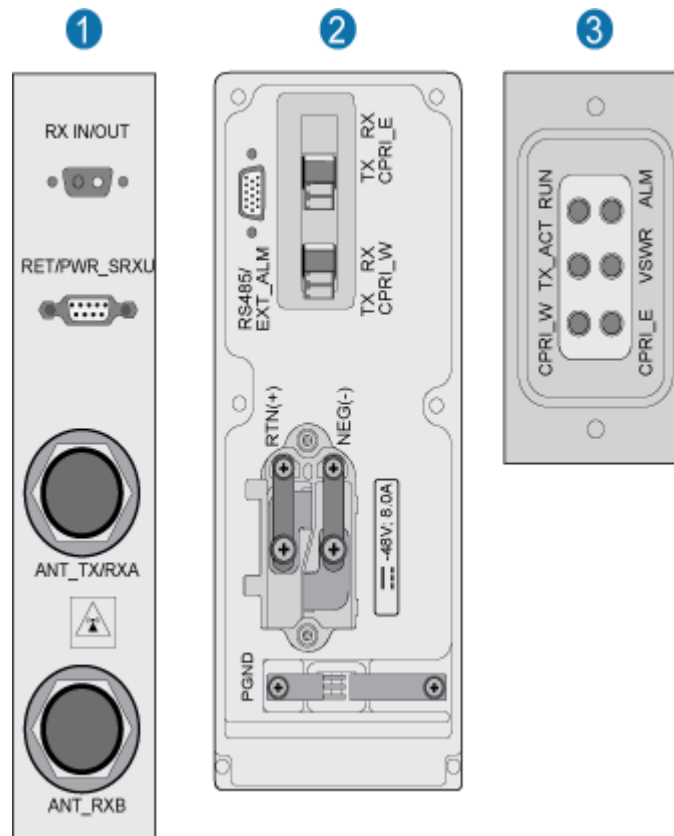
(1) Bottom

(2) Cabling cavity

(3) Indicator

**Figure 1-8** shows the panels of the RRU3606.

**Figure 1-8** Panels of the RRU3606



## Indicators

**Table 1-1** lists the indicators on the RRU3606 panel.

**Table 1-1** Indicators on the RRU3606 panel

Mark	Color	Status	Description
RUN	Green	ON	The power input is normal, but the board is faulty.
		OFF	There is no power input, or alarms are generated.
		ON for 1s and OFF for 1s	The board operates normally.
		ON for 0.5s and OFF for 0.5s	Software is being loaded.
ALM	Red	ON	Fatal alarms
		Blinking at 0.5 Hz	Minor alarms
		OFF	No alarm is generated.
TX_ACT	Green	ON	The board operates normally.
		OFF	
VSWR	Red	ON	Standing wave alarms are generated.
		OFF	No standing wave alarm is generated.
CPRI_W	Red/green	ON (green)	The CPRI link is normal.
		ON (red)	The optical module receives exceptional alarms, that is, local alarms related to the Loss of Signal (LOS).
		ON for 0.5s and OFF for 0.5s (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 exceptional alarms, that is, local alarms related to the Loss of Signal (LOS).
		ON for 0.5s and OFF for 0.5s (red)	The CPRI link is out of lock.

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

## Ports

**Table 1-2** lists the ports on the RRU3606 panel.

**Table 1-2** Ports on the RRU3606 panel

Item	Label on the Front Panel	Description
Ports at the bottom	RX_IN/OUT	Reserved port
	RET/PWR_SRXU	Reserved port
	ANT_TX/RXA	Main RF transmitting/receiving port
	ANT_RXB	Diversity RF receiving port
Ports on the cabling cavity	RS485/EXT_ALM	Alarms port
	CPRI_E	CPRI ports
	CPRI_W	
	RTN(+)	Power supply ports
	NEG(-)	
	PGND	PGND crimp piece

## Physical Ports of the RRU3606

The physical ports of the RRU3606 are power supply ports, transmission ports, grounding ports, and RF ports.

**Table 1-3** lists the physical ports of the RRU3606.

**Table 1-3** Physical ports of the RRU3606

Type	Port	Description	Quantity	Connector Type
Power supply ports	RTN(+)	-48 V DC power supply	1	OT terminal
	NEG(-)			
Transmission ports	CPRI_E	CPRI ports	1	ESFP socket
	CPRI_W	CPRI ports	1	ESFP socket

Type	Port	Description	Quantity	Connector Type
Alarms port	RS485/ EXT_ALM	RS485 x1 signal port	1	DB15
Grounding port	-	-	4	-
RF port	ANT_TX/RXA	Main transmitting/receiving port	1	Round and waterproof DIN connector
	ANT_RXB	Diversity receiving port	1	Round and waterproof DIN connector
Reserved port	RX_IN/OUT	Reserved	-	-
	RET/ PWR_SRXU	Reserved	-	-

 **NOTE**

The specifications for the RRU3606 alarm port are: 0.2 kohm for the closed resistance; 51 kohms for the open resistance.

## Technical Specifications of the RRU3606

This describes the technical specifications of the RRU3606.

**Table 1-4** lists the specifications of the RRU3606.

**Table 1-4** Technical specifications of the RRU3606

Item	Specification
Voltage	-48 V (-37 V DC to -60 V DC)
Power consumption	≤ 300 W
Weight	The weight of the RRU3606 and housing is no more than 17.5 kg [38.58 lb.].
Cabinet dimensions (height x width x depth)	Height x Width x Depth (with the housing): 488 mm [19.21 in.] x 280 mm [11.02 in.] x 155 mm [6.10 in.]

## 1.2.2 RRU3606 Cables

This describes the PGND cable, power cable, CPRI optical cable, and alarm cable of the RRU3606.

### 1.2.2.1 PGND Cable of the RRU3606

The PGND cable ensures the grounding of the RRU3606.



### 1.2.2.2 Power Cable of the RRU3606

This describes the power cable of the RRU3606. The -48 V DC power cable feeds external -48 V DC power to the RRU3606 to provide power supply for the RRU3606.

### 1.2.2.3 RRU3606 Optical Fibers

RRU3606 optical fibers are used for the connection between the BBU3900 and the RRU3606.

### 1.2.2.4 Alarm Cable of the RRU3606

The alarm cable leads one RS485 alarm signal from external devices to the RRU3606, thus monitoring the external devices.

## PGND Cable of the RRU3606

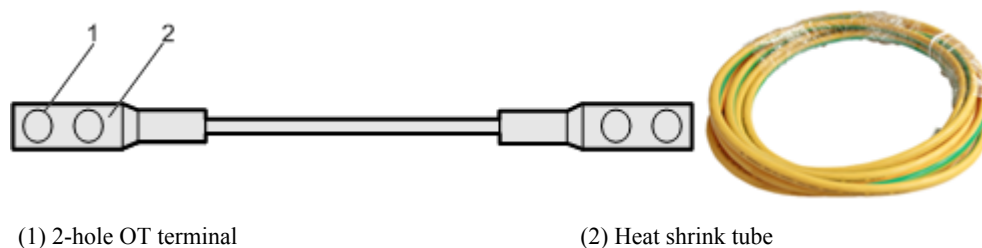
The PGND cable ensures the grounding of the RRU3606.

### Structure

The green and yellow PGND cable has a cross-sectional area of 16 mm<sup>2</sup> [0.02 in.<sup>2</sup>]. Both ends of the cable are 2-hole OT terminals. If the PGND cable is provided by the customer, a copper-core cable with a minimum cross-sectional area of 16 mm<sup>2</sup> [0.02 in.<sup>2</sup>] is recommended.

**Figure 1-9** shows the structure of the PGND cable.

**Figure 1-9** Structure of the PGND cable



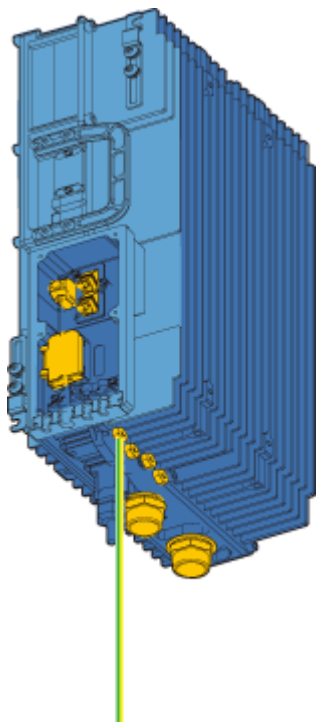
#### NOTE

- The OT terminals of the grounding cable are made on site.
- The color of the PGND cable is selected according to the local specifications.

## Position of the Cable

For the PGND cable of the RRU3606, one end is connected to the grounding hole on the RRU3606, and the other end is connected to the ground nearby. **Figure 1-10** shows the connections of the PGND cables.

**Figure 1-10** Installation position of the PGND cable



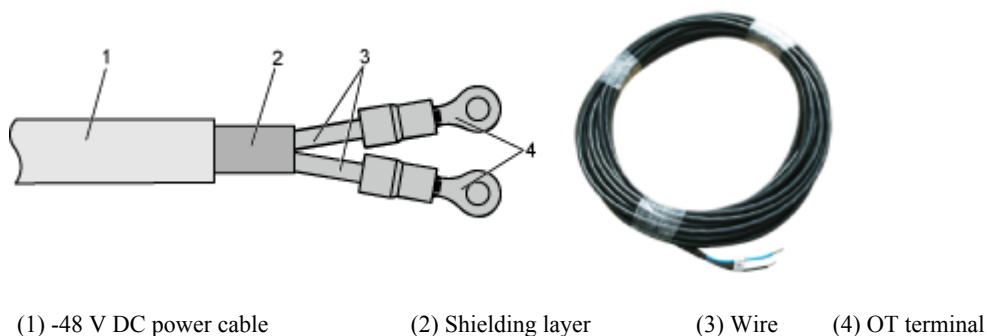
## Power Cable of the RRU3606

This describes the power cable of the RRU3606. The -48 V DC power cable feeds external -48 V DC power to the RRU3606 to provide power supply for the RRU3606.

## Structure

The RRU3606 uses the -48 V DC shielded power cable. One end of the cable has two OT terminals, and the other end is bare. [Figure 1-11](#) shows the power cable of the RRU3606.

**Figure 1-11** Structure of the -48 V DC power cable



## Cable Specifications

The -48 V DC cable is a 2-wire cable, as shown in [Table 1-5](#) and [Table 1-6](#).

**Table 1-5** Pin assignment of the -48 V DC power cable (standard in North America)

Name	Color
NEG cable	Blue
RTN cable	Black

**Table 1-6** Pin assignment of the -48 V DC power cable (standard in Europe)

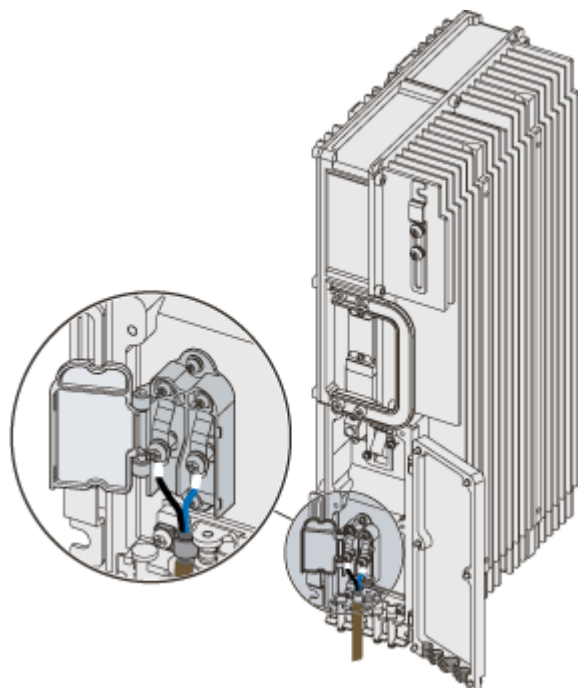
Name	Color
NEG cable	Blue
RTN cable	Brown

## Position of the Cable

Connect the OT terminal of the blue wire of the -48 V DC power cable to the NEG (-) port on the RRU3606 cabling cavity, and connect the black or brown wire to the RTN (+) port of the RRU3606.

Connect the other end of the -48 V DC power cable to the power supply system at the installation site.

**Figure 1-12** shows the installation position of the power cable on the RRU3606 side.

**Figure 1-12** Installation of the power cable on the RRU3606 side

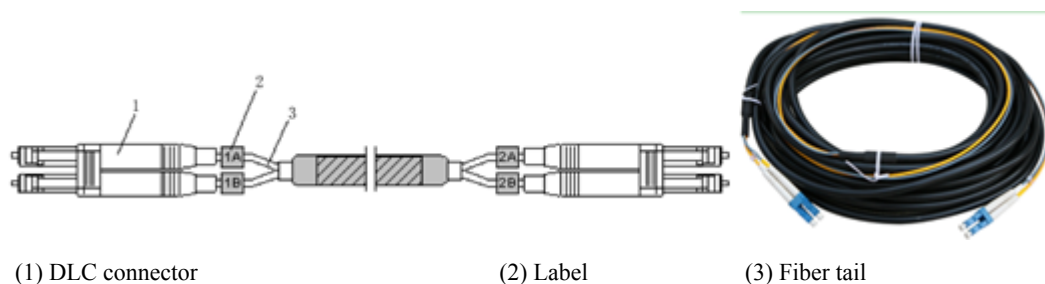
## RRU3606 Optical Fibers

RRU3606 optical fibers are used for the connection between the BBU3900 and the RRU3606.

### Structure

The CPRI optical cable is a multi-mode 2-wire cable with LC connectors at both ends. [Figure 1-13](#) shows the CPRT optical fiber.

**Figure 1-13** Structure of the CPRI optical fiber



(1) DLC connector

(2) Label

(3) Fiber tail

### Cable

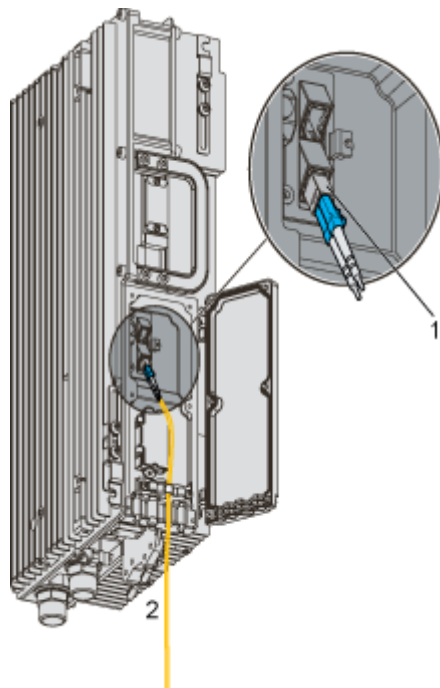
[Table 1-7](#) describes the pin assignment for the fiber tails.

**Table 1-7** Pin assignment for the fiber tails

Label	Color	Connection Position
1A	Orange	RX port on the RRU3606
1B	Gray	TX port on the RRU3606
2A	Orange	TX port on the BBU3900
2B	Gray	RX port on the BBU3900

### Position of the Cable

One end of the CPRI optical fiber is connected to the SFP port of the BBU3900 or to the ODF, and the other end is connected to the CPRI optical port of the RRU3606. [Figure 1-14](#) shows the installation position of the CPRI optical fiber on the RRU3606 side.

**Figure 1-14** Structure of the CPRI optical cable

(1) Pluggable optical modules

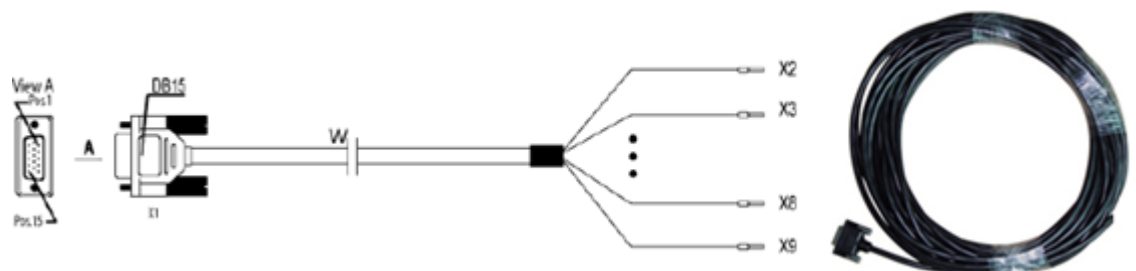
(2) To the BBU3900 or the ODF

## Alarm Cable of the RRU3606

The alarm cable leads one RS485 alarm signal from external devices to the RRU3606, thus monitoring the external devices.

### Structure

One end of the alarm cable is a DB15 female connector, and the other end has 8 cord end terminals, as shown in [Figure 1-15](#).

**Figure 1-15** Structure of the alarm cable of the RRU3606

#### NOTE

If the connector of the alarm cable and the port of the alarm device do not match, remove the cord end terminals. Prepare the connector on site based on the port type of the alarm device.

## Cable

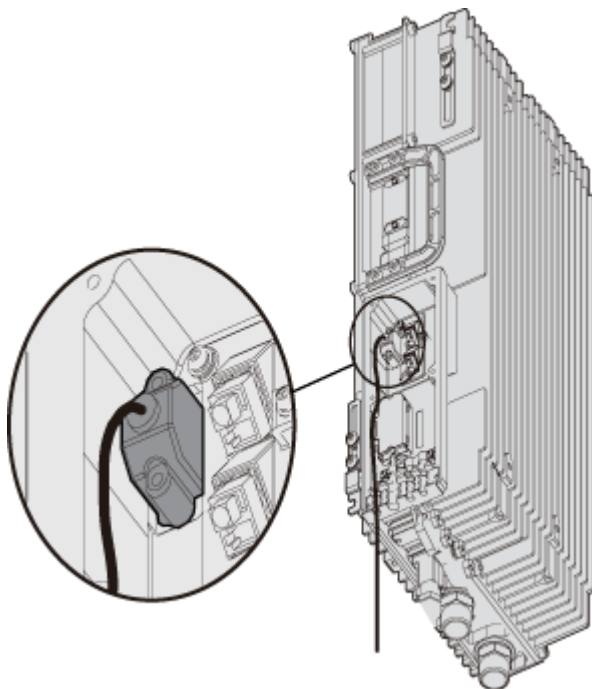
The alarm cable supports one RS485 alarm signal. [Table 1-8](#) lists the pin assignment for the wires of the RRU3606.

**Table 1-8** Alarm cable of the RRU3606

X1 Pin	Cord End Terminal	Wire Color	Wire Type	Label
X1.2	X2	White/blue	Twisted pair cable	SWITCH_INP UT0+
X1.3	X3	Blue		GND
X1.6	X4	White/orange	Twisted pair cable	SWITCH_INP UT1+
X1.7	X5	Orange		GND
X1.10	X6	White/green	Twisted pair cable	RS485_TX-
X1.11	X7	Green		RS485_TX+
X1.13	X8	White/brown	Twisted pair cable	RS485_RX-
X1.14	X9	Brown		RS485_RX+

## Position of the Cable

The DB15 male connector of the alarm cable is connected to the RS485/EXT\_ALM port on the RRU3606 cabling cavity, and the other end is connected to the port for Boolean alarm signals on the external device. [Figure 1-16](#) shows the installation position of the alarm cable on the RRU3606 side.

**Figure 1-16** Installation of the alarm cable on the RRU3606 side

## 1.3 Installing Hardware for the RRU3606

This describes the hardware installation, cable distribution, and installation checklist for the RRU3606.

### 1.3.1 Installation Information of the RRU3606

This describes the installation modes, requirements for the installation space and cable distribution, and connections of the cables.

### 1.3.2 Process of Installing the RRU3606

This describes the installation preparation, installation of the RRU3606, cables, and housing, and hardware installation check.

### 1.3.3 Preparations for RRU3606 Installation

This describes the installation tools and the unpacking inspection of the equipment.

### 1.3.4 Installing the RRU3606

This describes the installation modes for a single RRU3606, two RRU3606s, and three RRU3606s.

### 1.3.5 Installing and Removing the Cables of the RRU3606

This describes how to install and remove the cables of the RRU3606 and how to install the cover of the cabling cavity of the RRU3606.

### 1.3.6 Powering On the RRU3606

This describes how to power on the RRU3606.

### 1.3.7 Installing the Shell of the RRU3606

This describes how to install the shell of the RRU3606.

### 1.3.8 Checklist for the Installation of the RRU3606

This describes the items to be checked after the RRU3606 is installed.

## 1.3.1 Installation Information of the RRU3606

This describes the installation modes, requirements for the installation space and cable distribution, and connections of the cables.

### 1.3.1.1 Installation Modes of the RRU3606

This describes the installation modes of the RRU3606. The RRU3606 can be installed on the metal pole, wire pole, and wall.

### 1.3.1.2 Requirements for the Installation Space of the RRU3606s

This describes the requirements for the installation space of a single RRU3606, combination of RRU3606s, and centralized installation of RRU3606s.

### 1.3.1.3 Requirements for Routing Cables of the RRU3606

This describes the requirements for routing cables of the RRU3606 to prevent electromagnetic interference.

### 1.3.1.4 Connection of the RRU3606 Cables

This describes the connection of the cables of a single RRU3606 and multiple RRU3606s.

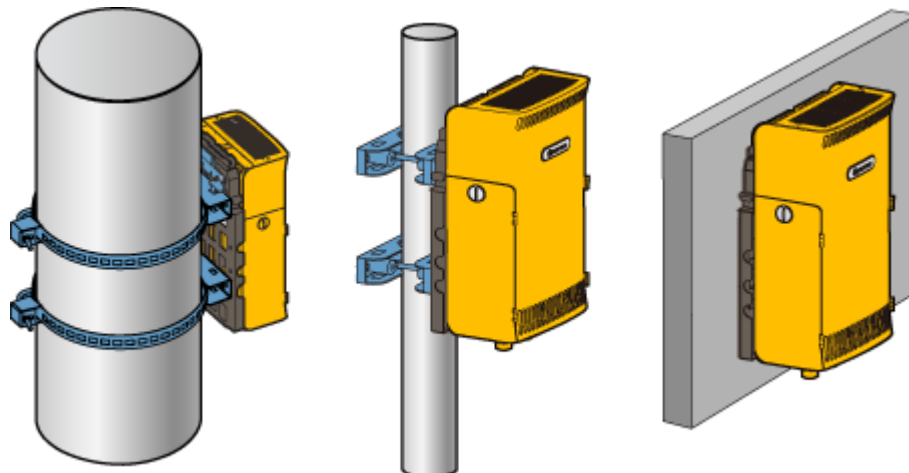
## Installation Modes of the RRU3606

This describes the installation modes of the RRU3606. The RRU3606 can be installed on the metal pole, wire pole, and wall.

### Installation Mode of A Single RRU3606

**Figure 1-17** shows the installation mode of a single RRU3606.

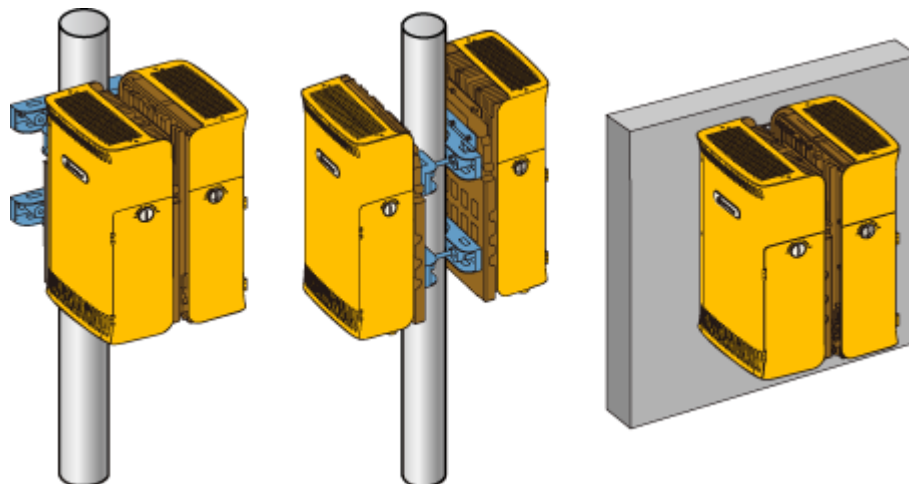
**Figure 1-17** Installation of a single RRU3606



### Centralized Installation Mode of Two RRU3606s

**Figure 1-18** shows the centralized installation mode of two RRU3606s.

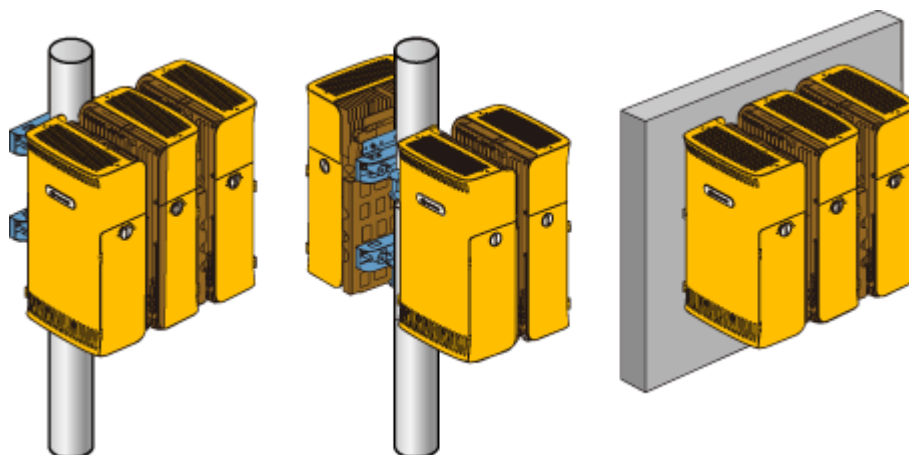
**Figure 1-18** Centralized installation of two RRU3606s



### Centralized Installation Mode of Three RRU3606s

**Figure 1-19** shows the installation mode of three RRU3606s.



**Figure 1-19** Centralized installation of three RRU3606s

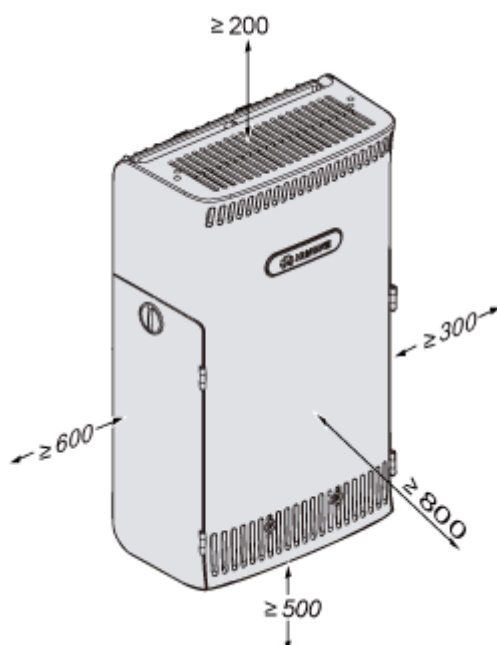
## Requirements for the Installation Space of the RRU3606s

This describes the requirements for the installation space of a single RRU3606, combination of RRU3606s, and centralized installation of RRU3606s.

Specific requirements for the installation space of the RRU3606 should be met to facilitate cabling, operation, and maintenance. The requirements described in this document are based on engineering experience.

## Requirements for the Installation Space of a Single RRU3606

**Figure 1-20** shows the requirements for the installation space of a single RRU3606.

**Figure 1-20** Installation space (mm) of a single RRU3606

The requirements for the installation space of a single RRU3606 are as follows:

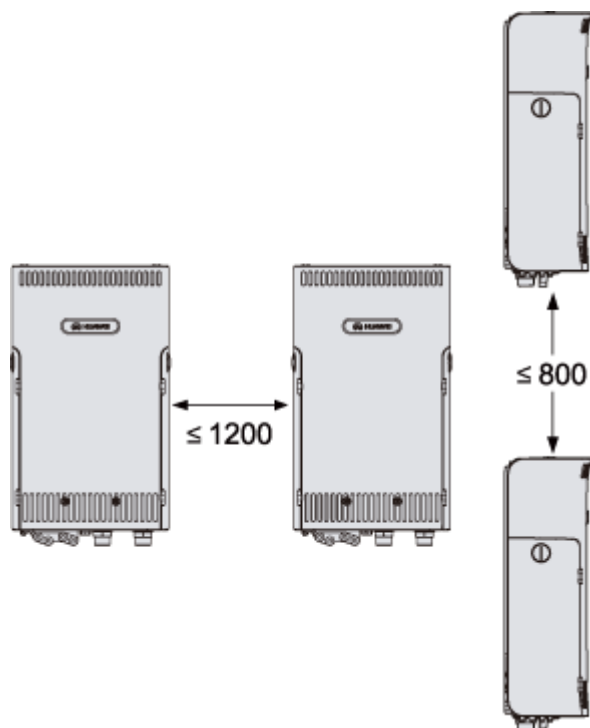
- Under the RRU3606, a distance of at least 500 mm [19.69 in.] should be reserved for cabling. For convenient maintenance, it is recommended that the distance between the bottom of the RRU3606 and the ground be at least 1200 mm [47.24 in.].
- In front of the RRU3606, a space of at least 800 mm [31.50 in.] should be reserved for maintenance.
- Above the RRU3606, a space of at least 200 mm [7.87 in.] should be reserved for maintenance.
- To the left of the RRU3606, a space of at least 600 mm [23.62 in.] should be reserved for maintenance.
- To the right of the RRU3606, a space of at least 300 mm [11.81 in.] should be reserved for maintenance.

Requirements for the minimum installation space of a single RRU3606 are as follows:

- Under the RRU3606, a space of at least 300 mm [11.81 in.] should be reserved for cabling. For convenient maintenance, it is recommended that the distance between the bottom of the RRU3606 and the ground be at least 1200 mm [47.24 in.].
- In front of the RRU3606, a space of at least 600 mm [23.62 in.] should be reserved for maintenance.
- Above the RRU3606, a space of at least 200 mm [7.87 in.] should be reserved for maintenance.
- To the left of the RRU3606, a space of at least 400 mm [15.75 in.] should be reserved for maintenance.
- To the right of the RRU3606, a space of at least 100 mm [3.94 in.] should be reserved for maintenance.

## Requirements for the Installation Space of Combined RRU3606s

During the combination of RRU3606s, ensure that the installation space reserved for each RRU3606 meets the requirements. [Figure 1-21](#) shows the requirement for the distance between two single RRU3606s.

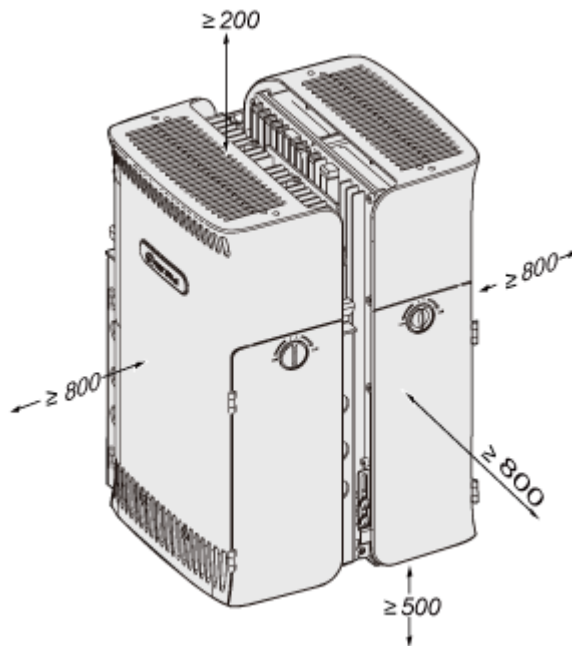
**Figure 1-21** Distance between two single RRU3606s (unit: mm)

The requirements for the distance between two single RRU3606s are as follows:

- The distance between one RRU3606 and the one to its left or right is no more than 1200 mm [47.24 in.].
- The distance between one RRU3606 and the one above or below is no more than 800 mm [31.50 in.].

## Requirements for the Centralized Installation Space of RRU3606s

[Figure 1-22](#) shows the requirements for the installation space of multiple RRU3606s.

**Figure 1-22** Centralized installation space of RRU3606s (unit: mm)

Requirements for the centralized installation space of RRU3606s are as follows:

- Under the RRU3606, at least 500 mm [19.69 in.] space should be reserved for cabling. For convenient maintenance, it is recommended that the distance between the bottom of the RRU3606 and the ground be at least 1200 mm [47.24 in.].
- In front of the RRU3606, a space of at least 800 mm [31.50 in.] should be reserved for maintenance.
- Above the RRU3606, a space of at least 200 mm [7.87 in.] should be reserved for maintenance.
- To the left of the RRU3606, a space of at least 800 mm [31.50 in.] should be reserved for maintenance.
- To the right of the RRU3606, a space of at least 800 mm [31.50 in.] should be reserved for maintenance.
- The requirements for the installation space of two or three RRU3606s are identical.

Requirements for the minimum centralized installation space of RRU3606s are as follows:

- Under the RRU3606, at least 300 mm [11.81 in.] space should be reserved for cabling. For convenient maintenance, it is recommended that the distance between the bottom of the RRU3606 and the ground be at least 1200 mm [47.24 in.].
- In front of the RRU3606, a space of at least 600 mm [23.62 in.] should be reserved for maintenance.
- Above the RRU3606, a space of at least 200 mm [7.87 in.] should be reserved for maintenance.
- To the left of the RRU3606, a space of at least 600 mm [23.62 in.] should be reserved for maintenance.
- To the right of the RRU3606, a space of at least 600 mm [23.62 in.] should be reserved for maintenance.

## Requirements for Routing Cables of the RRU3606

This describes the requirements for routing cables of the RRU3606 to prevent electromagnetic interference.

Requirements for routing cables of the RRU3606 are as follows:

- The positions of power cables should meet the specifications of engineering drawings and the standards of general cabling.
- Different types of cable should be routed separately to prevent cables from twisting.
- After all the cables are installed, stick labels or bind tokens to the cables.
- The bending radius of optical fibers should be no less than 20 times the diameter of the optical fiber.
- Leave some margin at the bending parts of the optical fibers.
- When installing the optical fibers, do not step on or stretch them too tight. Take care to prevent the optical fibers from touching sharp objects. If the main body of the fiber has bend marks or press marks and the connectors are damaged, the optical fiber cannot be used any more.
- The minimum bending radius of the feeder should be no less than 20 times the diameter of the feeder.
- The feeder has no obvious bend or twist marks or bare copper core wires.
- The connectors of feeders are made in compliance with specifications and connected correctly. Make sure the feeders do not loosen up.
- Ensure that the two ends of the grounding cables are in good contact and anti-corrosion treated.

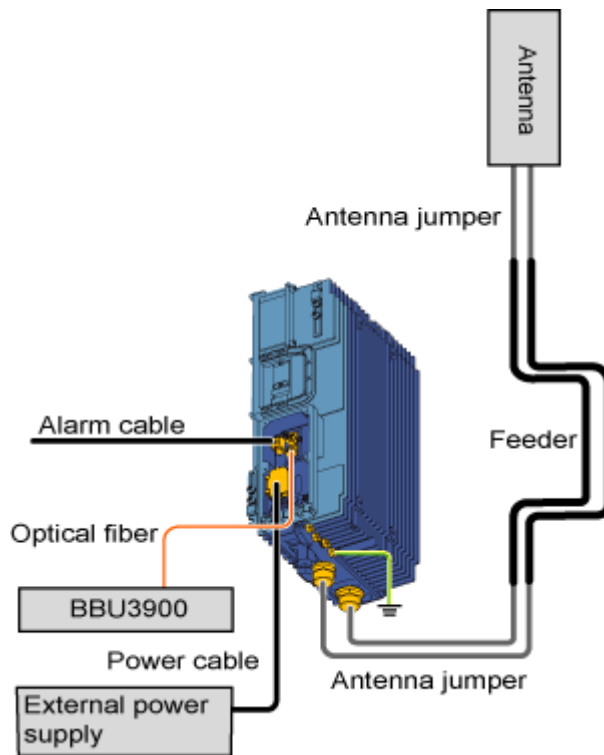
## Connection of the RRU3606 Cables

This describes the connection of the cables of a single RRU3606 and multiple RRU3606s.

### Connection of the Cables of A Single RRU3606

**Figure 1-23** shows the connection of the cables of a single RRU3606.

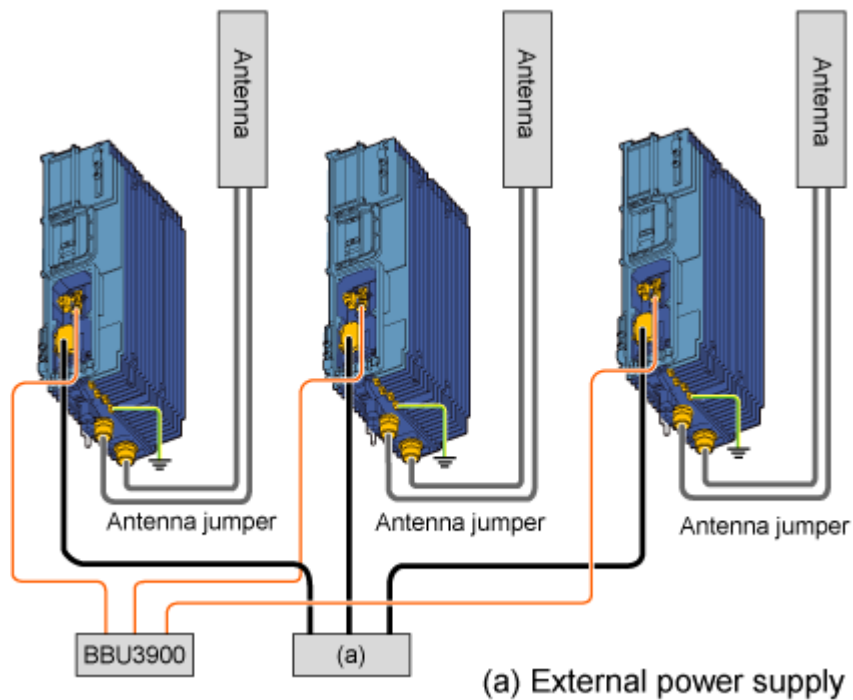
**Figure 1-23** Connection of the cables of a single RRU3606



### Connection of the Cables of Multiple RRU3606s

**Figure 1-24** shows the connection of the cables of multiple RRU3606s.

**Figure 1-24** Connection of the cables of multiple RRU3606s



## 1.3.2 Process of Installing the RRU3606

This describes the installation preparation, installation of the RRU3606, cables, and housing, and hardware installation check.

### Background Information



#### NOTE

For the following situations, contact Huawei engineers for confirmation.

- You provide the devices, cables, and connectors yourself.
- You need to cut a cable of a specified length.

### Procedure

- Step 1** Unpack and inspect the equipment and the required tools for installation. For details, refer to [1.3.3 Preparations for RRU3606 Installation](#).
- Step 2** Install the backplanes and the RRU3606. Choose an appropriate installation mode according to the installation scenario. For details on the installation modes, see:
- [1.3.4.1 Installing a Single RRU3606](#)
  - [1.3.4.2 Installing Two RRU3606s in Centralized Mode](#)
  - [1.3.4.3 Installing Three RRU3606s in Centralized Mode](#)
- Step 3** Perform the operations described in [1.3.5 Installing and Removing the Cables of the RRU3606](#).
- Step 4** Perform the operations described in [1.3.6 Powering On the RRU3606](#).
- Step 5** Perform the operations described in [1.3.7 Installing the Shell of the RRU3606](#).
- Step 6** Perform the operations described in [1.3.8 Checklist for the Installation of the RRU3606](#).

----End

## 1.3.3 Preparations for RRU3606 Installation

This describes the installation tools and the unpacking inspection of the equipment.

### [1.3.3.1 Installation Tools for the RRU3606](#)

This describes the general tools, dedicated tools, and instruments for RRU3606 installation.

### [1.3.3.2 Unpacking Inspection for the RRU3606](#)

Before installing the equipment, unpack the equipment package and check the equipment.

### Installation Tools for the RRU3606

This describes the general tools, dedicated tools, and instruments for RRU3606 installation.

[Table 1-9](#) lists the tools and instruments required for the installation.

**Table 1-9** Tools and instruments

Category		List of the Tools
General tools	Measuring and marking instruments	Long tape, ruler (1 m [3.28 ft.]), level instrument, marker, powder marker, and pencil
	Drilling Tools	One percussion drill, matched drill bits, and one cleaner
	Fastening tools	Straight screwdrivers: M3–M6 Cross screwdrivers: M3–M6 Adjustable wrench Socket wrenches: M6, M8, M12, M14, M17, and M19 Double offset ring spanners: M6, M8, M12, M14, M17, and M19
	Small tools	Sharp-nose pliers, diagonal pliers, pliers, hand-held electric drill, file, handsaw, crowbar, and rubber hammer
	Auxiliary tools	Brush, nipper, paper knife, bellows, electric irons, solder wire, fork, and ladders
Dedicated tools		Multimeter, 500 V megohm meter (for testing the insulation resistance), BER tester, and optical power meter
Instruments		Earth resistance tester, antistatic wrist strap, antistatic gloves, cable peeler, crimping pliers, RJ45 connector crimping pliers, optical connector, and wire punchdown tool

 **NOTE**

- The tool list is provided by Huawei, and the tool provider is determined through negotiation.
- The instruments must be calibrated to ensure measurement accuracy.

## Unpacking Inspection for the RRU3606

Before installing the equipment, unpack the equipment package and check the equipment.

### Context

The requirements for unpacking inspection are as follows:

- Both the project supervisor and customer representatives must be present to check the goods.
- When unpacking goods, ensure that the total number of products is consistent with the packing list attached to the packing case, the arrival place is the installation site, the packing case is in good condition, and the cabinet is not placed upside down.
- Do not unpack if the outer package is damaged or wet, or the equipment is wet and rusty. Find the cause of the damage and report to the Huawei regional office.



## CAUTION

To protect the equipment and find out the cause, move the unpacked equipment indoor for proper storage, and take photos of the storage site, rusty or corroded equipment, packing cases, and packaging materials. Keep these photos and store the unpacked packing cases and packaging materials.

- If the products are in good condition, unpack the packing case with a label marked "Built-in Packing List", take out the packing list, and then check the products according to the packing list. If any of the products are damaged or missing, fill in the Cargo Replacement Application Form.
- After the unpacking inspection, sign the packing list together with the customer.

## CAUTION

- When transporting or moving the equipment, components, or parts, prevent them from colliding with doors, walls, or shelves.
- Do not touch the uncoated surface of the equipment, parts, or components when you wear sweat soaked or dirty gloves.

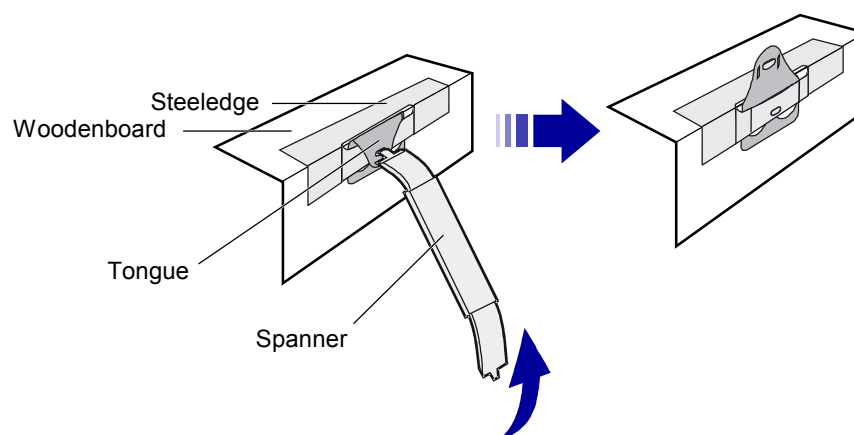
## Unpacking Wooden Cases

A wooden case is usually made of wooden boards, steel edges, tongues, and foamed angle wraps. Move the packing case into the equipment room to avoid damage to the equipment during the transportation.

The process of unpacking inspection for the wooden cases is as follows:

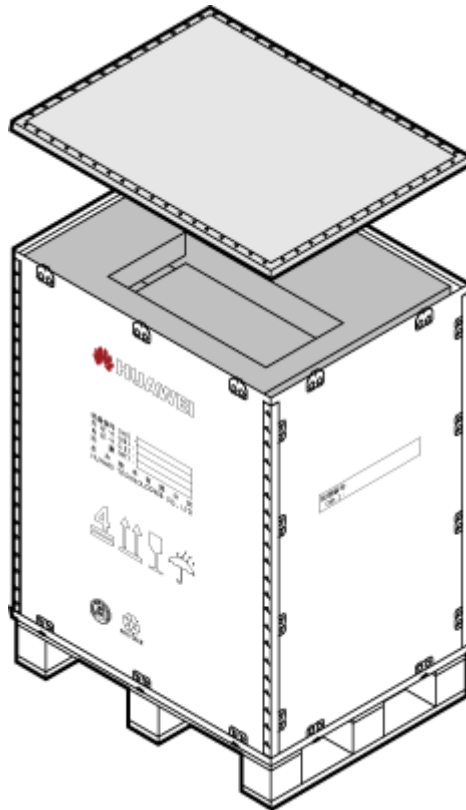
1. Insert the spanner into the hole of the tongue and turn the ejector lever to straighten the tongue, as shown in [Figure 1-25](#).

**Figure 1-25** Straightening the tongue

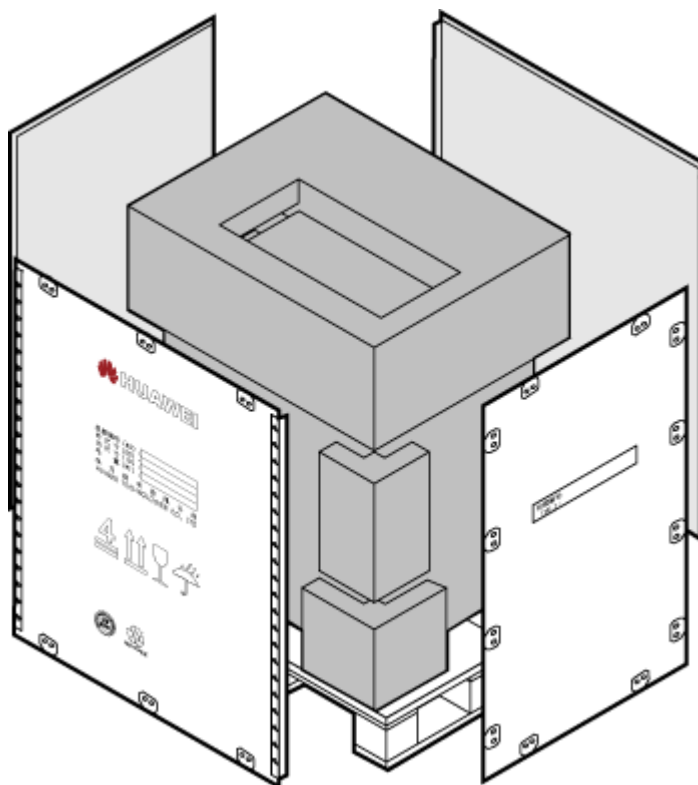


2. Straighten all the tongues that fix the cover, and then remove the cover, as shown in [Figure 1-26](#).

**Figure 1-26** Removing the cover



3. Straighten all the tongues that join the side boards around the wooden case. Then remove the side boards, as shown in [Figure 1-27](#).

**Figure 1-27** Removing side boards

## Unpacking Inspection for Cartons

Cartons are usually used to pack cables, circuit boards, and terminal devices.

The process of the unpacking inspection for cartons is as follows:

1. Check the types and number of boards in the carton according to the label on the carton.
2. Cut the straps using diagonal pliers.
3. Cut the tapes along the seams of the carton cover. Do not insert the knife too deep. Otherwise, the goods inside may be scratched.
4. Open the carton and take out the foam plate.
5. Check the number of board boxes according to the label on the carton.
6. Check the quantities and types of materials according to the Packing List, and sign on the list if the quantities and types are correct.

## 1.3.4 Installing the RRU3606

This describes the installation modes for a single RRU3606, two RRU3606s, and three RRU3606s.

### 1.3.4.1 Installing a Single RRU3606

This describes the installation of a single RRU3606 on a metal pole, wire pole, or wall.

### 1.3.4.2 Installing Two RRU3606s in Centralized Mode

This describes how to install two RRU3606s in centralized mode. You can install two RRU3606s on a metal pole or wall.

### 1.3.4.3 Installing Three RRU3606s in Centralized Mode

This describes how to install three RRU3606s in centralized mode. You can install three RRU3606s on a metal pole or wall.

## Installing a Single RRU3606

This describes the installation of a single RRU3606 on a metal pole, wire pole, or wall.

### [1.3.4.1.1 Installing the Backplane of a Single RRU3606 on a Metal Pole](#)

This describes how to install the backplane of a single RRU3606 on a metal pole.

### [1.3.4.1.2 Installing the Backplane of a Single RRU3606 on a Wire Pole](#)

This describes how to install the backplane of a single RRU3606 on a wire pole.

### [1.3.4.1.3 Installing the Backplane of a Single RRU3606 on the Wall](#)

This describes how to install the backplane of a single RRU3606 on the wall.

### [1.3.4.1.4 Installing a Single RRU3606](#)

This describes how to install a single RRU3606 on a metal pole. The procedures for installing the RRU3606 on the backplane in different scenarios are the same.

## 1. Installing the Backplane of a Single RRU3606 on a Metal Pole

This describes how to install the backplane of a single RRU3606 on a metal pole.

### Prerequisite

A metal pole whose diameter is 60 mm [2.36 in.] to 110 mm [4.33 in.] is available.

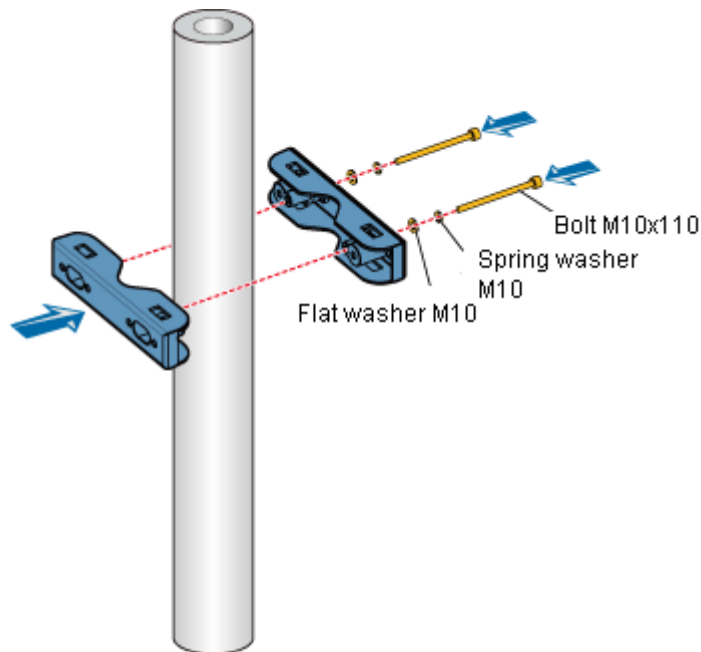
### Procedure

- Step 1** Determine the installation position of the backplane on the metal pole according to the construction drawing and [1.3.1.2 Requirements for the Installation Space of the RRU3606s](#).

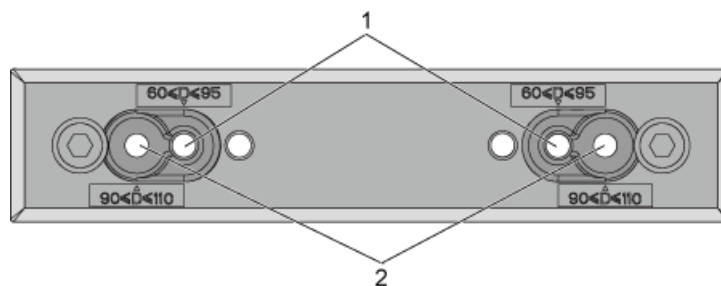
 **NOTE**

The height for installing the fixtures on the metal pole ranges from 1200 mm [47.24 in.] to 1600 mm [62.99 in.].

- Step 2** Mount the fixtures on the metal pole and ensure that the two fixtures are level on the horizontal plane, as shown in [Figure 1-28](#).

**Figure 1-28** Installing the upper fixtures**NOTE**

There are two sets of installation holes for fixing the fixtures. The installation holes on the inside fit 60 mm [2.36 in.] into 95 mm [3.74 in.] bolts, and the installation holes on the outside fit 90 mm [3.54 in.] into 110 mm [4.33 in.] bolts, as shown in [Figure 1-29](#).

**Figure 1-29** Installation holes for fixing fixtures

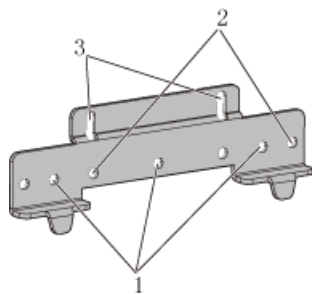
(1) Installation holes on the inside

(2) Installation holes on the outside

**Step 3** Use a level bar to adjust the level of the fixtures.

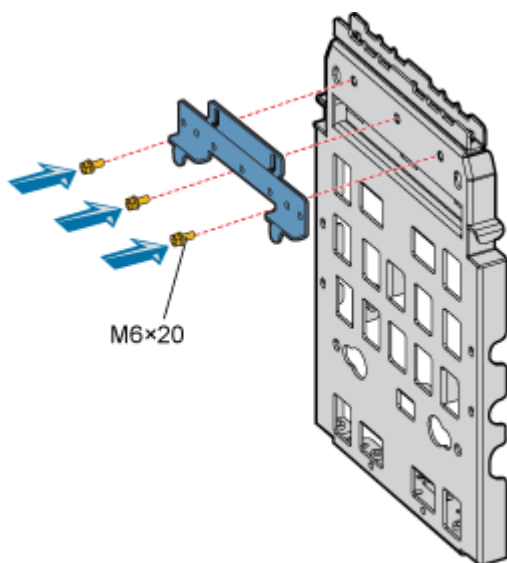
**Step 4** Choose the installation holes marked 1 for general mounting brackets, as shown in [Figure 1-30](#).

**Figure 1-30** Choosing installation holes for mounting brackets

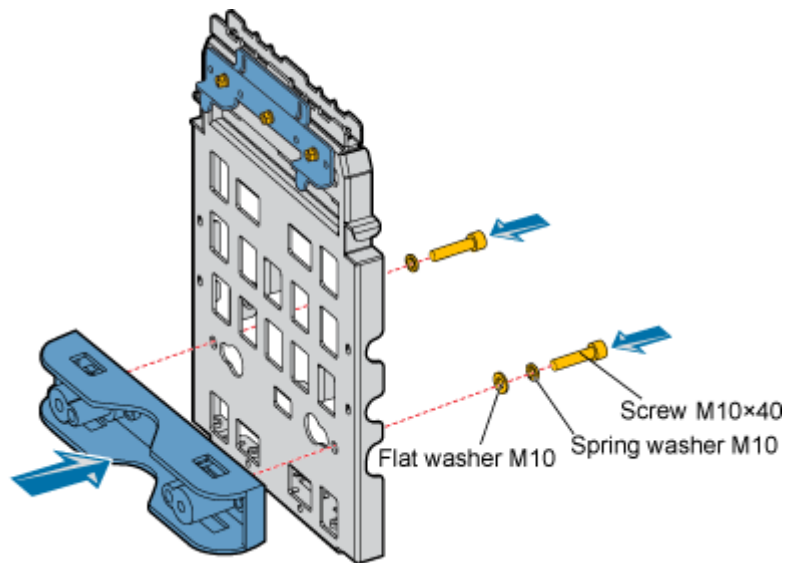


**Step 5** Install the general mounting bracket into the installation hole at the rear of the backplane by using three M6x20 bolts, as shown in [Figure 1-31](#).

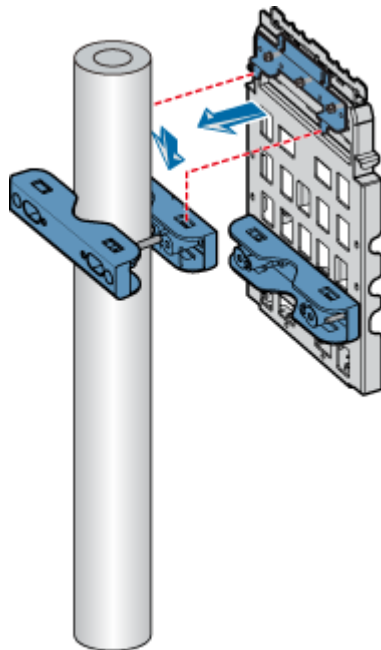
**Figure 1-31** Installing general mounting brackets



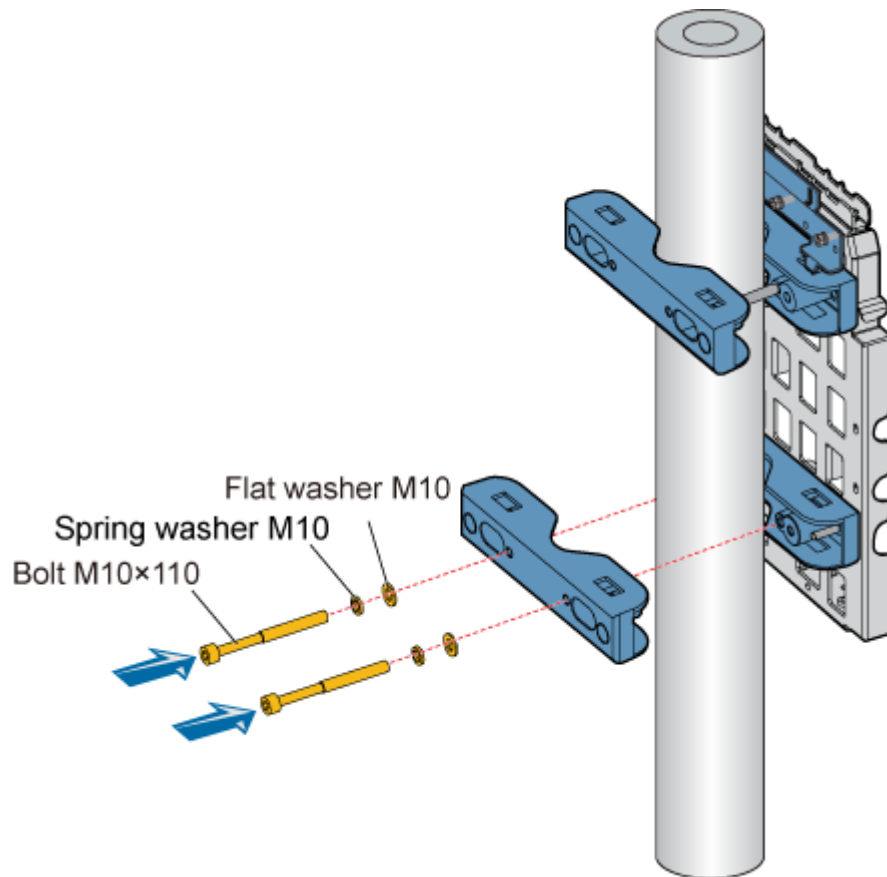
**Step 6** Install the fixtures into the upper installation hole at the rear of the backplane through two M10x40 bolts, as shown in [Figure 1-32](#).

**Figure 1-32** Installing the fixtures at the rear of the backplane

**Step 7** Mount the backplane to the fixture of the metal pole, as shown in [Figure 1-33](#).

**Figure 1-33** Mounting the backplane

**Step 8** Fasten the fixture to the fixtures that are installed at the lower part of the backplane of the metal pole through two M10x110 bolts, as shown in [Figure 1-34](#).

**Figure 1-34** Fastening the lower fixtures

**NOTE**

There are two sets of installation holes for fixing the fixtures. The installation holes on the inside are provided for 60 mm [2.36 in.] to 95 mm [3.74 in.] bolts, and the installation holes on the outside are provided for 90 mm [3.54 in.] to 110 mm [4.33 in.] bolts, as shown in [Figure 1-29](#).

---End

## 2. Installing the Backplane of a Single RRU3606 on a Wire Pole

This describes how to install the backplane of a single RRU3606 on a wire pole.

### Prerequisite

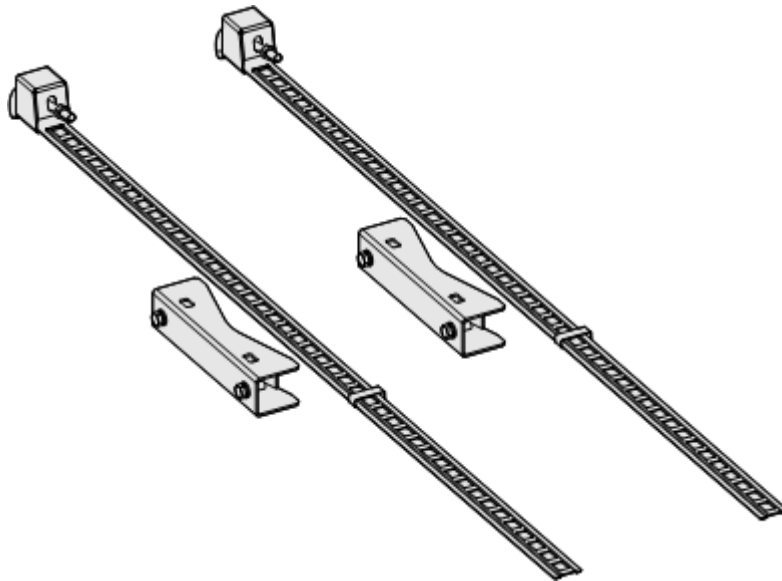
A wire pole whose diameter is 30.48 cm [12 in.] to 38.1 cm [15 in.] is available.

### Procedure

- Step 1** Determine the installation position of the backplane on the wire pole according to the construction drawing and [1.3.1.2 Requirements for the Installation Space of the RRU3606s](#).
- Step 2** Insert the bundling tape through fixtures. [Figure 1-35](#) shows the required fixtures.

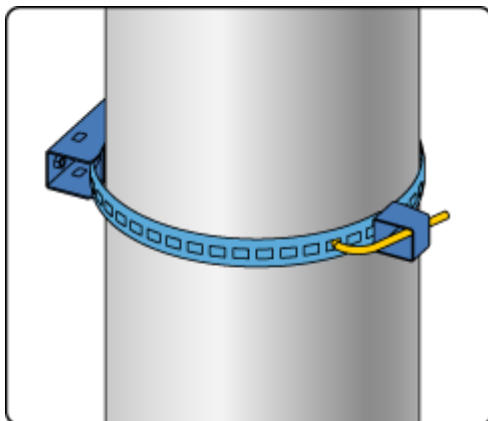


**Figure 1-35** Installing the fixtures on a wire pole



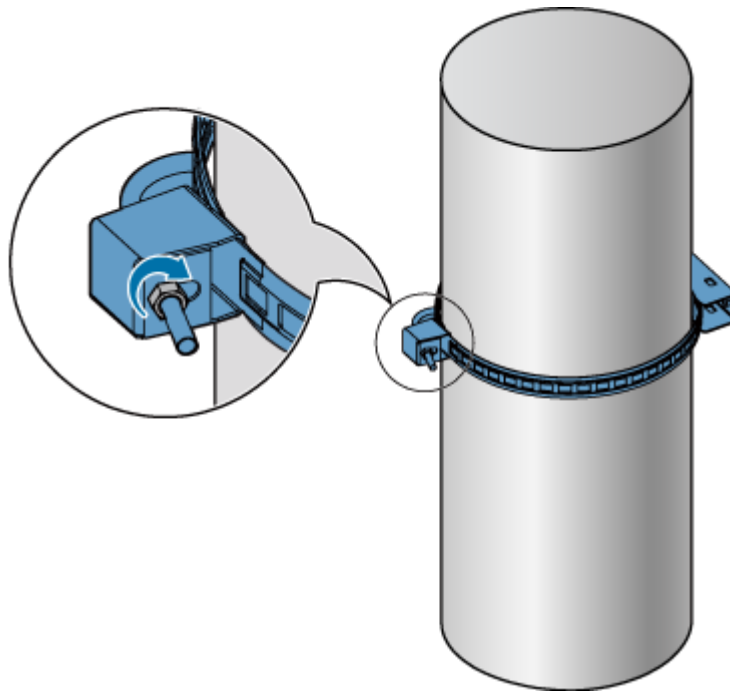
**Step 3** Clasp the tightening hook to a proper square hole of the bundling tape in the installation position on the wire pole, as shown in [Figure 1-36](#).

**Figure 1-36** Installing the bundling tape



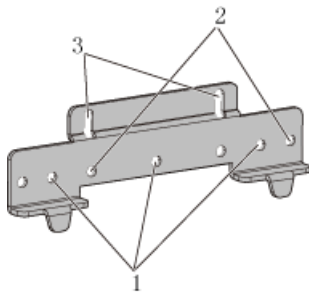
**Step 4** Use a wrench to tighten the nut until the bundling tape is fastened around the wire pole, as shown in [Figure 1-37](#).

**Figure 1-37** Tightening the bundling tape



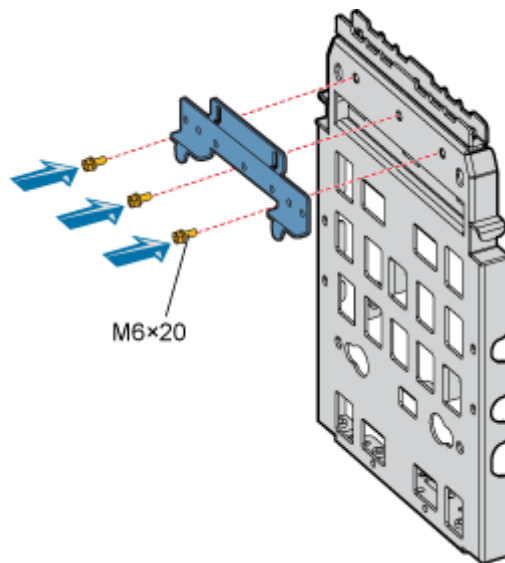
**Step 5** Choose the installation holes marked 1 for general mounting brackets, as shown in **Figure 1-38**.

**Figure 1-38** Choosing installation holes for mounting brackets



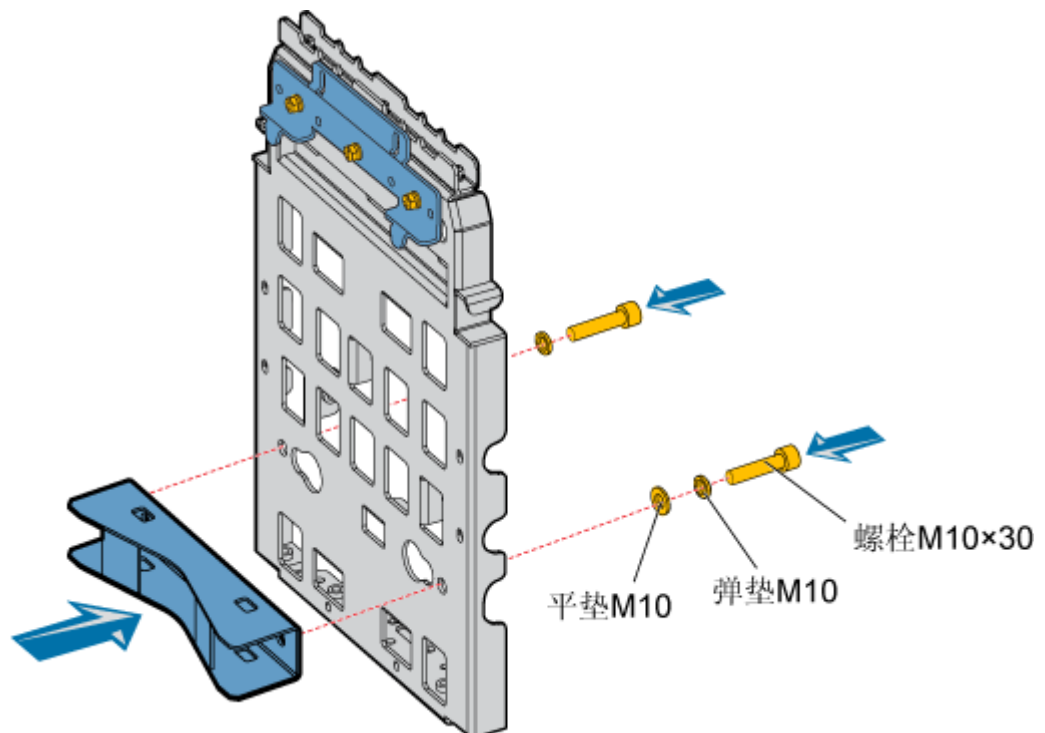
**Step 6** Install the general mounting bracket into the installation hole at the rear of the backplane through three M6 x 20 bolts, as shown in **Figure 1-39**.

**Figure 1-39** Installing general mounting brackets



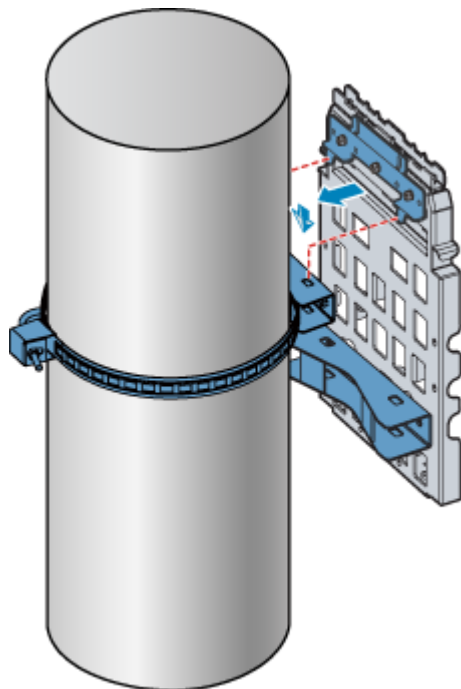
**Step 7** Install the fixtures in the upper installation hole at the rear of the backplane through two M10 x 30 bolts, as shown in [Figure 1-40](#).

**Figure 1-40** Installing the fixtures at the rear of the backplane



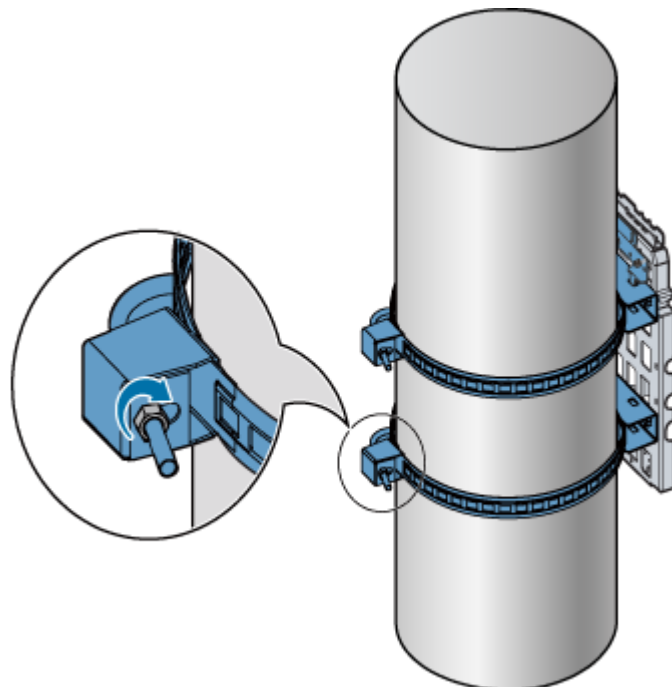
**Step 8** Mount the backplane to the fixture of the metal pole, as shown in [Figure 1-41](#).

**Figure 1-41** Mounting the backplane



**Step 9** Use the bundling tape to fasten the fixtures at the lower part of the backplane on the wire pole, as shown in [Figure 1-42](#).

**Figure 1-42** Fastening the backplane through the bundling tape



---End

### 3. Installing the Backplane of a Single RRU3606 on the Wall

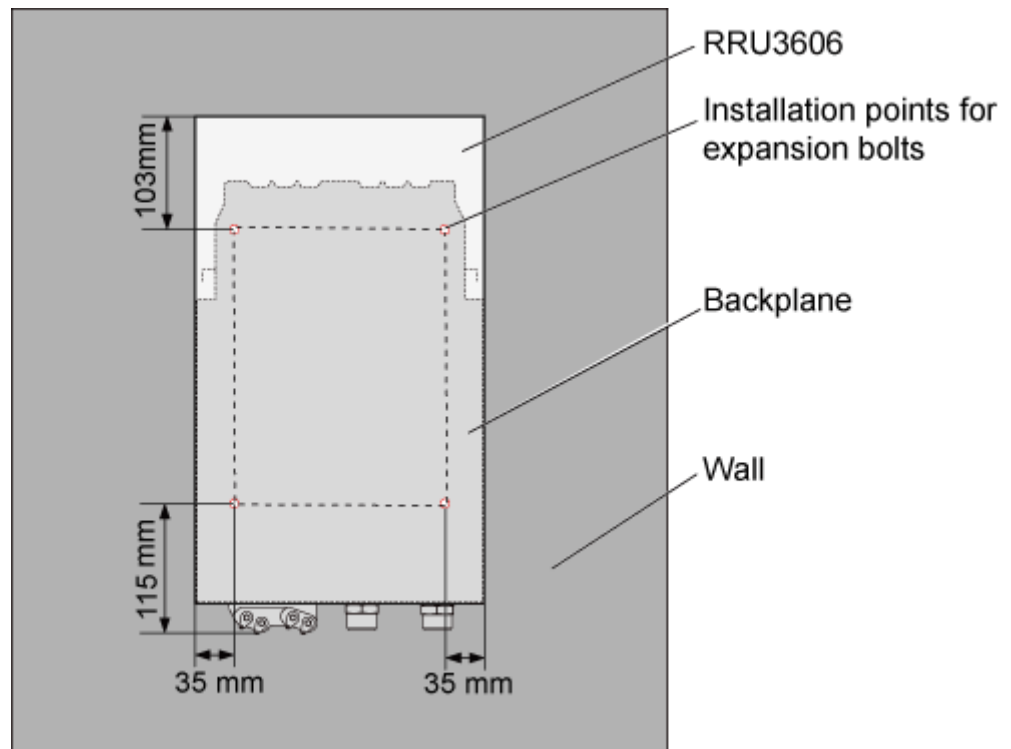
This describes how to install the backplane of a single RRU3606 on the wall.

## Procedure

**Step 1** Determine the installation position on the wall for a single RRU3606.

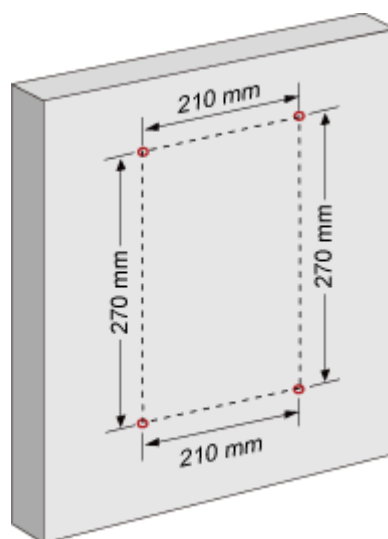
1. Determine the position on the backplane of the RRU3606 for installing the expansion bolts, as shown in [Figure 1-43](#).

**Figure 1-43** Installing the expansion bolts on the backplane



2. Determine the installation holes on the wall, as shown in [Figure 1-44](#).

**Figure 1-44** Installation holes on the wall

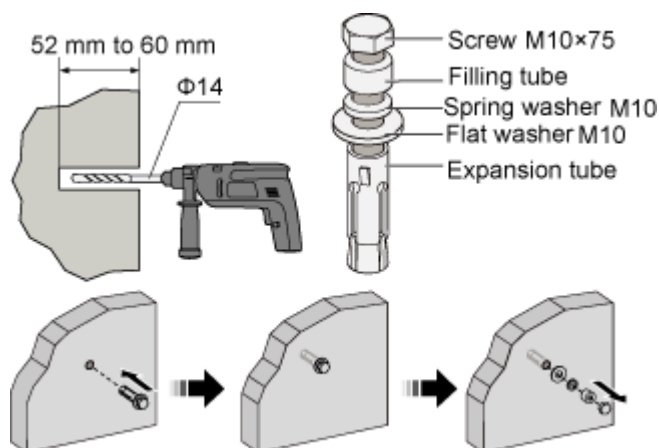


**NOTE**

- The height for installing the RRU3606 on the wall ranges from 1200 mm [47.24 in.] to 1600 mm [62.99 in.].
- Place the backplane against the wall and use a marking pen to mark the anchor points. You can also mark the anchor points according to the inter-hole distance.

**Step 2** Drill holes on the marks and install the expansion bolts, as shown in [Figure 1-45](#).

**Figure 1-45** Drilling holes and installing expansion bolts

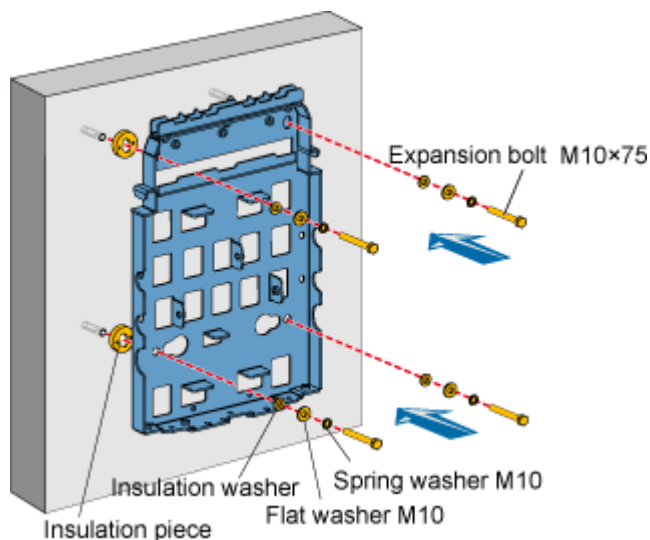


1. Use a percussion drill with a  $\phi 14$  drill bit to drill holes on the marks. The depth of the holes ranges from 52 mm [2.05 in.] to 60 mm [2.36 in.].
2. Use a cleaner to clear the dust inside and around the holes. If the inter-hole distance is too long or too short, locate and drill holes again.
3. Tighten slightly the expansion bolt and feed it into the hole vertically. Use a rubber hammer to hit the expansion tube until it is fully buried in the wall.
4. Remove the M10x75 bolt, filling tube, spring washer M10, and flat washer M10.

**CAUTION**

Disassemble the expansion bolt, and ensure that the expansion tube is fully buried in the wall. Otherwise, the backplane is placed unevenly.

**Step 3** Fix the backplane, as shown in [Figure 1-46](#).

**Figure 1-46** Fixing the backplane

1. Place the backplane in the installation position against the wall.
2. Get ready four M10x75 bolts, fit the M10 spring washer, M10 flat washer, and insulation washer into each of the bolt, and then fasten the assembled bolts into the nut of the expansion tube across the holes on the backplane and insulation plate.

**CAUTION**

When installing the bolts, remove the filling tube of the expansion bolt through the insulation washer and insulation plate that are delivered with the backplane, as shown in [Figure 1-47](#).

**Figure 1-47** Filling tube, insulation washer, and insulation plate

- Step 4** Use a wrench to rotate the M10x75 bolt clockwise and tighten the expansion bolt to fix the backplane on the wall.

----End

#### 4. Installing a Single RRU3606

This describes how to install a single RR3606 on a metal pole. The procedures for installing the RRU3606 on the backplane in different scenarios are the same.

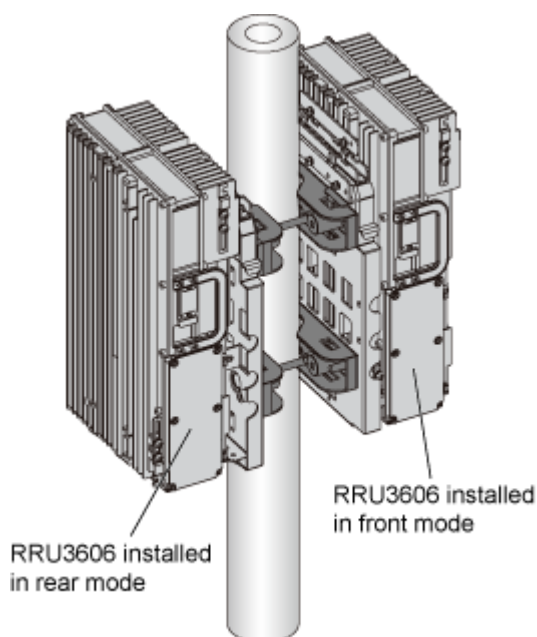
## Prerequisite

- The backplane of the RRU3606 is already installed.
- If the RRU3606 is to be installed on a metal pole, the grounding protection cable of the metal pole is already correctly connected.

## Installation Instructions

The RRU3606 can be installed in two modes. In one mode, the back of the RRU3606 touches the backplane (front mode); in the other mode, the front of the RRU3606 touches the backplane (rear mode). This document takes the installation of the RRU3606 on the metal pole as an example to illustrate the front and back installation modes of the RRU3606, as shown in [Figure 1-48](#).

**Figure 1-48** Front and back installation modes of the RRU3606



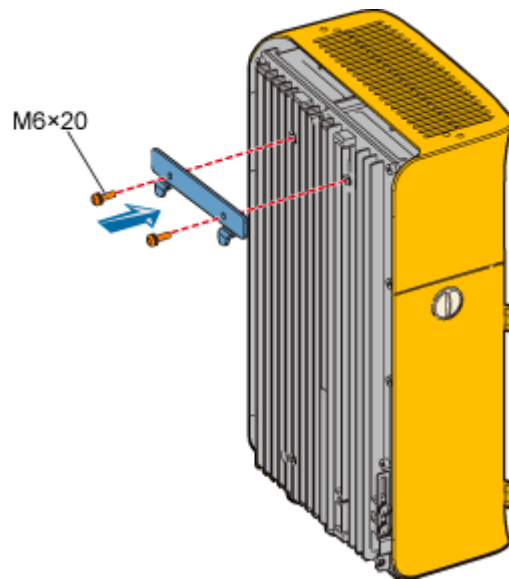
### NOTE

- The RRU3606 has a plastic shell. In [Figure 1-48](#), the plastic shell is removed so that you can clearly see the front and back installation modes.
- By default, the plastic shell is installed for the RRU3606 in front installation mode.

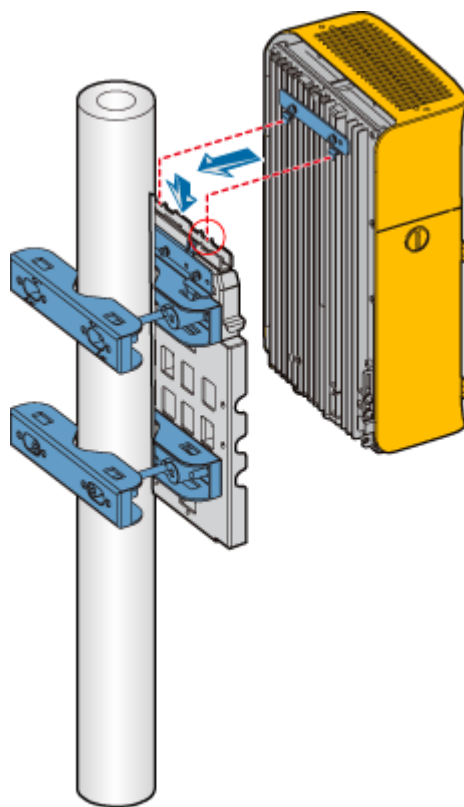
## Procedure

- Step 1** Use two M6x20 screws to fix the mounting bracket to the RRU3606, as shown in [Figure 1-49](#).

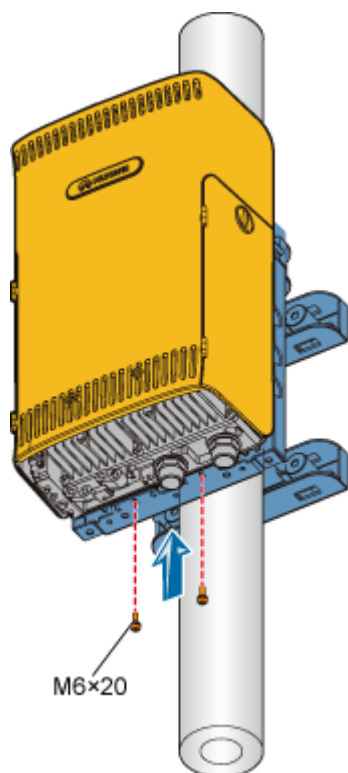


**Figure 1-49** Fixing the mounting bracket

**Step 2** Fit the hooks of the mounting bracket into the slots of the backplane, as shown in [Figure 1-50](#).

**Figure 1-50** Installing the RRU3606

**Step 3** Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-51](#).

**Figure 1-51** Fixing the RRU3606

---End

## Installing Two RRU3606s in Centralized Mode

This describes how to install two RRU3606s in centralized mode. You can install two RRU3606s on a metal pole or wall.

### 1.3.4.2.1 Installing the Backplanes of Two RRU3606s on the Metal Pole

This describes how to install the backplanes of two RRU3606s on the metal pole.

### 1.3.4.2.2 Installing the Backplanes of Two RRU3606s on the Wall

This describes how to install the backplanes of two RRU3606s on the wall.

### 1.3.4.2.3 Installing Two RRU3606s in Centralized Mode

This describes how to install two RRU3606s in centralized mode. In different scenarios, the procedures for installing two RRU3606s on the backplanes are the same. This document takes the pole installation scenario as an example.

## 1. Installing the Backplanes of Two RRU3606s on the Metal Pole

This describes how to install the backplanes of two RRU3606s on the metal pole.

### Prerequisite

A metal pole whose diameter is 60 mm [2.36 in.] to 110 mm [4.33 in.] is available.

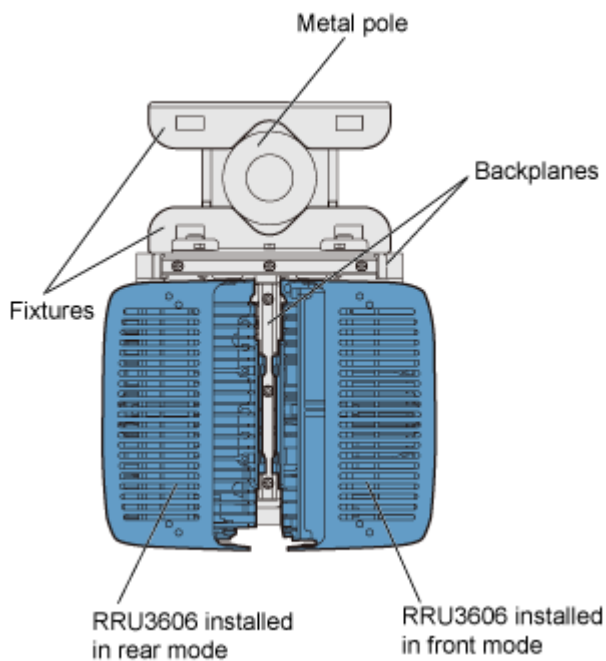
### Installation Instructions

You can install two RRU3606s on the metal pole in either of the following modes:

- Side-by-side mode
- Back-to-back mode

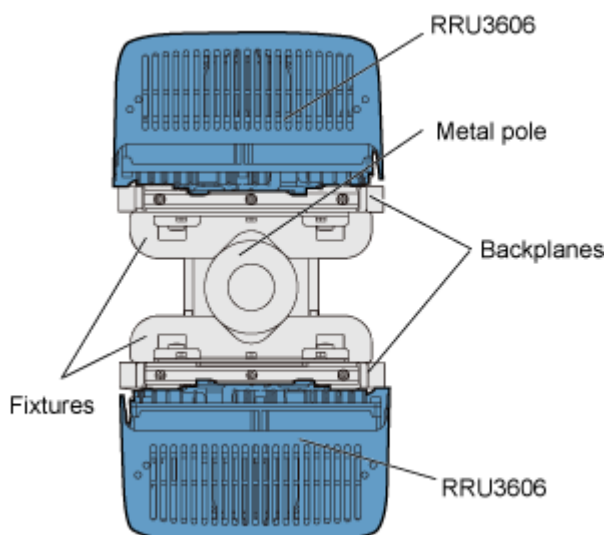
**Figure 1-52** shows the top view of the RRU3606s installed in side-by-side mode.

**Figure 1-52** Top view of the RRU3606s installed in side-by-side mode



**Figure 1-53** shows the top view of the RRU3606s installed in back-to-back mode.

**Figure 1-53** Top view of the RRU3606s installed in back-to-back mode

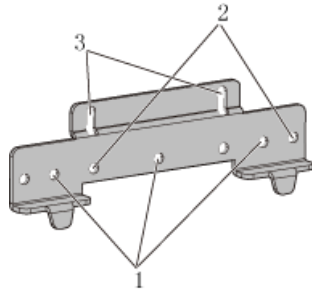


## Installation Procedure

- Side-by-side mode

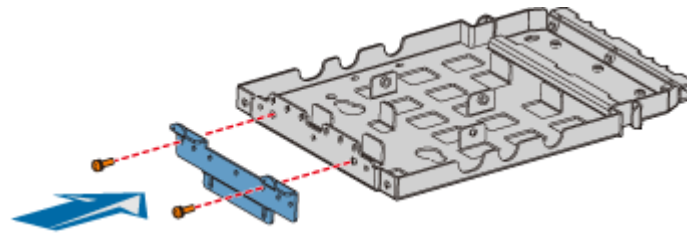
1. Install the first backplane. For details, see [1.3.4.1.1 Installing the Backplane of a Single RRU3606 on a Metal Pole](#).
2. Install the second backplane through installation holes marked 2 in [Figure 1-54](#).

**Figure 1-54** Choosing installation holes for the mounting bracket



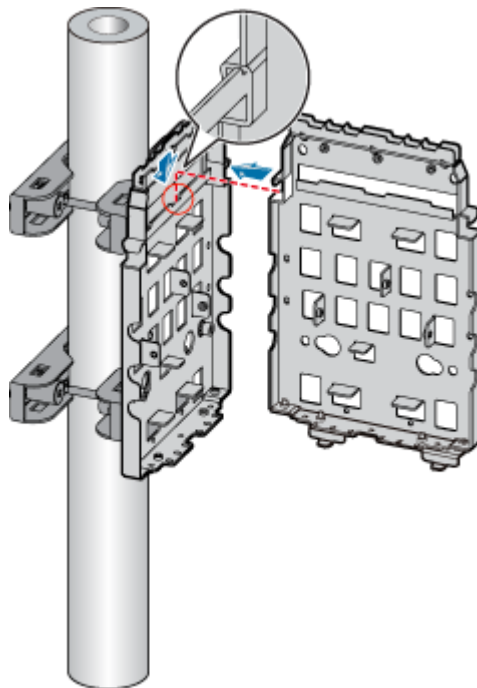
3. Use two M6x20 screws to fix the general mounting bracket to the backplane through the installation holes of the mounting bracket and the corresponding installation holes at the bottom of the backplane, as shown in [Figure 1-55](#).

**Figure 1-55** Installing the general mounting bracket at the bottom of the backplane



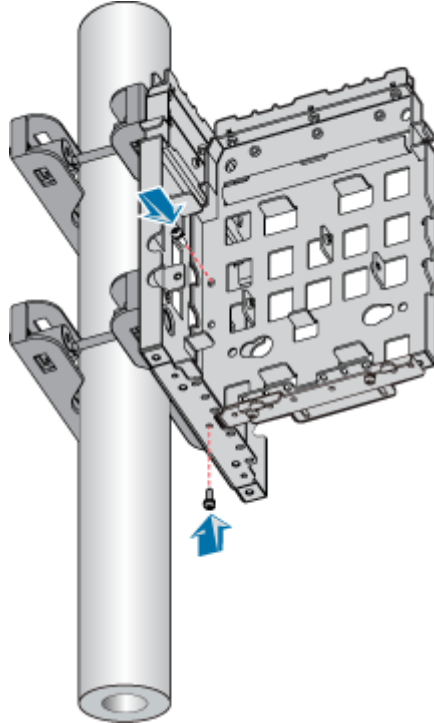
4. Fit the assembly hook of the second backplane into the center of the double RRU assembly slot of the first backplane, as shown in [Figure 1-56](#).

**Figure 1-56** Assembling two backplanes



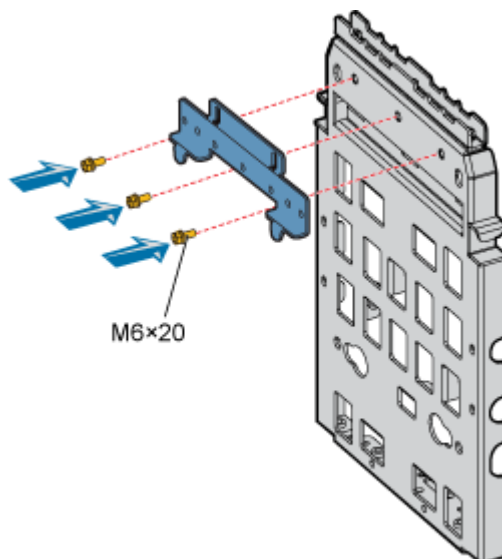
5. Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-57](#).

**Figure 1-57** Fastening the screws on the backplanes



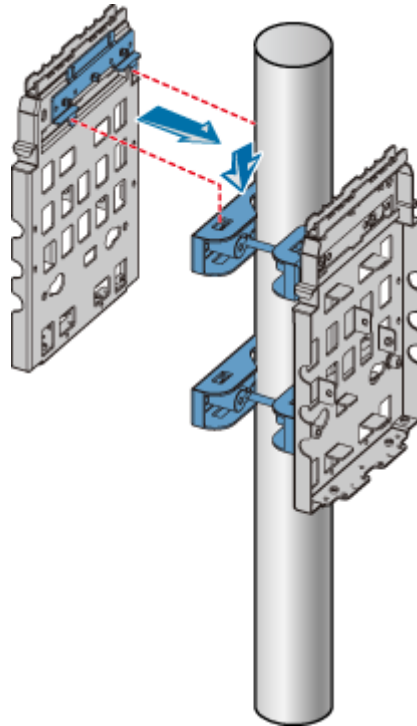
- Back-to-back mode
  1. Install the first backplane. For details, refer to [1.3.4.1.1 Installing the Backplane of a Single RRU3606 on a Metal Pole](#).
  2. Install the second backplane through installation holes marked 1 in [Figure 1-54](#).
  3. Fix the general mounting bracket to the second backplane through the installation holes at the rear of the second backplane, as shown in [Figure 1-58](#).

**Figure 1-58** Installing the general mounting bracket

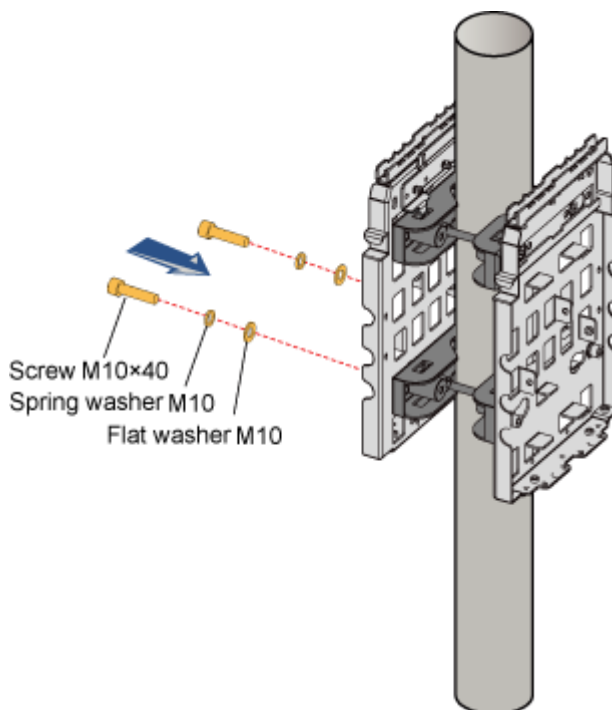


4. Hang the backplane to the fixture at the other side of the metal pole, as shown in [Figure 1-59](#).

**Figure 1-59** Installing the second backplane



5. Get ready two M10x40 long screws, fit an M10 spring washer, M10 flat washer, and insulation washer into each of the screws, and then use the screws to fix the second backplane to the fixture of the metal pole, as shown in [Figure 1-60](#).

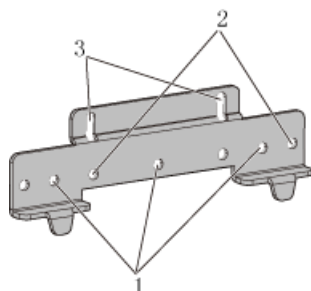
**Figure 1-60** Fixing the second backplane

## 2. Installing the Backplanes of Two RRU3606s on the Wall

This describes how to install the backplanes of two RRU3606s on the wall.

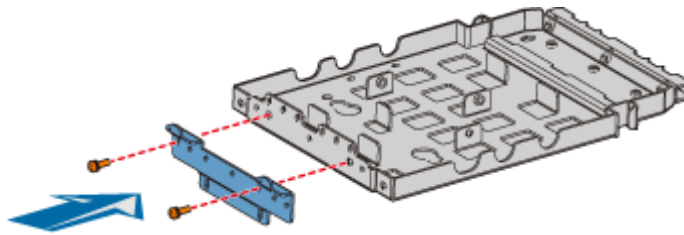
### Procedure

- Step 1** Install the first backplane. For details, refer to [1.3.4.1.3 Installing the Backplane of a Single RRU3606 on the Wall](#).
- Step 2** Install the other backplane through installation holes marked 2 in [Figure 1-61](#).

**Figure 1-61** Choosing installation holes for the mounting bracket

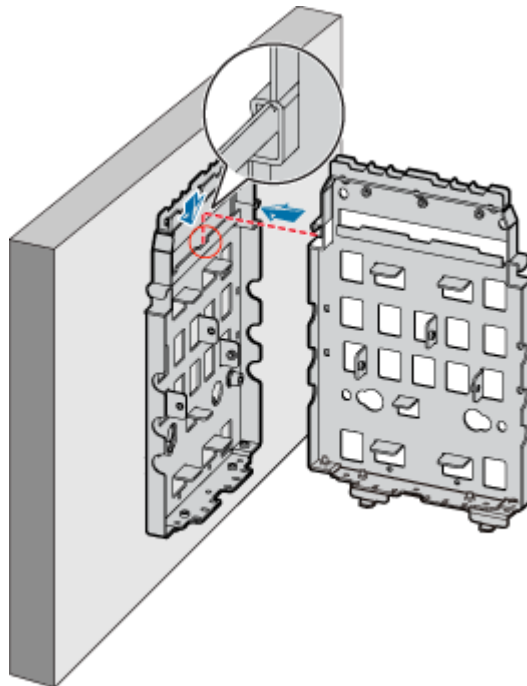
- Step 3** Use two M6x20 screws to fix the general mounting bracket to the backplane through the installation holes of the mounting bracket and the corresponding installation holes at the bottom of the backplane, as shown in [Figure 1-62](#).

**Figure 1-62** Installing the general mounting bracket at the bottom of the backplane



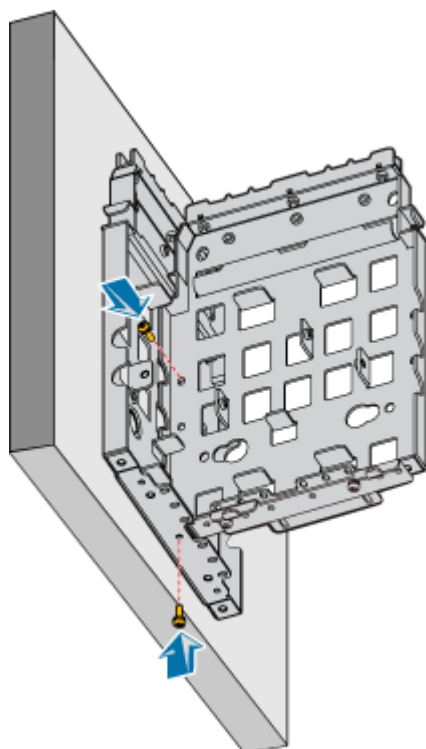
**Step 4** Fit the assembly hook of the second backplane into the center of the double RRU assembly slot of the first backplane, as shown in [Figure 1-63](#).

**Figure 1-63** Assembling two backplanes



**Step 5** Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-64](#).



**Figure 1-64** Fastening the screws on the backplanes

---End

### 3. Installing Two RRU3606s in Centralized Mode

This describes how to install two RRU3606s in centralized mode. In different scenarios, the procedures for installing two RRU3606s on the backplanes are the same. This document takes the pole installation scenario as an example.

#### Prerequisite

- The backplanes of the RRU3606s are already installed.
- If the RRU3606s are to be installed on a metal pole, the protection grounding cable of the metal pole is already installed.

#### Installation Instructions

There are two modes for the installation of backplanes on a metal pole. Accordingly, there are two modes for the installation of the RRU3606s on a metal pole. You should choose one of the following modes based on the installation mode of the backplanes:

- Side-by-side mode
- Back-to-back mode

#### Installation Procedure

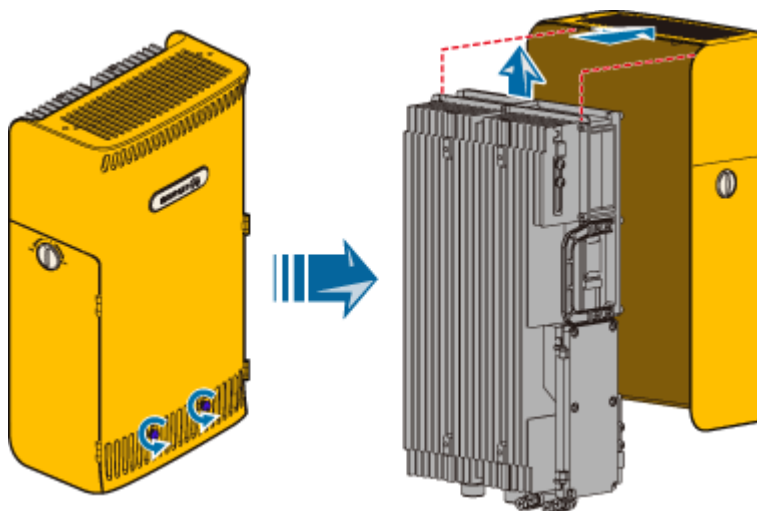
- Side-by-side mode

**CAUTION**

The RRU3606 on the left must be installed in rear mode, and the RRU3606 on the right must be installed in front mode. In this way, the cabling cavities face the outside.

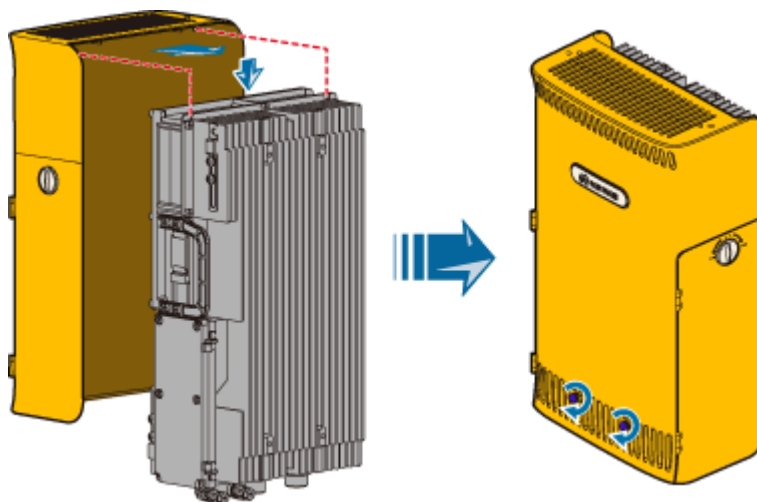
1. Remove the plastic shell of the RRU3606 that is to be installed in rear mode, as shown in [Figure 1-65](#).

**Figure 1-65** Removing the plastic shell

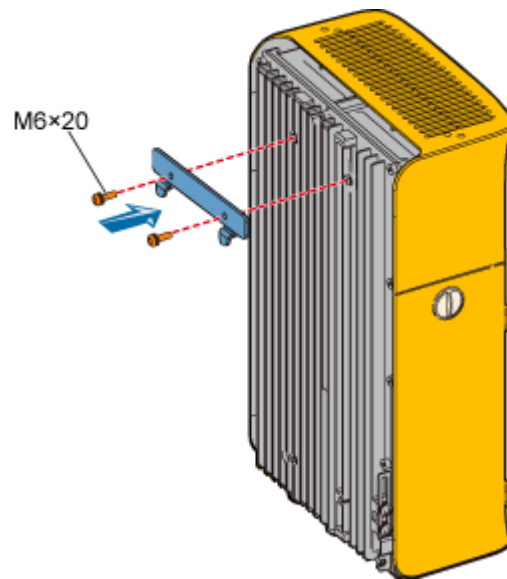


2. Install the RRU3606 into the plastic shell in rear mode, as shown in [Figure 1-66](#).

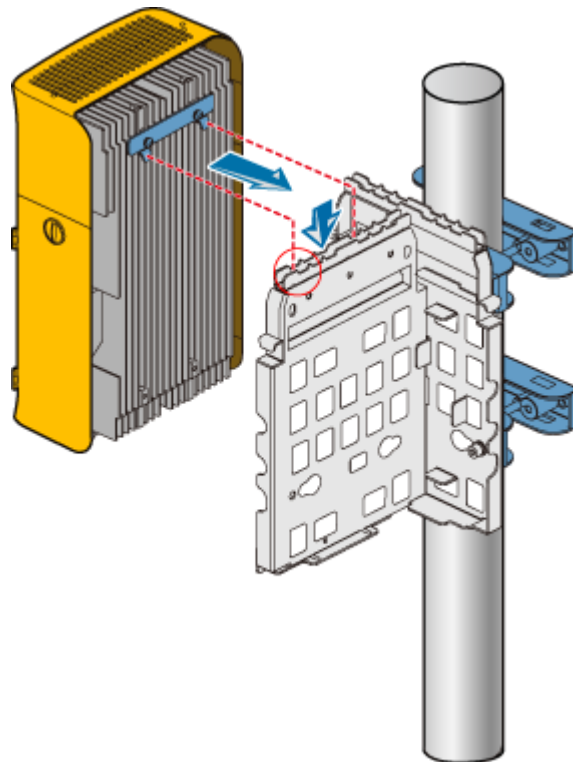
**Figure 1-66** Installing the RRU3606 in rear mode



3. Use two M6x20 screws to fix the mounting bracket to the RRU3606, as shown in [Figure 1-67](#).

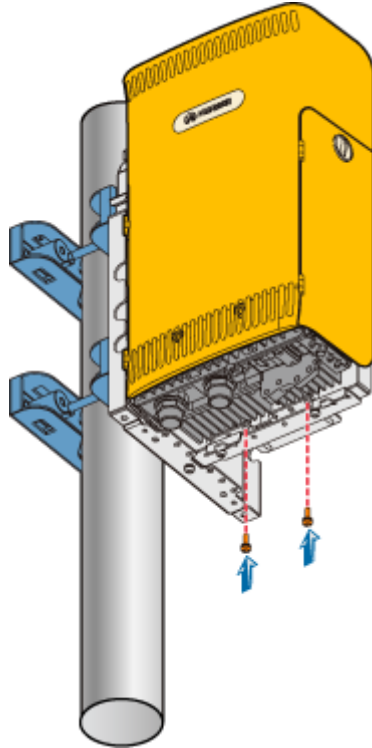
**Figure 1-67** Fixing the mounting bracket to the RRU3606

4. Fit the hook of the RRU3606 to be installed in rear mode into the outermost slot on the front of the side backplane, as shown in [Figure 1-68](#).

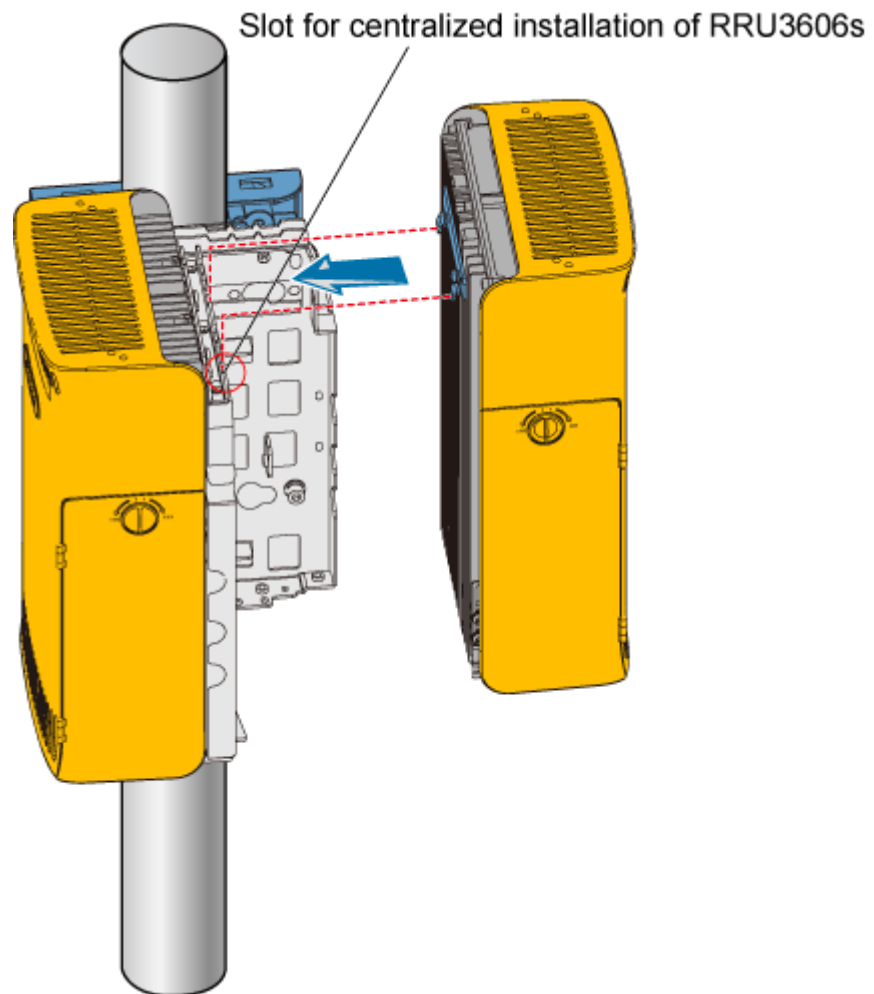
**Figure 1-68** Installing the first RRU3606

5. Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-69](#).

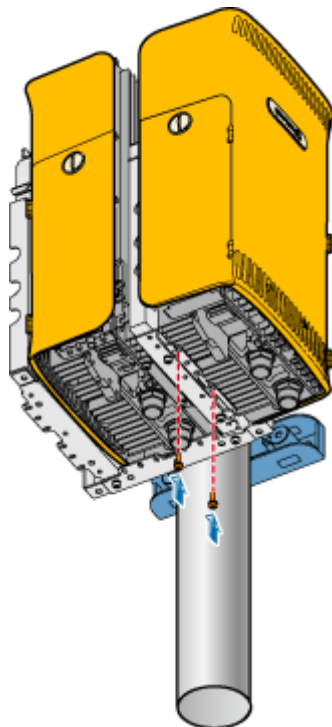
**Figure 1-69** Fixing the RRU3606



6. Fit the hook of the RRU3606 to be installed in front mode into the slot at the rear of the side backplane, as shown in [Figure 1-70](#).

**Figure 1-70** Installing the second RRU3606

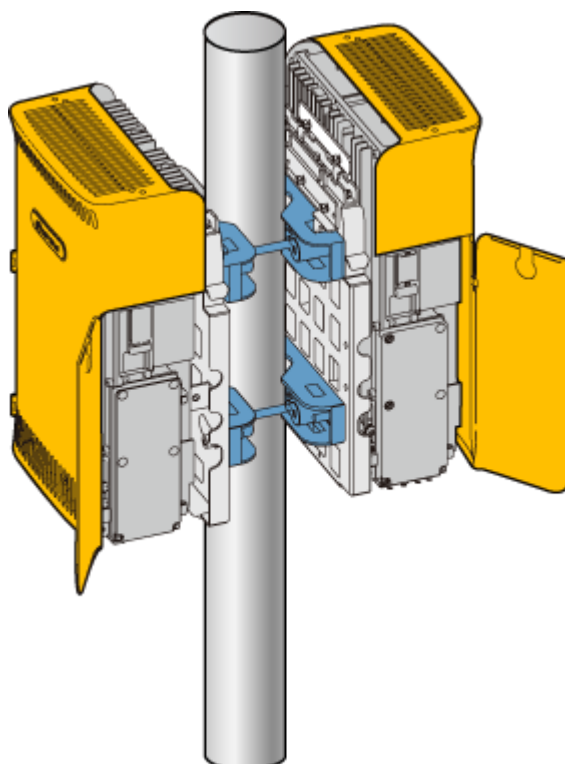
7. Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-71](#).

**Figure 1-71** Fixing the RRU3606

- Back-to-back mode
  1. Install the first RRU3606. For details, refer to [1.3.4.1.4 Installing a Single RRU3606](#).
  2. If the second RRU3606 is to be installed in front mode, follow the same way as you install the first RRU3606. If the second RRU3606 is to be installed in rear mode, you need to remove the shell first, and then install the RRU3606 in the shell in rear mode, as shown in [Figure 1-65](#) and [Figure 1-66](#).

 **NOTE**

It is recommended that the second RRU3606 be installed in rear mode so that the cabling cavities of the two RRU3606s are on the same side, as shown in [Figure 1-72](#).

**Figure 1-72** Installing the RRU3606s (cabling cavities on the same side)

## Installing Three RRU3606s in Centralized Mode

This describes how to install three RRU3606s in centralized mode. You can install three RRU3606s on a metal pole or wall.

### 1.3.4.3.1 Installing the Backplanes of Three RRU3606s on the Metal Pole

This describes how to install the backplanes of three RRU3606s on a metal pole.

### 1.3.4.3.2 Installing the Backplanes of Three RRU3606s on the Wall

This describes how to install the backplanes of three RRU3606s on the wall.

### 1.3.4.3.3 Install Three RRU3606s in Centralized Mode

This describes how to install a single RRU3606 on a metal pole. The procedures for installing three RRU3606s on the backplane in different scenarios are the same.

## 1. Installing the Backplanes of Three RRU3606s on the Metal Pole

This describes how to install the backplanes of three RRU3606s on a metal pole.

### Prerequisite

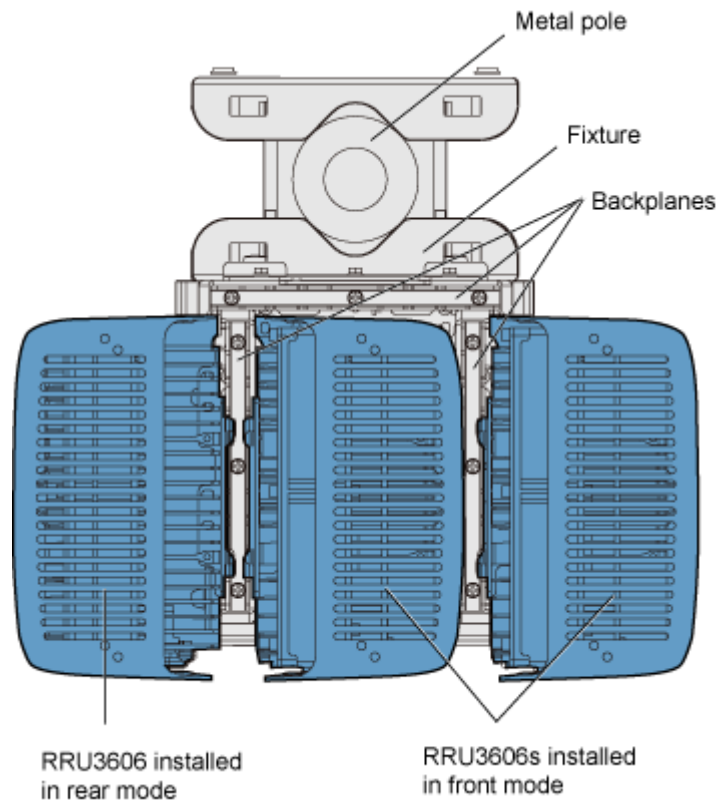
A metal pole whose diameter is 60 mm [2.36 in.] to 110 mm [4.33 in.] is available.

### Installation Instructions

You can install the three RRU3606s at the same side, that is, in side-by-side mode. Alternatively, you can install two RRU3606s at one side of the pole and the other RRU3606 at the opposite side, that is, in 2+1 mode, which facilitates carrier expansion.

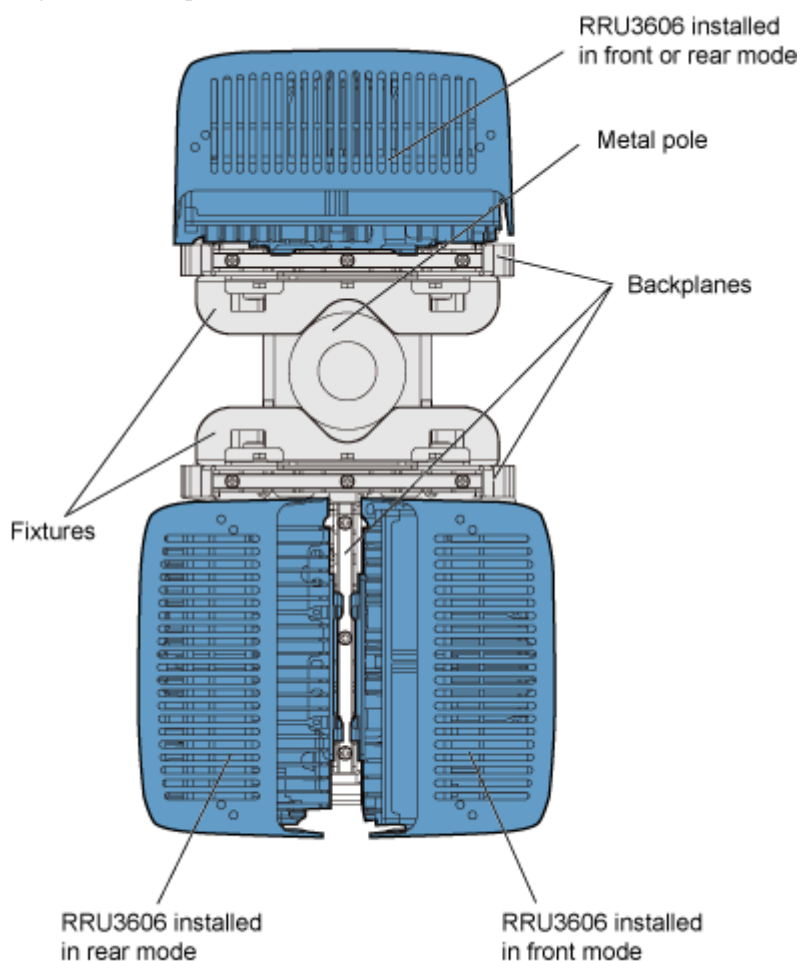
**Figure 1-73** shows the top view of the RRU3606s installed in side-by-side mode.

**Figure 1-73** Top view of the RRU3606s installed in side-by-side mode



**Figure 1-74** shows the top view of the RRU3606s installed in 2+1 mode.



**Figure 1-74** Top view of the RRU3606s installed in 2+1 mode

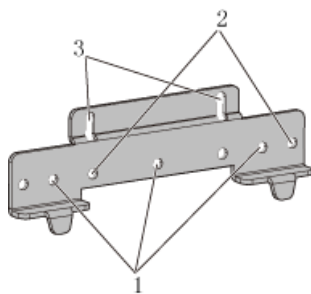
 **NOTE**

- The RRU3606s can be installed in rear or front mode. You should choose a proper mode for each RRU3606 so that the cabling cavities face the space reserved for operation and maintenance.
- The side-by-side mode is described here. For details on the 2+1 mode, see [1.3.4.1.1 Installing the Backplane of a Single RRU3606 on a Metal Pole](#) and [1.3.4.2.1 Installing the Backplanes of Two RRU3606s on the Metal Pole](#).

## Installation Procedure

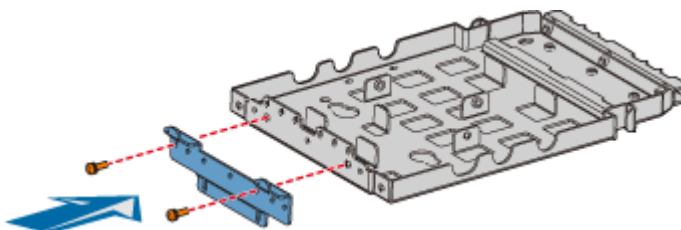
- Side-by-side mode
  1. Install the first backplane. For details, refer to [1.3.4.1.1 Installing the Backplane of a Single RRU3606 on a Metal Pole](#).
  2. Install the other backplane through installation holes marked 2 in [Figure 1-75](#).

**Figure 1-75** Choosing installation holes for the mounting bracket



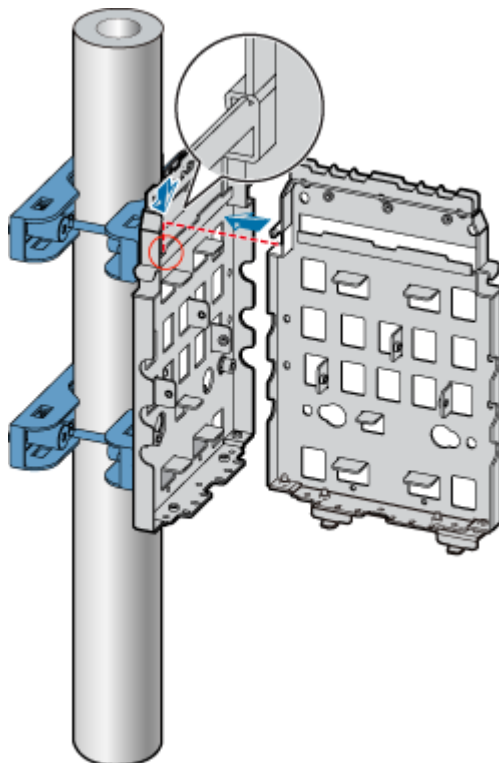
3. Use two M6x20 screws to fix the general mounting bracket to the backplane through the installation holes of the mounting bracket and the corresponding installation holes at the bottom of the second backplane, as shown in [Figure 1-76](#).

**Figure 1-76** Installing the general mounting bracket at the bottom of the backplane

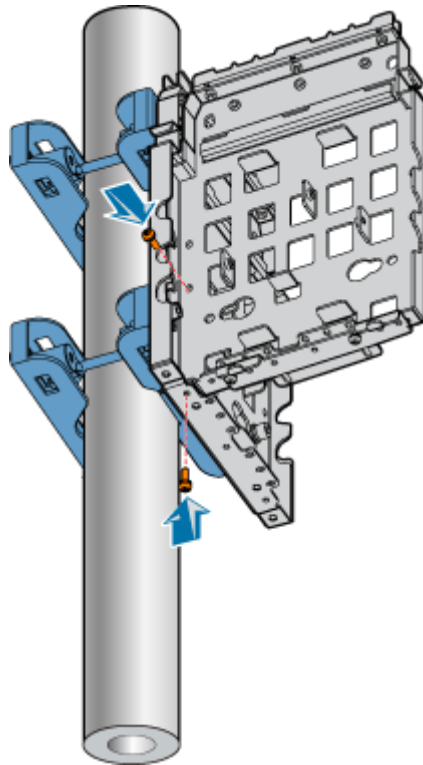


4. Fit the assembly hook of the second backplane into the left part of the three-RRU assembly slot of the first backplane, as shown in [Figure 1-77](#).

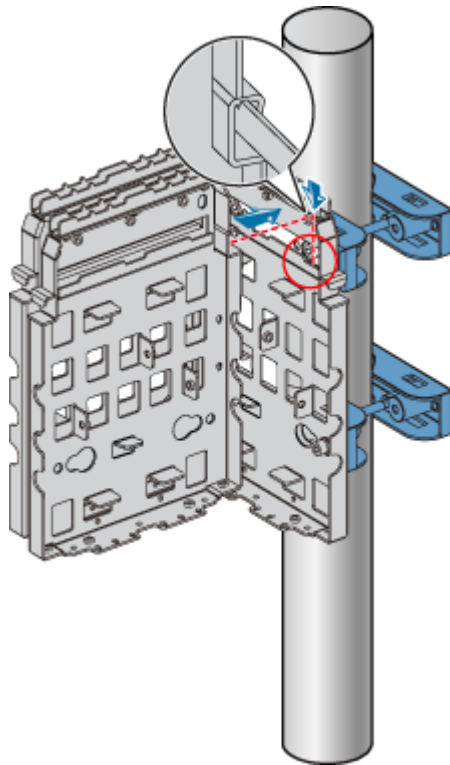
**Figure 1-77** Assembling two backplanes



5. Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-78](#).

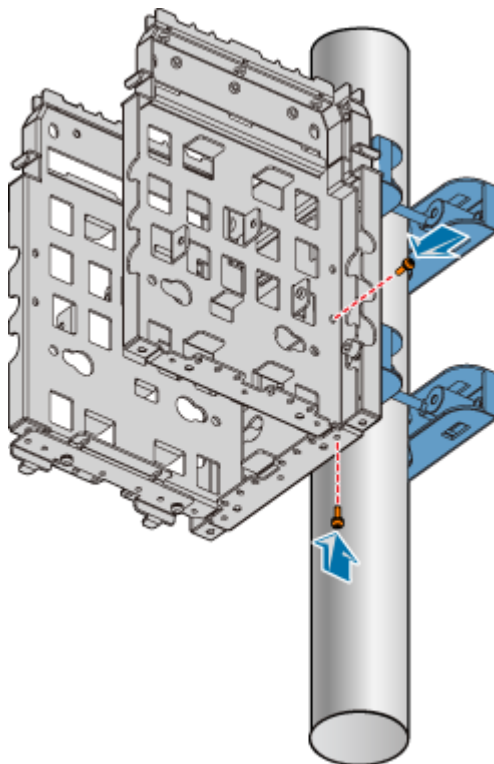
**Figure 1-78** Fastening the screws on the backplanes

6. Fit the assembly hook of the third backplane into the right part of the three-RRU assembly slot of the first backplane, as shown in [Figure 1-79](#).

**Figure 1-79** Installing the third backplane

7. Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-80](#).

**Figure 1-80** Fastening the screws on the backplanes



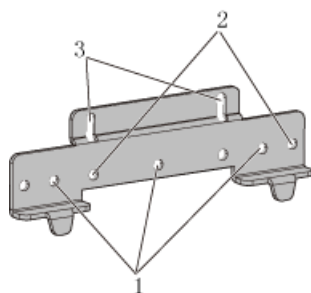
## 2. Installing the Backplanes of Three RRU3606s on the Wall

This describes how to install the backplanes of three RRU3606s on the wall.

### Procedure

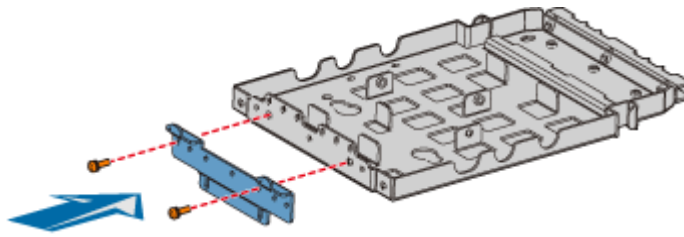
- Step 1** Install the first backplane. For details, refer to [1.3.4.1.3 Installing the Backplane of a Single RRU3606 on the Wall](#).
- Step 2** Install the second backplane through installation holes marked 2 in [Figure 1-73](#).

**Figure 1-81** Choosing installation holes for the mounting bracket



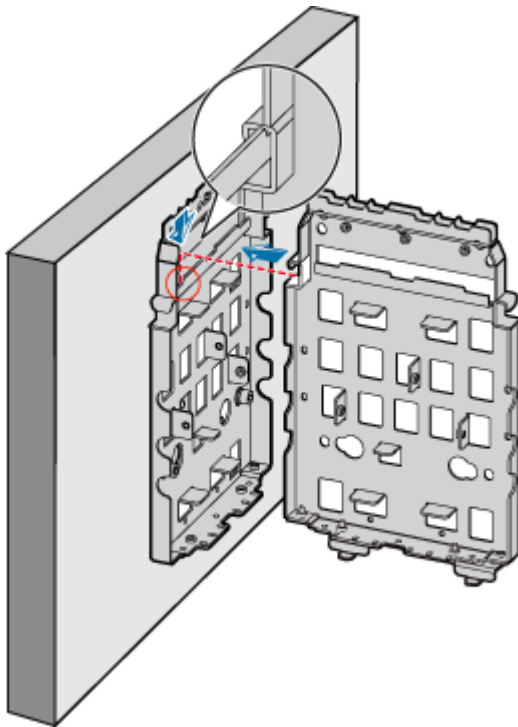
- Step 3** Use two M6x20 screws to fix the general mounting bracket to the backplane through the installation holes of the mounting bracket and the corresponding installation holes at the bottom of the second backplane, as shown in [Figure 1-74](#).

**Figure 1-82** Installing the general mounting bracket at the bottom of the backplane



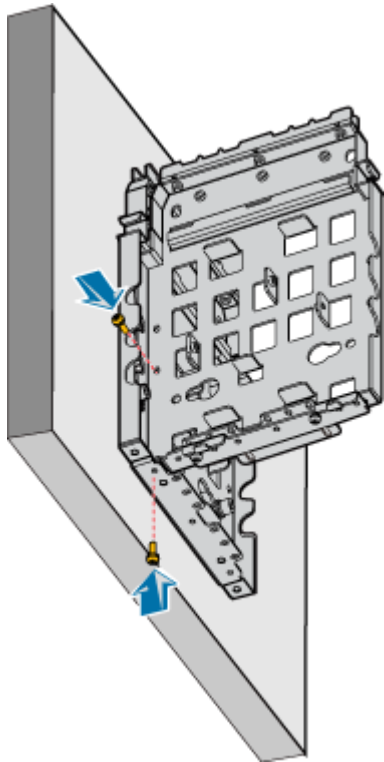
**Step 4** Fit the assembly hook of the second backplane into the left part of the three-RRU assembly slot of the first backplane, as shown in [Figure 1-75](#).

**Figure 1-83** Assembling two backplanes



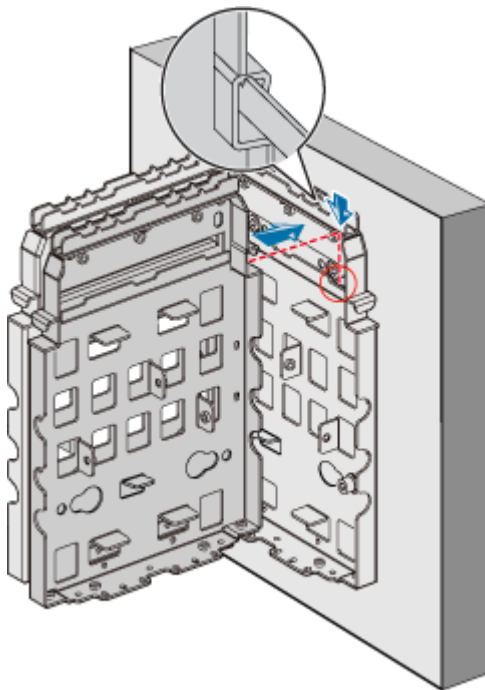
**Step 5** Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-76](#).

**Figure 1-84** Fastening the screws on the backplanes

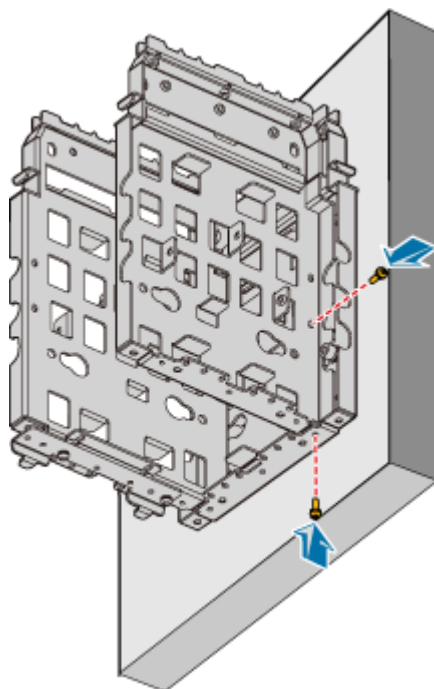


**Step 6** Fit the assembly hook of the third backplane into the right part of the three-RRU assembly slot of the first backplane, as shown in [Figure 1-77](#).

**Figure 1-85** Installing the third backplane



**Step 7** Fasten the M6x20 screws in the center and at the bottom of the backplanes, as shown in [Figure 1-78](#).

**Figure 1-86** Fastening the screws on the backplanes

---End

### 3. Install Three RRU3606s in Centralized Mode

This describes how to install a single RRU3606 on a metal pole. The procedures for installing three RRU3606s on the backplane in different scenarios are the same.

#### Prerequisite

- The backplane of the RRU3606 is already installed.
- If the RRU3606 is to be installed on a metal pole, the grounding protection cable of the metal pole is already correctly connected.



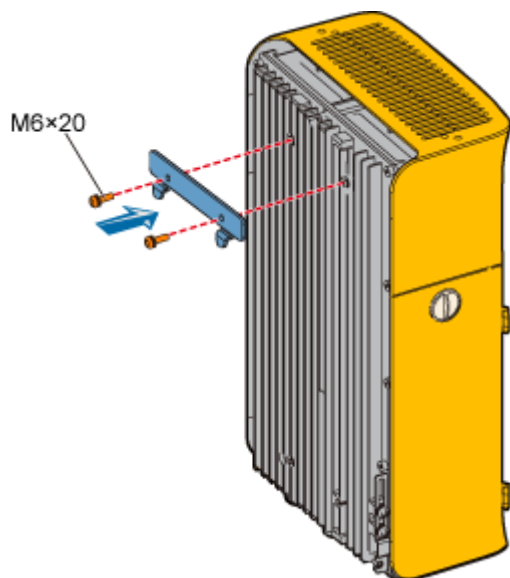
#### CAUTION

- When installing three RRU3606s in centralized mode, install the RRU3606 in the middle first. Otherwise, the RRU3606 in the middle cannot be installed.
- The RRU3606s in the middle and on the right must be installed in front mode, and the RRU3606 on the left must be installed in rear mode. In this way, the cabling cavity faces the outside.
- When installing three RRU3606s, fit the hook on the mounting bracket into the outermost slot on the backplane.

#### Procedure

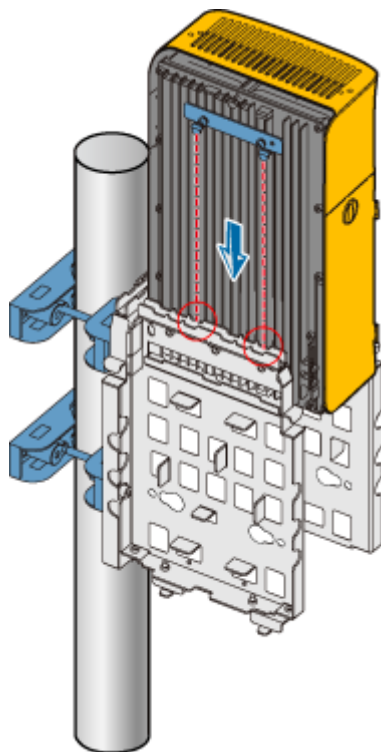
- Step 1** Use two M6x20 screws to fix the mounting bracket to the RRU3606, as shown in [Figure 1-87](#).

**Figure 1-87** Fixing the mounting bracket



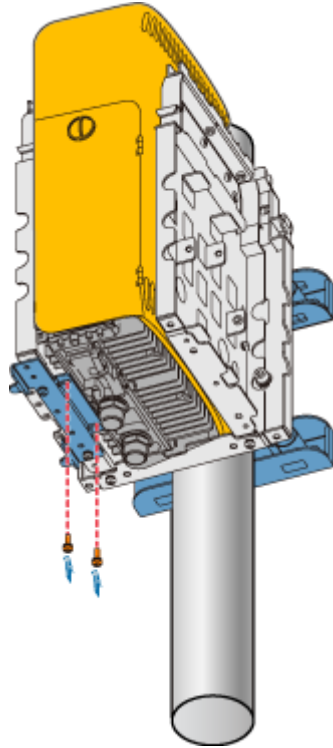
**Step 2** Fit the hook of the RRU3606 into the three-RRU assembly slot at the rear of the backplane on the left, as shown in [Figure 1-88](#).

**Figure 1-88** Installing the first RRU3606

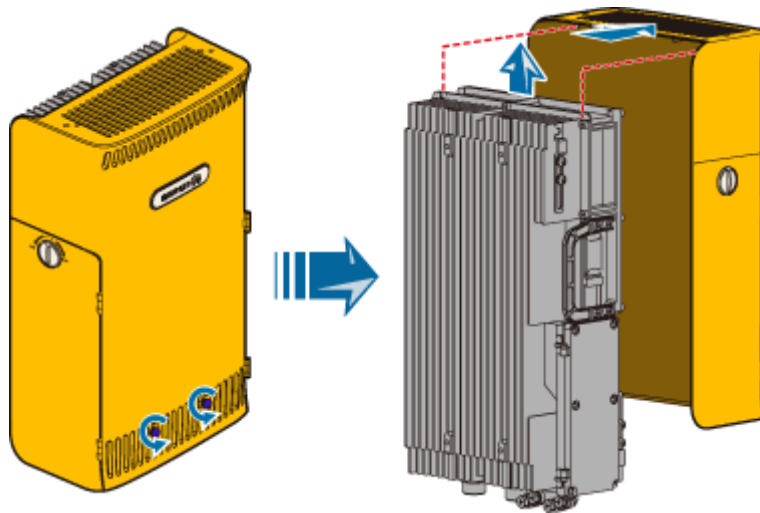


**Step 3** Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-89](#).



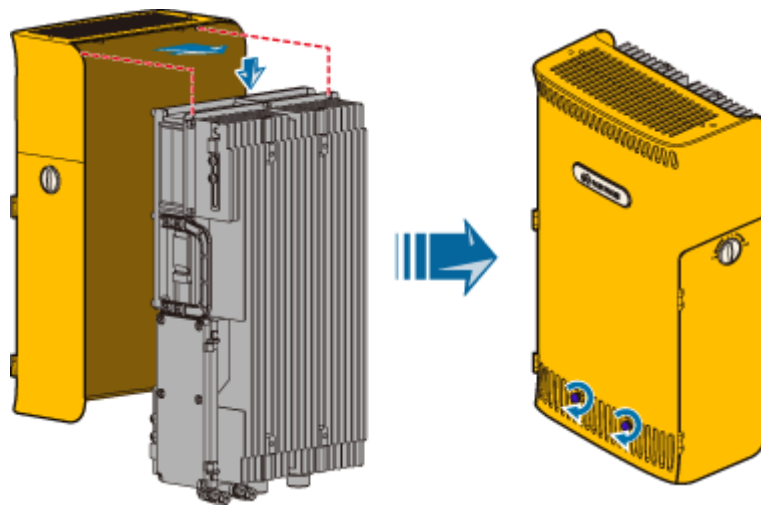
**Figure 1-89** Fixing the RRU3606

**Step 4** Remove the plastic shell of the RRU3606 that is to be installed in rear mode, as shown in [Figure 1-90](#).

**Figure 1-90** Removing the plastic shell

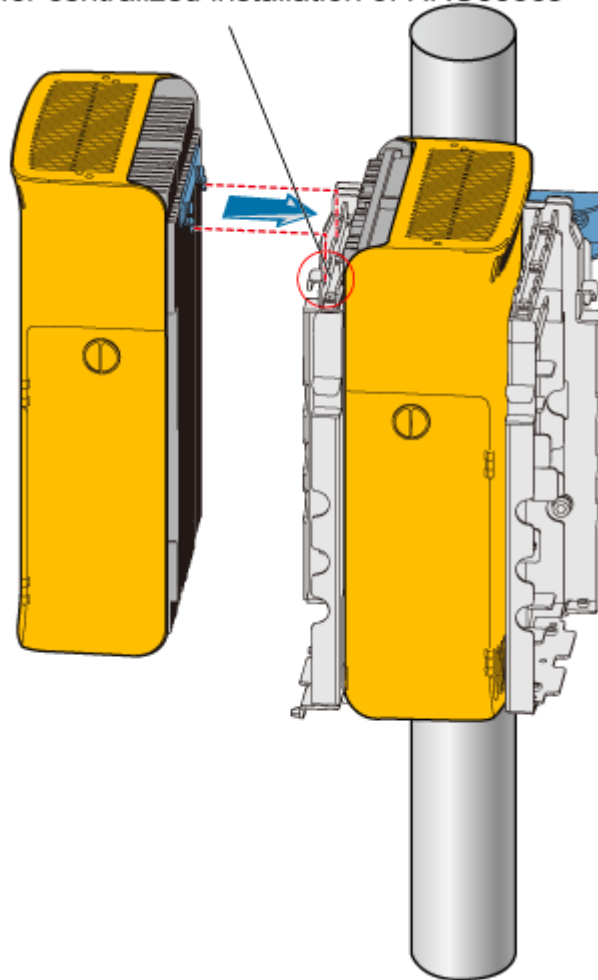
**Step 5** Install the RRU3606 into the plastic shell in rear mode, as shown in [Figure 1-91](#).

**Figure 1-91** Installing the RRU3606 in rear mode



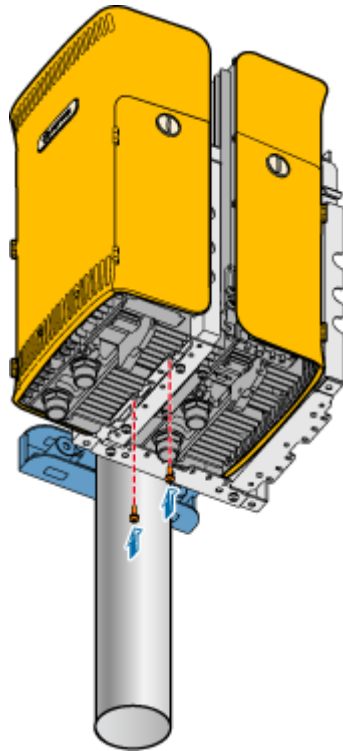
- Step 6** Use two M6x20 screws to fix the mounting bracket to the RRU3606 that is installed in the rear mode, as shown in [Figure 1-87](#).
- Step 7** Fit the hook of the RRU3606 that is installed in rear mode into the slot at the front of the backplane on the left, as shown in [Figure 1-92](#).

**Figure 1-92** Installing the second RRU3606  
Slot for centralized installation of RRU3606s

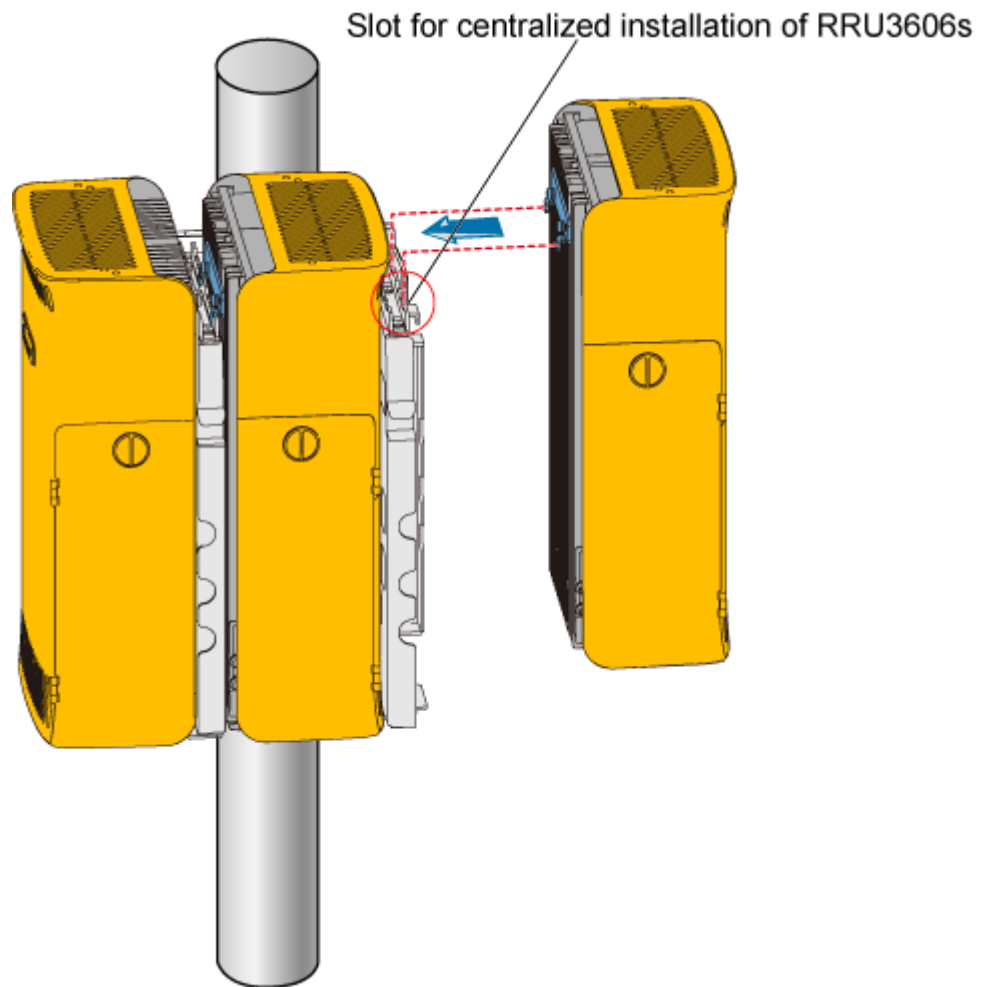


**Step 8** Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-93](#).

**Figure 1-93** Fixing the second RRU3606

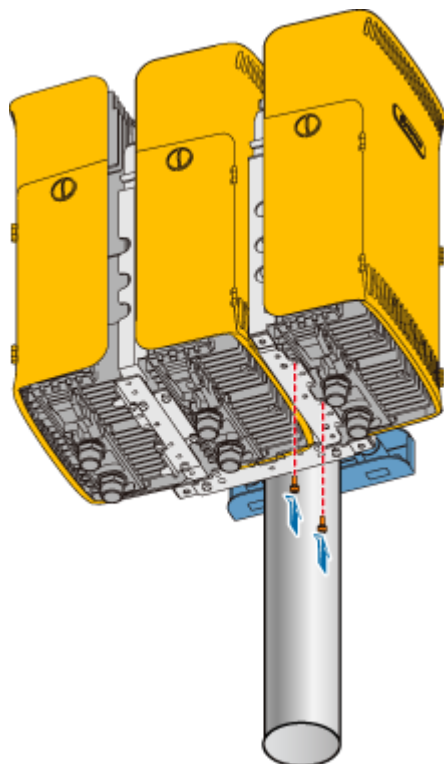


- Step 9** Use two M6x20 screws to fix the mounting bracket to the third RRU3606, as shown in [Figure 1-87](#).
- Step 10** Fit the hook of the RRU3606 to be installed in front mode into the slot at the rear of the backplane on the right, as shown in [Figure 1-94](#).

**Figure 1-94** Installing the third RRU3606

**Step 11** Use two M6x20 screws to fix the RRU3606 to the backplane through the installation holes at the bottom of the backplane, as shown in [Figure 1-95](#).

**Figure 1-95** Fixing the third RRU3606



----End

## 1.3.5 Installing and Removing the Cables of the RRU3606

This describes how to install and remove the cables of the RRU3606 and how to install the cover of the cabling cavity of the RRU3606.

### 1.3.5.1 Opening the Cover of the Cabling Cavity of the RRU3606

This describes how to open the cover of the cabling cavity.

### 1.3.5.2 Installing the Protection Grounding Cable of the RRU3606

This describes how to install the protection grounding cable of the RRU3606.

### 1.3.5.3 Installing the Power Cable of the RRU3606

This describes how to install the power cable of the RRU3606.

### 1.3.5.4 Installing the RF Jumper of the RRU3606

This describes how to install the RF jumper of the RRU3606.

### 1.3.5.5 Installing the Optical Fiber of the RRU3606

This describes how to install optical fibers for the RRU3606.

### 1.3.5.6 Installing the Alarm Cable of the RRU3606

This describes how to install the alarm cable of the RRU3606.

### 1.3.5.7 Installing the Cover of the Cabling Cavity

This describes how to install the cover of the cabling cavity.

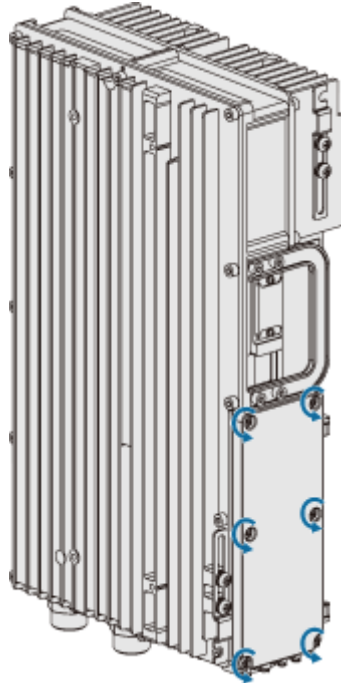
## Opening the Cover of the Cabling Cavity of the RRU3606

This describes how to open the cover of the cabling cavity.

## Procedure

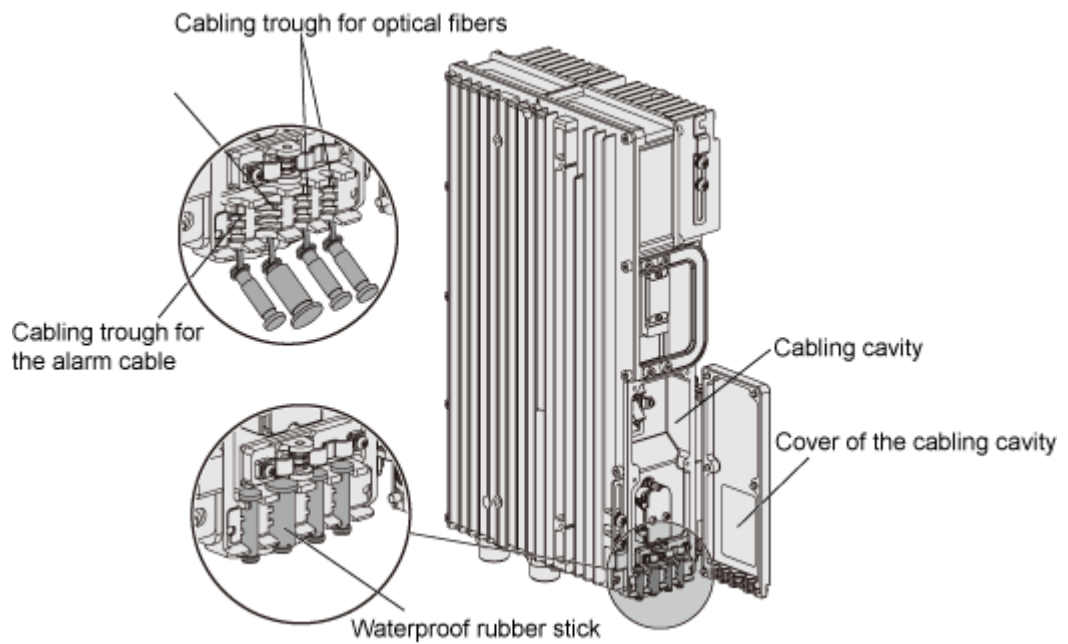
**Step 1** Loosen the six captive screws on the cover of the cabling cavity, as shown in [Figure 1-96](#).

**Figure 1-96** Loosening the captive screws on the cover of the cabling cavity



**Step 2** Open the cover of the cabling cavity, as shown in [Figure 1-97](#).

**Figure 1-97** Opening the cover of the cabling cavity





**CAUTION**

Waterproof rubber sticks are preinstalled in the wiring trough. Keep unused waterproof rubber sticks for future use.

---

----End

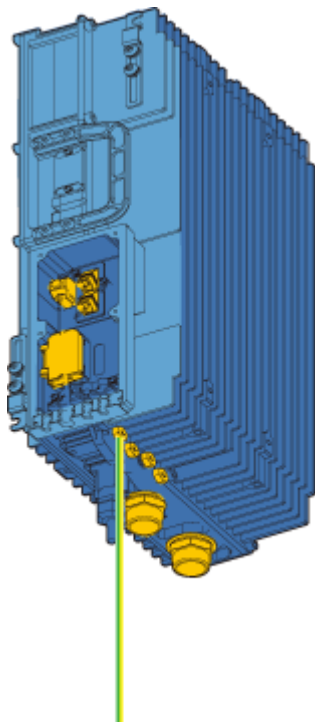
## Installing the Protection Grounding Cable of the RRU3606

This describes how to install the protection grounding cable of the RRU3606.

### Procedure

- Step 1** Route the protection grounding cable. For details, see [1.3.1.3 Requirements for Routing Cables of the RRU3606](#).
- Step 2** Prepare OT terminals for the protection grounding cable.
- Step 3** Install the protection grounding cable of the RRU3606, as shown in [Figure 1-98](#).

**Figure 1-98** Installing the protection grounding cable

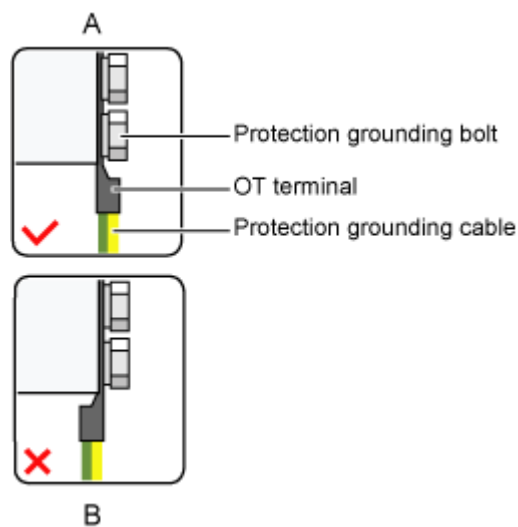


**CAUTION**

When installing the OT terminals, ensure that the crimping socket faces the correct direction, as shown in [Figure 1-99](#).

---



**Figure 1-99** Direction of the crimping socket

**Step 4** Connect the other end of the protection grounding cable to the closest grounding bar.

---End

## Installing the Power Cable of the RRU3606

This describes how to install the power cable of the RRU3606.

### Prerequisite



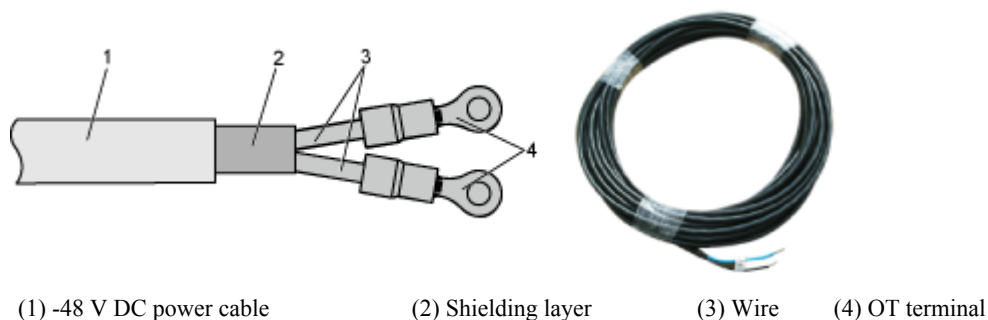
#### CAUTION

If a DC power cable is used to supply external power to the RRU3606, the power cable must be a shielded power cable. Otherwise, the equipment is prone to lightning strikes.

### Procedure

**Step 1** Route the power cable. For details, see [1.3.1.3 Requirements for Routing Cables of the RRU3606](#).

**Step 2** Prepare the input terminal of the power cable, as shown in [Figure 1-100](#).

**Figure 1-100** Input terminal of the power cable

(1) -48 V DC power cable

(2) Shielding layer

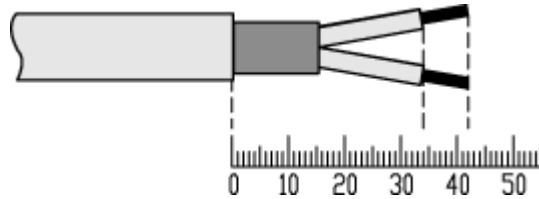
(3) Wire

(4) OT terminal

The procedure for preparing the input terminal is as follows:

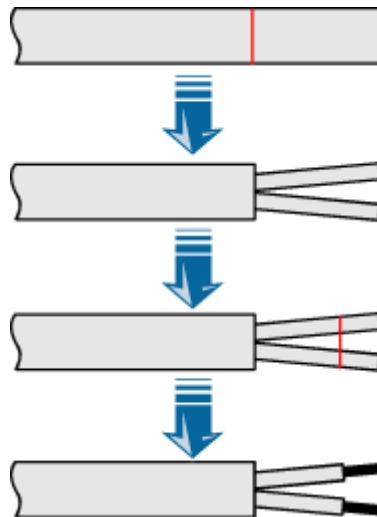
1. Determine the lengths of each cable section according to the labels on the inside of the cabling cavity. **Figure 1-101** shows the labels.

**Figure 1-101** Labels for preparing the power cable



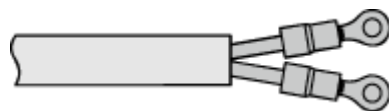
2. Based on the labels, peel part of the outer jacket and shielding layer, and then peel part of the jacket according to the labels, as shown in **Figure 1-102**.

**Figure 1-102** Peeling the cable



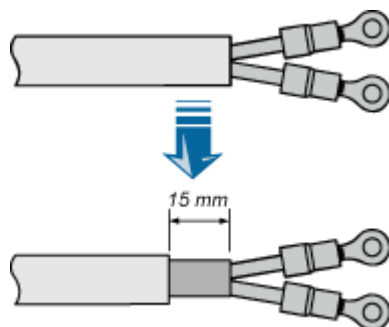
3. Prepare OT terminals at the two wires, as shown in **Figure 1-103**.

**Figure 1-103** OT terminals of the power cable



4. Based on the labels, peel about 15 mm [0.59 in.] of the outer jacket to expose the shielding layer, as shown in **Figure 1-104**.

**Figure 1-104** Peeling the outer jacket

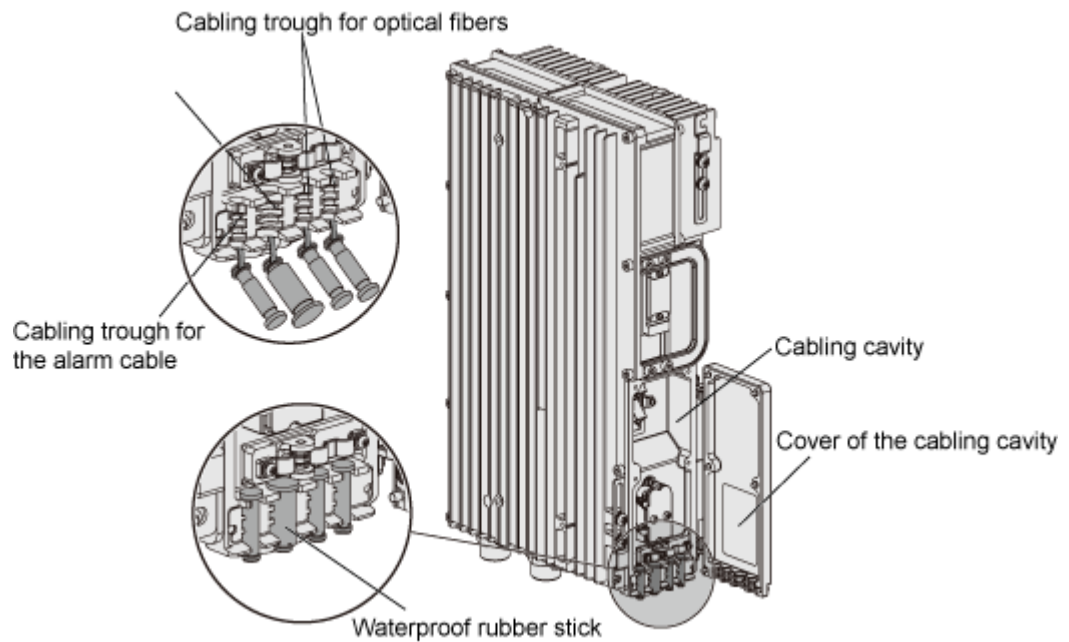


**CAUTION**

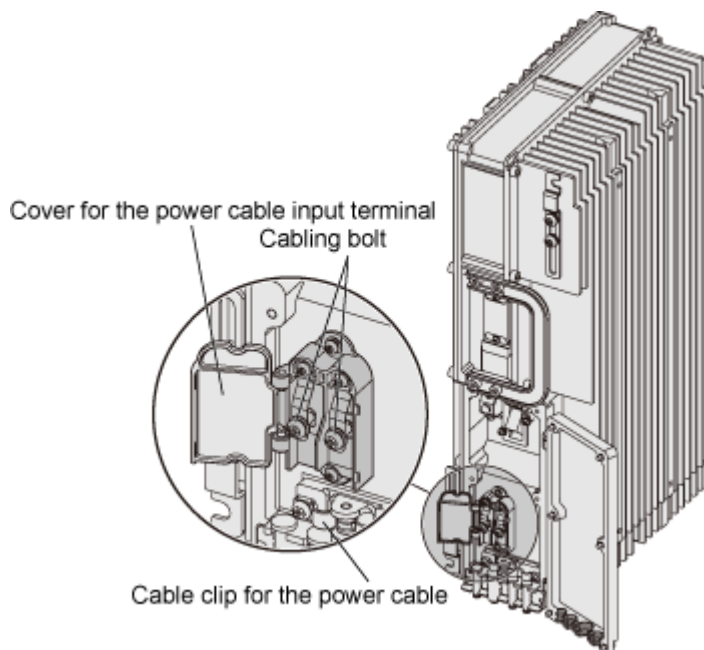
This step can be performed only after the previous steps are complete. Otherwise, the exposed part of the shielding layer becomes messy.

- Step 3** Take out the waterproof sticks in the cabling trough in the cabling cavity, and then route the power cable along the cabling trough. **Figure 1-105** shows the position of the cabling trough.

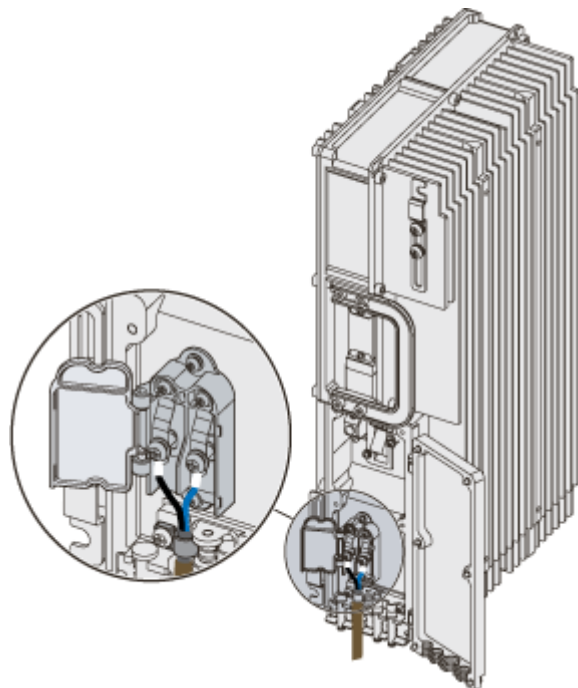
**Figure 1-105** Position of the cabling trough



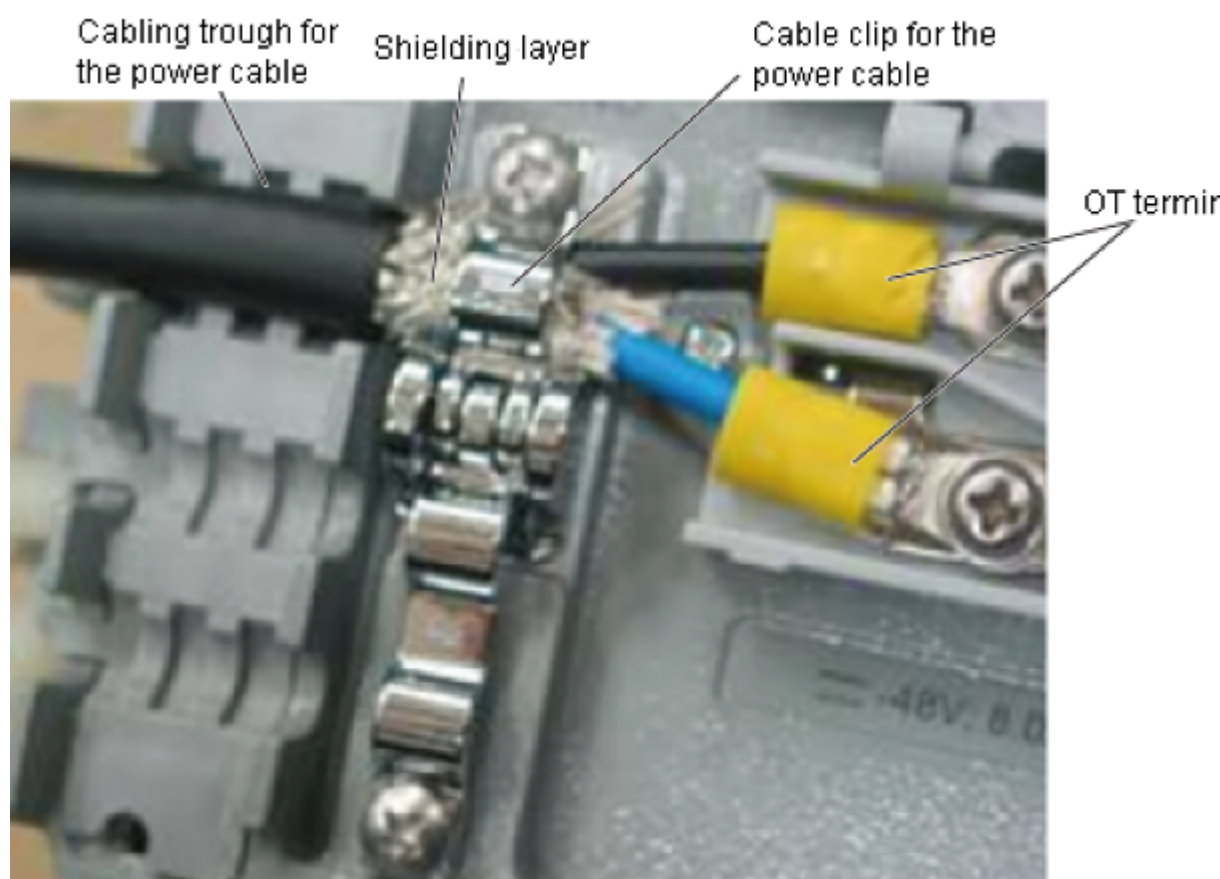
- Step 4** Open the cover above the power cable input terminal, as shown in **Figure 1-106**.

**Figure 1-106** Opening the cover above the power cable input terminal

- Step 5** Connect the OT terminal of the -48 V wire (blue) to the terminal marked NEG (-) in the cabling cavity, connect the OT terminal of the GND wire (black or brown) to the terminal marked RTN (+) in the cabling cavity, and then fasten the screw, as shown in [Figure 1-107](#).

**Figure 1-107** Installing the power cable

- Step 6** Remove the screw at the cable clip (marked PGND) of the power cable. [Figure 1-106](#) shows the position of the cable clip.
- Step 7** Use the cable clip to fix the exposed part of the shielding layer at the input terminal of the power cable, and then fasten the screw, as shown in [Figure 1-108](#).

**Figure 1-108** Fixing the exposed part of the shielding layer**CAUTION**

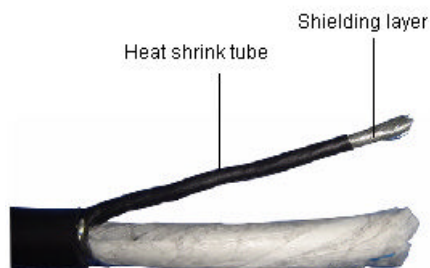
Ensure that the cable clip is pressed against the shielding layer instead of the outer jacket or the wires.

**Step 8** Close the cover above the power cable input terminal.

**Step 9** Bundle the power cable.

**Step 10** Do as follows to connect the other end of the power cable:

1. Peel about 50 mm [1.97 in.] of the outer jacket.
2. Peel part of the shielding layer and twist this part. Then, insert the twisted part of the shielding layer into a heat shrink tube ( $\phi 5$ ), as shown in [Figure 1-109](#).

**Figure 1-109** Peeling the shielding layer

3. Prepare OT terminals at the other end of the shielding layer.
4. At the peeling point of the shielding layer, use a heat shrink tube ( $\phi 14$ ) to implement heat shrink processing, as shown in [Figure 1-110](#).

**Figure 1-110** Heat shrink processing

5. Connect the OT terminals at the shielding layer to the corresponding grounding bar of the power supply equipment.
6. Prepare OT terminals for the -48 V wire (blue) and GND wire (black or brown), and then connect the terminals to corresponding wiring terminals of the power supply equipment.

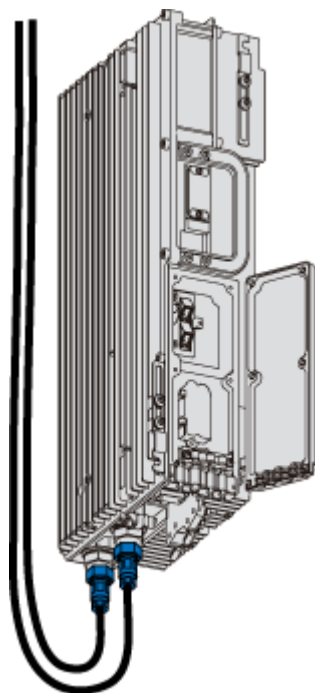
---End

## Installing the RF Jumper of the RRU3606

This describes how to install the RF jumper of the RRU3606.

### Procedure

- Step 1** Based on the distance between the bottom of the RRU3606 and the RF feeder, prepare a RF jumper of proper length with a proper margin.
- Step 2** Prepare a DIN-type connector for the RF jumper.
- Step 3** Connect the RF jumper to the RF ANT\_TX/RXA and ANT\_RXB ports of the RRU3606, as shown in [Figure 1-111](#).

**Figure 1-111** Installing the RF jumper

**Step 4** Connect the other end of the RF jumper to the feeder.

**Step 5** Use waterproofing and insulating tape to waterproof and seal the connection points at both ends of the RF jumper.

 **NOTE**

- Wrap each connection point with three layers of tape, and ensure that each layer covers at least 50% of the previous layer.
- Ensure that each layer of tape is evenly and tightly stretched. In this way, the tape does not get loose.

----End

## Installing the Optical Fiber of the RRU3606

This describes how to install optical fibers for the RRU3606.

### Prerequisite

### Context

### Procedure

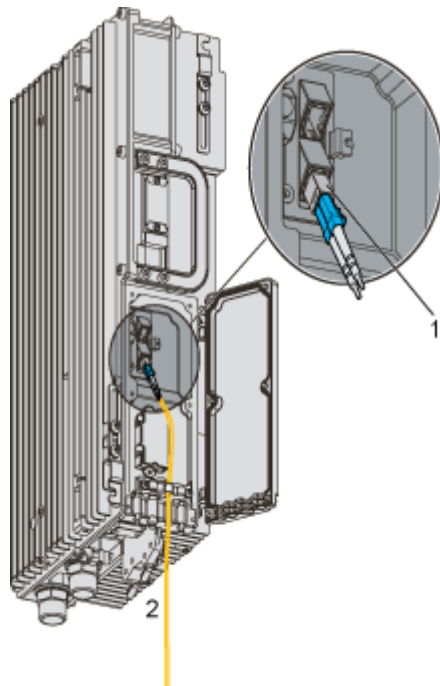
**Step 1** Insert the optical module into the CPRI\_W port in the cabling cavity of the RRU3606.

**Step 2** Insert the connector at one end of the optical fiber into the optical module.

**Step 3** Remove the screws on the cable clip of the optical fiber and the waterproof rubber sticks in the cabling trough of the optical fiber.

**Step 4** Route the optical fiber along the cabling trough in the cabling cavity, use the cable clip to fix the optical fiber, and then fasten the screw on the cable clip. [Figure 1-112](#) shows how to install the optical fiber.

**Figure 1-112** Installing the optical fiber



(1) Pluggable optical modules

(2) To the BBU3900

**Step 5** Route the optical fiber to the BBU3900.

**Step 6** Connect the other end of the optical fiber to the optical fiber port of the BBU3900.

---End

## Installing the Alarm Cable of the RRU3606

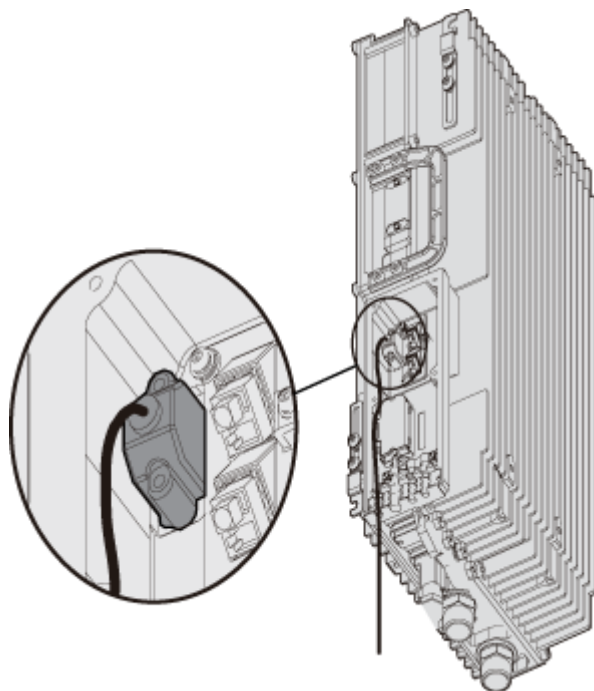
This describes how to install the alarm cable of the RRU3606.

### Procedure

**Step 1** Lead the alarm cable through the protection tube, and determine the length of the part of the cable outside the protection tube according to the actual situation.

**Step 2** Connect the DB15 connector of the alarm cable to the RS485/EXT\_ALM port in the cabling cavity of the RRU3606. [Figure 1-113](#) shows how to install the alarm cable.



**Figure 1-113** Installing the alarm cable

- Step 3** Remove the waterproof rubber sticks in the wiring trough of the cabling cavity, and then route the alarm cable along the wiring trough of the cabling cavity.
- Step 4** Connect the other end of the alarm cable to the Boolean value signal port of the corresponding auxiliary device.
- Step 5** Take waterproofing and sealing measures for the holding tube.

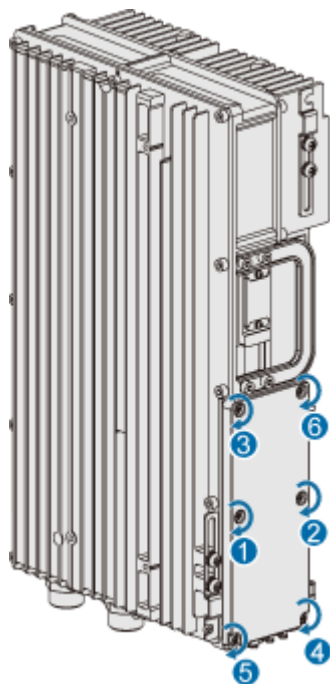
----End

## Installing the Cover of the Cabling Cavity

This describes how to install the cover of the cabling cavity.

### Procedure

- Step 1** Close the cover of the cabling cavity.
- Step 2** Fasten the screws one by one in the sequence shown in [Figure 1-114](#).

**Figure 1-114** Installing the cover of the cabling cavity**CAUTION**

The screws of cover must be tightly fastened. The torque requirement is 1.4 N•m.

----End

## 1.3.6 Powering On the RRU3606

This describes how to power on the RRU3606.

### Prerequisites

Before powering on the RRU3606, ensure that:

- The fixing pieces are securely installed, and the backplanes are properly fixed without distortion.
- The power cable, grounding cable, optical fiber, alarm cable, and RF feeder are intact.
- The power cable is not short-circuited or inversely connected, and the grounding cable is not short-circuited.
- The optical fiber, alarm cable, and RF jumper are correctly connected and fixed.
- If the -48 V DC power supply is used, the external input voltage should be -37 V DC to -60 V DC.

### Procedure

**Step 1** Switch on the external power supply equipment of the RRU3606.

**Step 2** Check the status of the indicators in the cabling cavity. [Table 1-10](#) lists the meanings of the indicators.

**Table 1-10** Meanings of the indicators

Indicator	Color	Status	Meaning
RUN	Green	ON	There is power input, but the RRU3606 is faulty.
		OFF	There is no power input, or the RRU3606 is faulty.
		ON for 1 second and OFF for 1 second	The RRU3606 is working properly.
		ON for 0.5 second and OFF for 0.5 second	The RRU3606 software is being loaded, or the data of the RRU3606 is not configured.
ALM	Red	ON	Fatal alarm
		Blinking at 0.5 Hz	Minor alarm
		OFF	No alarm

---End

## 1.3.7 Installing the Shell of the RRU3606

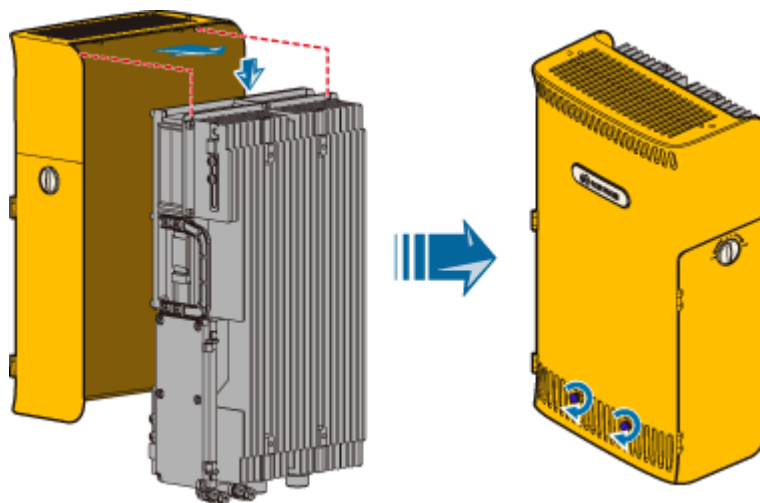
This describes how to install the shell of the RRU3606.

### Background Information

During software installation and system commissioning, if you need to view the status of the indicators through the cabling cavity, the shell can be installed after system commissioning.

### Procedure

- Step 1** Attach the shell to the RRU3606 by fitting the hooks of the shell into the slots at the top of the RRU3606, as shown in [Figure 1-115](#).

**Figure 1-115** Installing the shell

**Step 2** Use two M6×14 screws to fix the shell, as shown in [Figure 1-115](#).

---End

### 1.3.8 Checklist for the Installation of the RRU3606

This describes the items to be checked after the RRU3606 is installed.

#### Checking the Installation of the Equipment

Before powering on the RRU3606, perform the checks listed in [Table 1-11](#).

**Table 1-11** Checklist for the installation of the equipment

SN	Item
1	The installation position of the equipment is strictly consistent with the design drawings and meets the requirements for installation space and reserved space.
2	If the RRU3606 is installed on a metal pole or wire pole, the fixing pieces are securely installed, and the backplanes are properly fixed without distortion.
3	If the RRU3606 is installed on a wall, the installation holes in the backplane are aligned with the holes in the expansion bolts, and the backplane is in good contact with the wall and securely installed.
4	The cover of the cabling cavity is tightly closed.
5	The unused wiring troughs in the cabling cavity are filled with waterproof rubber sticks.
6	The waterproof covers and chains for the ports at the bottom of the RRU3606 are tightly bound with nearby cables.
7	There is no scratch on the surface of the RRU3606. Otherwise, you must paint the scratched part.

SN	Item
8	The surface of the RRU3606 is clean and tidy, and the labels are complete, correct, and clear.
9	There are no engineering objects left at the site, for example, tape, binding straps, and package bags.

## Checking the Installation of the Cables

- For the power cable and protection grounding cable, perform the checks listed in [Table 1-12](#).

**Table 1-12** Checklist for the installation of the power cable and protection grounding cable

SN	Item
1	The power cable and protection grounding cable are not short-circuited or inversely connected.
2	The power cable and protection grounding cable are bound separately from the other cables.
3	Labels are attached to both ends of the power cable and protection grounding cable.
4	The power cable and protection grounding cable are intact.
5	The power cables and protection grounding cables have no weld nugget.
6	No disconnectable devices, such as switches and fuses, are set in the electrical circuit of the grounding system.
7	The redundant parts of the power cable and protection grounding cable are cut off.
8	The copper lugs at both ends of the power cable and protection grounding cable are welded or crimped firmly.
9	The exposed wires at the connection terminals and lug handles are insulated by insulation tape or heat shrink tubes.
10	Plain washers and spring washers are installed at all connection terminals. The connection terminals are securely installed and in good contact.
11	The work grounding cable and protection grounding cable of the BTS share a group of grounding conductors with the lightning and grounding cables of the building.

- For the signal cables, perform the checks listed in [Table 1-13](#).

**Table 1-13** Checklist for the installation of the signal cables

SN	Item
1	The connectors of the signal cables are securely connected.
2	The connectors of the signal cables are intact.
3	The signal cables are intact.
4	The signal cables are bound orderly and tightly. The cable ties are evenly spaced and fastened with proper force.
5	The redundant parts of the cable ties are removed, and all cuts of the cable ties are smooth without sharp ends.
6	A margin of 3 mm [0.12 in.] to 5 mm [0.20 in.] is reserved.
7	The placement of the signal cables is convenient for maintenance and capacity expansion.
8	Correct and clear labels are attached to both ends of the signal cables.

## Power-On Check

Before powering on the RRU3606, you need to check the voltage input to the RRU3606 and the running status of the RRU3606.

The procedure for the power-on check is as follows:

1. Switch off the primary power supply to the RRU3606.
2. Measure the voltage input to the RRU3606. If the voltage is -37 V DC to -60 V DC, the primary power supply is functional.
3. Switch on the power supply equipment of the RRU3606.
4. Check whether the status of the RUN indicator in the cabling cavity of the RRU3606 is normal.

**Table 1-14** lists the states of the RUN indicator.

**Table 1-14** States of the RUN indicator

State	Description
ON	There is power input, but the board is faulty.
OFF	There is no power input, or the RRU3606 is working in alarm mode.
ON for 1 second and OFF for 1 second	The board is working properly.
ON for 0.5 second and OFF for 0.5 second	The board software is being loaded.

## 1.4 Maintaining the RRU3606

This describes how to maintain the RRU3606.

### [1.4.1 Routine Maintenance Items of the RRU3606](#)

This describes the routine maintenance items of the RRU3606. During the routine maintenance of the RRU3606, you need to check the surface, cleanness, and indicators of the equipment.

### [1.4.2 Powering On and Powering Off the RRU3606](#)

This describes how to power on and power off the RRU3606.

### [1.4.3 Replacing the RRU3606](#)

This describes how to replace a faulty RRU3606.

### [1.4.4 Replacing the Cables of the RRU3606](#)

This describes how to replace the cables of the RRU3606. The power cable, RF cable, optical fiber, and alarm cable of the RRU3606 can be replaced on site.

## 1.4.1 Routine Maintenance Items of the RRU3606

This describes the routine maintenance items of the RRU3606. During the routine maintenance of the RRU3606, you need to check the surface, cleanness, and indicators of the equipment.

After the equipment is installed and starts to work properly, you should perform routine maintenance for the equipment on a regular basis, for example, every month or season. Do as follows to perform routine maintenance:

- Check whether the surface of the equipment is intact and whether the labels and marks are clear.
- Check whether the equipment is clean. There should not be too much dust accumulated inside the subrack.
- Check whether the status of the indicators is normal.

## 1.4.2 Powering On and Powering Off the RRU3606

This describes how to power on and power off the RRU3606.

### [1.4.2.1 Powering On the RRU3606](#)

This describes how to power on the RRU3606.

### [1.4.2.2 Powering Off the RRU3606](#)

This describes how to power off the RRU3606.

## Powering On the RRU3606

This describes how to power on the RRU3606.

## Prerequisites

Before powering on the RRU3606, ensure that:

- The fixing pieces are securely installed, and the backplanes are properly fixed without distortion.
- The power cable, grounding cable, optical fiber, alarm cable, and RF feeder are intact.
- The power cable is not short-circuited or inversely connected, and the grounding cable is not short-circuited.
- The optical fiber, alarm cable, and RF jumper are correctly connected and fixed.
- If the -48 V DC power supply is used, the external input voltage should be -37 V DC to -60 V DC.

## Procedure

**Step 1** Switch on the external power supply equipment of the RRU3606.

**Step 2** Check the status of the indicators in the cabling cavity. [Table 1-16](#) lists the meanings of the indicators.

**Table 1-15** Meanings of the indicators

Indicator	Color	Status	Meaning
RUN	Green	ON	There is power input, but the RRU3606 is faulty.
		OFF	There is no power input, or the RRU3606 is faulty.
		ON for 1 second and OFF for 1 second	The RRU3606 is working properly.
		ON for 0.5 second and OFF for 0.5 second	The RRU3606 software is being loaded, or the data of the RRU3606 is not configured.
ALM	Red	ON	Fatal alarm
		Blinking at 0.5 Hz	Minor alarm
		OFF	No alarm

----End

## Powering Off the RRU3606

This describes how to power off the RRU3606.

## Background

You need to power off the RRU3606 on special occasions, for example, when the equipment is to be transferred to another site, the RRU3606 and cables need to be replaced, or the equipment is subject to damage resulting from fires, smoke, and water.



## Procedure

Switch off the external power supply equipment of the RRU3606.

----End

### 1.4.3 Replacing the RRU3606

This describes how to replace a faulty RRU3606.

#### Preparations

- Determine the quantity of RRU3606s that need to be replaced and get ready new RRU3606s.
- Record the installation positions of the RRU3606s.
- Record the positions of the screws used to fix the RRU3606s.
- Record the positions of the ports of all the cables connected to the RRU3606s.
- Get ready wire nippers, bundling tape, an antistatic wrist strap or antistatic gloves, a Phillips screwdriver, a straight screwdriver, and a wrench.

#### Procedure

**Step 1** Record the information of the carriers.

Run the **DSP CBTSSSECTORCARRIERINFO** command to query the cell IDs, sector IDs, and carrier IDs.

**Step 2** Block the carriers.

1. Run the **BLK RES** command to block all the carriers of the sectors where the RRU3606s to be replaced are configured. It is recommended that you set the value of the priority parameter to Low.
2. Run the **DSP RES** command to query whether the carriers are blocked. If they are blocked, proceed with the next step.

**Step 3** Power off the RRU3606s.

**Step 4** Remove the RRU3606s to be replaced.

- Remove all the cables connected to the RRU3606s and take appropriate insulation measures.
- For each RRU3606 to be replaced, remove the two M6x20 screws that are fixed in the installation holes at the bottom of the backplane.
- Remove the hooks of the mounting brackets from the slots in the backplanes, and then remove the RRU3606s from the backplanes.
- For each RRU3606 to be replaced, remove the three M6x20 screws used to fix the mounting bracket.

**Step 5** Install the new RRU3606s.

- Take out the new RRU3606s.
- For each new RRU3606, use three M6x20 screws to fix the mounting bracket.
- For each new RRU3606, fit the hooks on the mounting bracket into the slots in the backplane.
- For each new RRU3606, install two M6x20 screws in the installation holes at the bottom of the backplane, and then fasten the screws.

- Connect all the cables to the RRU3606s.
- Verify the installation, and then power on the RRU3606s.

**Step 6** Load the software.

If automatic loading is configured for the RRU3606s, the CPU software and FPGA software of the RRU3606s are automatically loaded from the BAM after the RRU3606s are powered on. If automatic loading is not configured, you need to run the **DLD CBTSSW** command to load the CPU software and FPGA software of the RRU3606s.

**Step 7** Unblock the carriers.

Run the **UBL RES** command to unblock the carriers.

**Step 8** Check that the RRU3606s work properly.

Observe the running and alarm indicators of the RRU3606s. [Table 1-16](#) lists the running and alarm indicators of the RRU3606.

**Table 1-16** Running and alarm indicators of the RRU3606

Indicator	Color	State	Description
RUN	Green	ON	The power input is normal, but the board is faulty.
		OFF	There is no power input, or the RRU3606 is working in alarm mode.
		ON for 1 second and OFF for 1 second	The board is working properly.
		ON for 0.5 second and OFF for 0.5 second	The board software is being loaded.
ALM	Red	ON	Fatal alarm
		Blinking at 0.5 Hz	Minor alarm
		OFF	No alarm

---End

## 1.4.4 Replacing the Cables of the RRU3606

This describes how to replace the cables of the RRU3606. The power cable, RF cable, optical fiber, and alarm cable of the RRU3606 can be replaced on site.

### 1.4.4.1 Replacing the Power Cable of the RRU3606

This describes how to replace the power cable of the RRU3606.

### 1.4.4.2 Replacing the RF Jumper of the RRU3606

This describes how to replace faulty RF jumpers of the RRU3606.

### 1.4.4.3 Replacing the Optical Fiber of the RRU3606

This describes how to replace faulty optical fibers of the RRU3606.

#### 1.4.4.4 Replacing the Alarm Cables of the RRU3606

This describes how to replace faulty alarm cables of the RRU3606.

### Replacing the Power Cable of the RRU3606

This describes how to replace the power cable of the RRU3606.

#### Prerequisite

- Get ready a new power cable.
- Record the installation of the power supply unit.
- Get ready wire nippers, bundling tape, an antistatic wrist strap or antistatic gloves, a Phillips screwdriver, a straight screwdriver, and a wrench.

#### Procedure

- Step 1** Route the new power cable in the same way as the faulty power cable is routed.
- Step 2** Run the **DSP CBTSSECTORCARRIERINFO** command to query the cell IDs, sector IDs, and carrier IDs.
- Step 3** Block the carriers.
1. Run the **BLK RES** command to block all the carriers of the sector where the power cable to be replaced is configured. It is recommended that you set the value of the priority parameter to Low.
  2. Run the **DSP RES** command to query whether the carriers are blocked. If they are blocked, proceed with the next step.
- Step 4** Remove the faulty power cable.
1. Switch off the external power supply equipment of the RRU3606.
  2. Open the cover of the cabling cavity and the cover above the power cable input terminal.
  3. Loosen the screw at the cable clip (marked PGND) of the power cable.
  4. In the cabling cavity, remove the OT terminal of the faulty power cable, and then remove the faulty power cable.
- Step 5** Install the new power cable.
- Install the OT terminal of the new power cable.
  - Use the cable clip to fix the exposed part of the shielding layer, and then fasten the screw.
  - Close the cover above the power cable input terminal and the cover of the cabling cavity.
- Step 6** Switch on the external power supply equipment of the RRU3606.
- Step 7** Block the carriers.
- Run the **UBL RES** command to unblock all the carriers of the sector where the power cable is configured.
- Step 8** Check that the RRU3606s work properly.
- Observe the running and alarm indicators of the RRU3606s. [Table 1-17](#) lists the running and alarm indicators of the RRU3606.

**Table 1-17** Running and alarm indicators of the RRU3606

Indicator	Color	State	Description
RUN	Green	ON	The power input is normal, but the board is faulty.
		OFF	There is no power input, or the RRU3606 is working in alarm mode.
		ON for 1 second and OFF for 1 second	The board is working properly.
		ON for 0.5 second and OFF for 0.5 second	The board software is being loaded.
ALM	Red	ON	Fatal alarm
		Blinking at 0.5 Hz	Minor alarm
		OFF	No alarm

----End

## Postrequisite

Keep the faulty power cable properly, and then clean up the site.

## Replacing the RF Jumper of the RRU3606

This describes how to replace faulty RF jumpers of the RRU3606.

## Prerequisite

- Determine the quantity of the RF jumpers to be replaced and their types, and then get ready new jumpers.
- Get ready a wrench, a feeder cutter, cutting nippers (matching the feeder types), an antistatic wrist strap or antistatic gloves, and a screwdriver.

## Procedure

- Step 1** Run the **DSP CBTSSSECTORCARRIERINFO** command to query the cell IDs, sector IDs, and carrier IDs.
- Step 2** Block the carriers.
1. Run the **BLK RES** command to block all the carriers of the sectors where the jumpers to be replaced are configured. It is recommended that you set the value of the priority parameter to Low.
  2. Run the **DSP RES** command to query whether the carriers are blocked. If they are blocked, proceed with the next step.
- Step 3** Remove the faulty RF jumpers.

1. Power off the RRU3606.
2. Remove the faulty RF jumpers from the RF jumper ports of the RRU3606.
3. Remove the faulty RF jumpers from the feeder ports.

**Step 4** Install new RF jumpers.

1. Connect the DIN connectors of the new RF jumpers to the ANT\_TX/RXA and ANT\_RXB ports of the RRU3606.
2. Connect the new RF jumpers to the feeders.
3. Use waterproof tape to protect the connection points at both ends of each RF jumper.

 **NOTE**

- Wrap each connection point with three layers of tape, and ensure that each layer covers at least 50% of the previous layer.
  - Ensure that each layer of tape is evenly and tightly stretched. In this way, the tape does not get loose.
4. Stick PVC insulation tape over the waterproof tape in the same way as you stick the waterproof tape.
  5. Power on the RRU3606.

**Step 5** Unblock the carriers.

Run the **UBL RES** command to unblock all the carriers of the sectors where the RF jumpers to be replaced are configured.

**Step 6** Check that the new RF jumpers are functional.

Perform service verification and a calibration test on the carriers of the new RF jumpers. If the results are normal and alarms are not generated, the replacement is successful. If the replacement fails, start troubleshooting.

----End

## Postrequisite

Keep the faulty power cable properly, and then clean up the site.

## Replacing the Optical Fiber of the RRU3606

This describes how to replace faulty optical fibers of the RRU3606.

## Prerequisite

- Determine the quantity of the optical fibers to be replaced and their types, and then get ready new jumpers.
- Check that the new optical fibers are intact.
- Record the installation positions of the optical fibers.
- Get ready an antistatic wrist strap or antistatic gloves, a Philips screwdriver, a straight screwdriver, an antistatic box or bag, dust-free cloth, a fiber cleaning box, a cable cutter, and tape.

**CAUTION**

- After an optical fiber is removed from the optical module, do not look at the light beam with naked eyes.
- When the optical fiber in the CPRI port, all the services carried by the optical fiber are interrupted.

**Procedure**

**Step 1** Run the **DSP CBTSECTORCARRIERINFO** command to query the cell IDs, sector IDs, and carrier IDs of the RRU3606s connected by the optical fibers to be replaced.

**Step 2** Block the carriers.

1. Run the **BLK RES** command to block all the carriers of the sectors where the optical fibers to be replaced are configured. It is recommended that you set the value of the priority parameter to Low.
2. Run the **DSP RES** command to query whether the carriers are blocked. If they are blocked, proceed with the next step.

**Step 3** Remove the faulty optical fibers.

1. Wear antistatic gloves.
2. Route the new optical fibers to the peer equipment as the faulty optical fibers are routed.
3. Press the protruding part of the connector of each optical fiber, and then remove the connector from the optical module.

**Step 4** Install the new optical fibers.

1. According to the labels on the new optical fibers, insert the new optical fibers into the optical modules.
2. Bundle the new optical fibers.

**Step 5** Unblock the carriers.

Run the **UBL RES** command to unblock all the carriers of the RRU3606s connected by the optical fibers.

**Step 6** Check that the new optical fibers work properly.

Observe the indicators of optical ports and ensure that the new optical fibers work properly.

**Table 1-18** lists the indicators of optical ports.

**Table 1-18** Indicators of optical ports

Indicator	Color	State	Description
CPRI_W	Red and green	Green and ON	The CPRI link is functional.
		Red and ON	An alarm is generated for receiving by the optical module (local LOS alarm).
		Red, ON for 0.5 second and OFF for 0.5 second	The CPRI is out of lock.

Indicator	Color	State	Description
		OFF	The optical module is not in position or powered off.
CPRI_E	Red and green	Green and ON	The CPRI link is functional.
		Red and ON	An alarm is generated for receiving by the optical module (local LOS alarm).
		Red, ON for 0.5 second and OFF for 0.5 second	CPRI lock lost
		OFF	The optical module is not in position or powered off.

----End

## Postrequisite

Keep the faulty optical fibers properly, and then clean up the site.

## Replacing the Alarm Cables of the RRU3606

This describes how to replace faulty alarm cables of the RRU3606.

## Prerequisite

- Get ready new alarm cables.
- Record the installation positions of the alarm cables.
- Get ready a cable cutter, an antistatic wrist strap or antistatic gloves, a screwdriver, and bundling tape.

## Procedure

**Step 1** Remove the faulty alarm cables.

1. Route the new alarm cables as the faulty alarm cables are routed.
2. Open the cover of the cabling cavity.
3. Remove the alarm cable connectors connected to the RS485 and EXT\_ALM ports in the cabling cavity, and then remove the faulty alarm cables.

**Step 2** Route the new alarm cables along the cabling trough in the cabling cavity, and then connect the alarm cables to the RS485 and EXT\_ALM ports.

**Step 3** Take waterproofing and sealing measures.

----End

## Postrequisite

Keep the faulty power cable properly, and then clean up the site.