



RRU3201 V100R001C01 Installation Guide

Issue: 02

Part Number: 31504691

Date: 2009-07-31

HUAWEI TECHNOLOGIES Co., Ltd.



HUAWEI

Contents

Safety Information	2
Installation Tools	3
Space Requirements	4
Installation Modes	5
Installation Procedure	6
Components Delivered with the RRU	6
Installing the RRU on a Metal Pole	7
Installing the RRU on a Wall	9
Installing the RRU on a U-Steel	12
Installing the RRU on an Angle Steel	12
Installing the RRU Cables	13
RRU Hardware Installation Checklist	19
Powering On the RRU	19
Reference	20
Change History	26

Safety Information

■ 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 documents do not cover all the safety precautions that must be followed. They only provide the generic safety precautions for operations.

When operating Huawei products and equipment, you must comply with safety precautions and special safety instructions related to corresponding equipment provided by Huawei. The safety precautions in the document are related to only Huawei products. Huawei is not liable for any consequence that results from the violation of universal regulations for safety operations and safety codes on design, production, and equipment use.






■ 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.

■ Qualified Personnel Only

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

■ Symbols

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

■ Safety of Personnel

- 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.
- In a thunderstorm, do not perform operations on high voltage and AC power supply facilities or on a steel tower and mast.
- Ground the device before powering on the device. Otherwise, the personnel and device are in danger.
- Power off the device before performing operations on the power supply equipment.
- High power radio-frequency signals are harmful to human body. Before installing or maintaining an antenna on a steel tower or mast with a large number of transmitter antennas, the operator should coordinate with all parties to ensure that the transmitter antennas are shut down.
- When handling optical fibers, do not stand close to, or look into the optical fiber outlet with unaided eyes.
- Protect yourself when drilling holes. Flying dust may hurt your eyes or you may inhale the dust.
- Power off the batteries before connecting the cables to the batteries. Otherwise, casualties may occur.
- When working at a height, be cautious about falling objects.

■ Device Safety

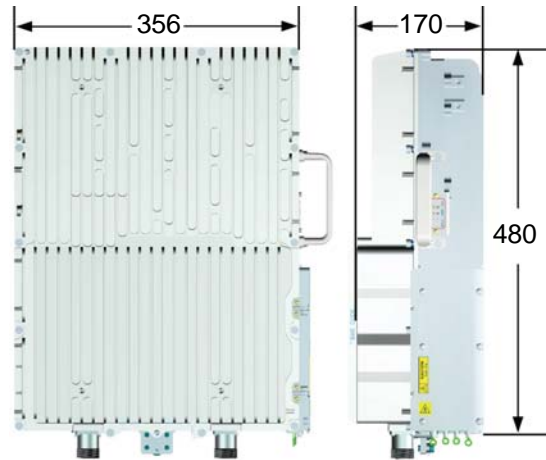
- Check the electrical connection of the device before operation and ensure that the device is reliably grounded.
- The static electricity generated by the human body may damage the electrostatic sensitive components on the circuit board, such as the large-scale integrated circuit (LIC). Wear an ESD wrist strap or ESD gloves when performing the operation.
- When working on batteries, take measures to prevent short circuits in the batteries and electrolyte spill/loss. The electrolyte may erode metal and boards, or even cause rust of the equipment or short circuits in the boards.
- When the equipment is unpacked, it must be powered on in 24 hours. The maximum duration of the power-off state of the equipment is 24 hours during maintenance.

Installation Tools

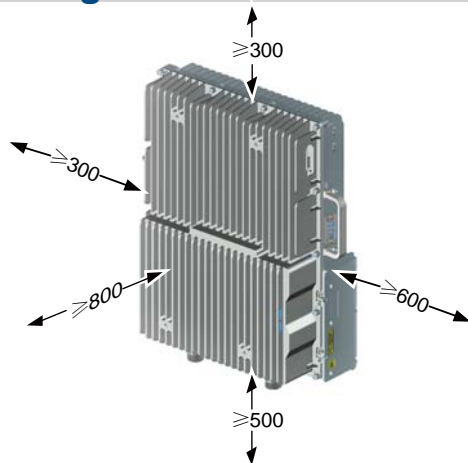
 <p>Hammer drill</p>	 <p>ESD gloves</p>	 <p>Vacuum cleaner</p>
 <p>Heat gun</p>	 <p>Phillips screwdriver (M3~M6)</p>	 <p>Flat-head screwdriver (M3 to M6)</p>
 <p>Claw hammer</p>	 <p>Knife</p>	 <p>Wire Stripper</p>
 <p>Power cable crimping tool</p>	 <p>Cable cutter</p>	 <p>Adjustable wrench (with the diameter of at least 32 mm)</p>
 <p>Level</p>	 <p>Torque screwdriver</p>	 <p>Combination wrench (21mm-21mm) for pole installation (17mm-17mm) for pole installation</p>
 <p>Multimeter</p>	 <p>Marker</p>	 <p>Measuring tape</p>

Space Requirements (Unit: mm)

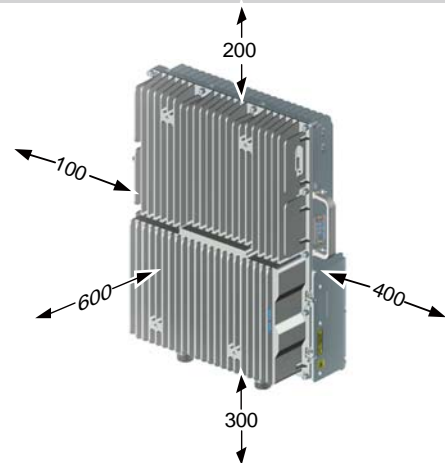
a RRU Dimensions



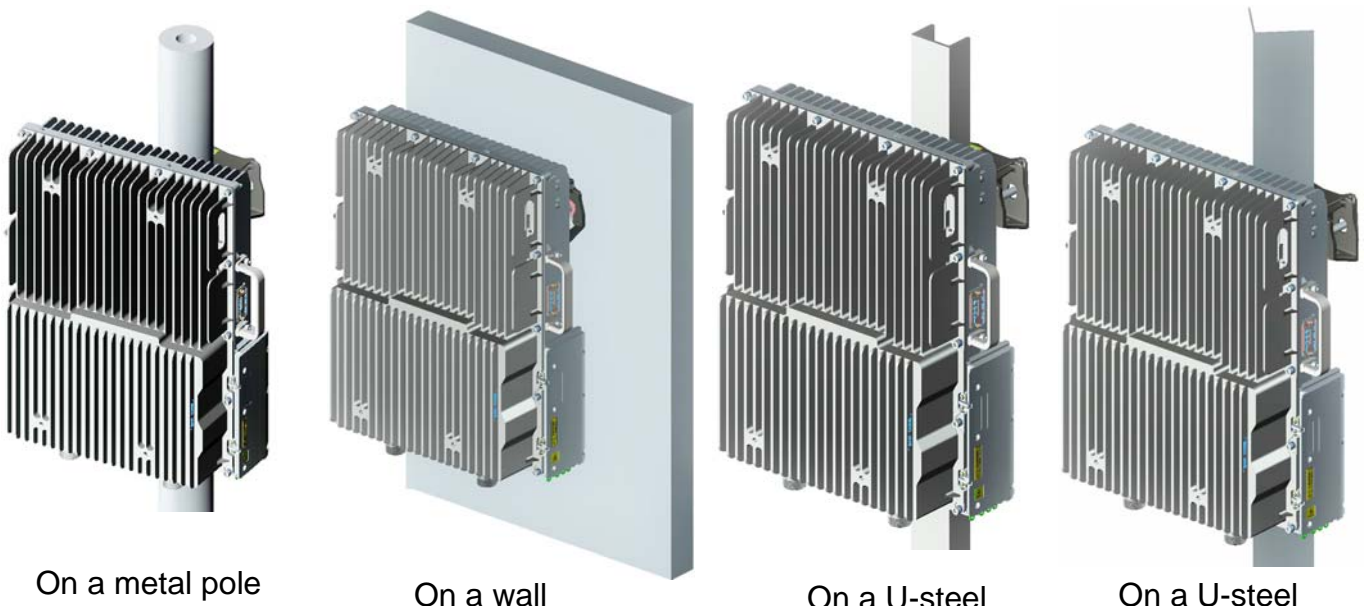
b Recommended Clearance for a Single RRU



c Minimum Clearance for a Single RRU



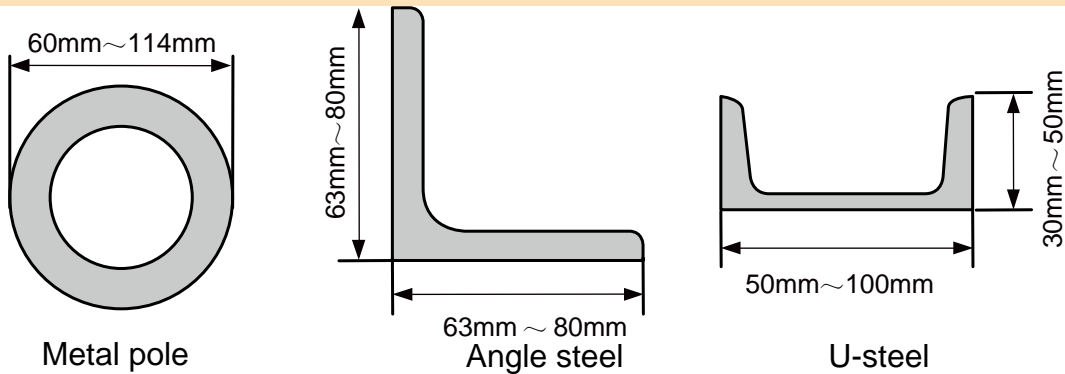
Installation Modes



Installation Modes

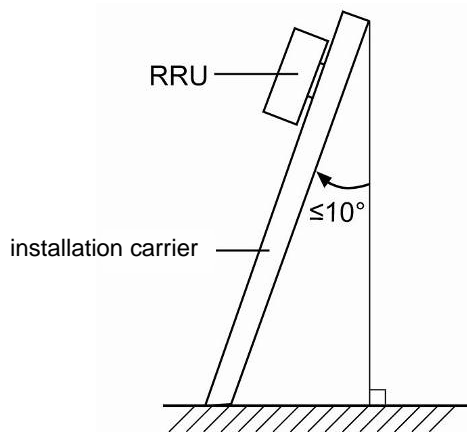
NOTE

The following figure shows the specifications of the metal pole, angle steel, and U-steel where the RRU is installed.



WARNING

- A maximum of two RRUs can be installed on a metal pole with a diameter of 60 mm to 76 mm, and the installation mode must be standard mode. Three or more RRUs must be installed on a metal pole with a diameter of 76 mm to 114 mm in a centralized way.
- It is recommended that only one RRU be installed on a U-steel or angle steel.
- When installed on a tower, one RRU can be installed only in standard mode or reverse mode rather than side-mounted. Two RRUs cannot be installed in back-to-back mode.



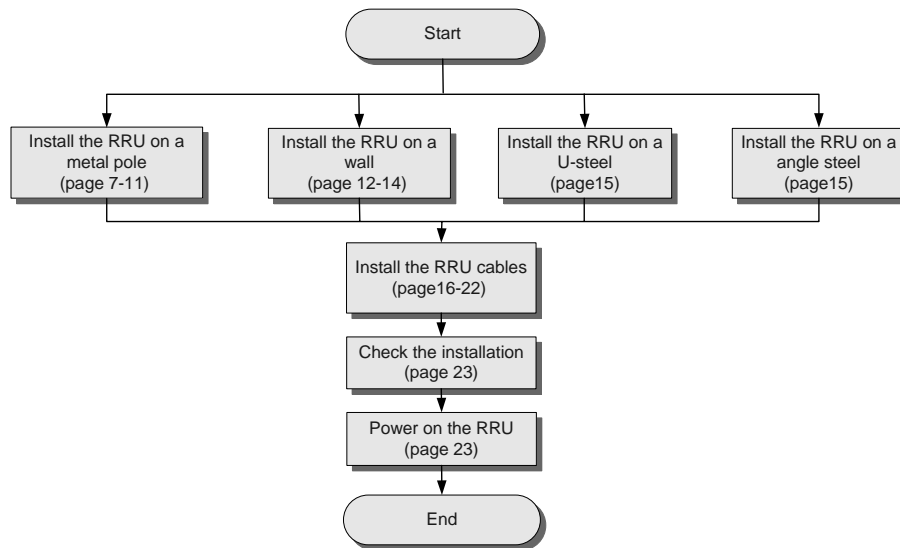
When the RRU is installed on a U-steel or angle steel, the angle between the U-steel or angle steel and the longitudinal direction cannot exceed 10 degrees.

The RRU can be installed on the tower. For details, see page 26 [Lifting the RRU and Installation Components to the Tower.](#)

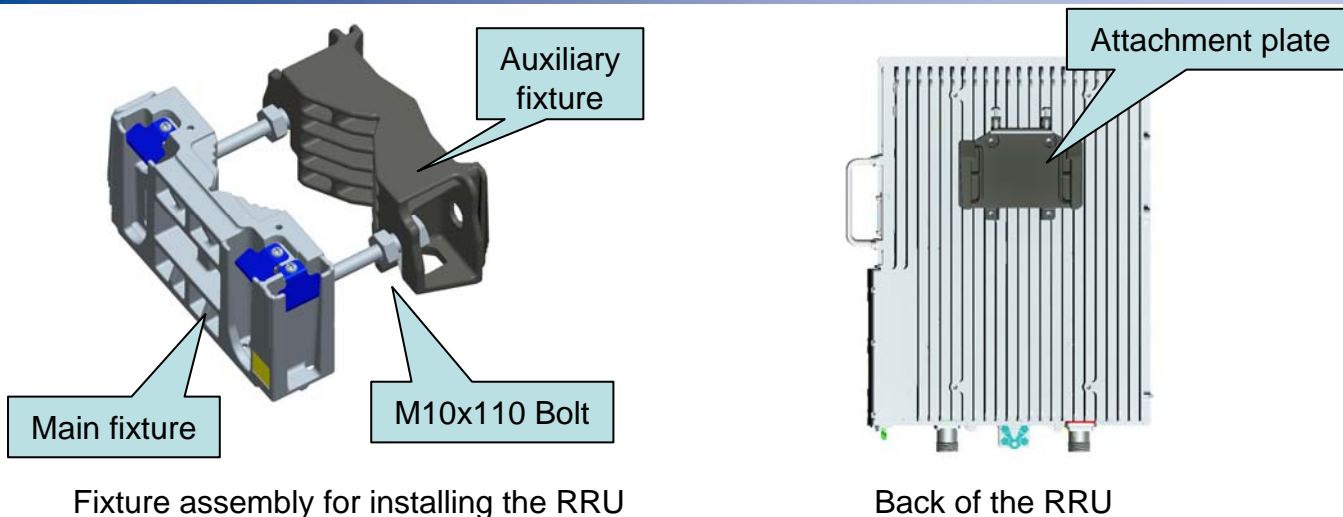
The following figures show the installations of multiple RRUs on the metal poles.



Installation Procedure



Components Delivered with the RRU

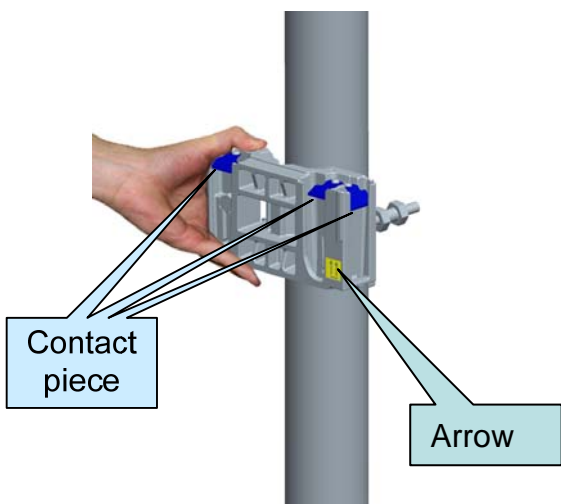


Fixture assembly for installing the RRU

Back of the RRU

Installing the RRU on a Metal Pole

a Installing a Single RRU in Ordinary Mode



⚠ CAUTION

1. Before installing the main fixture, ensure that the contact piece on the fixture is fixed.
2. When installing the main fixture, keep the arrow on the main fixture upward.

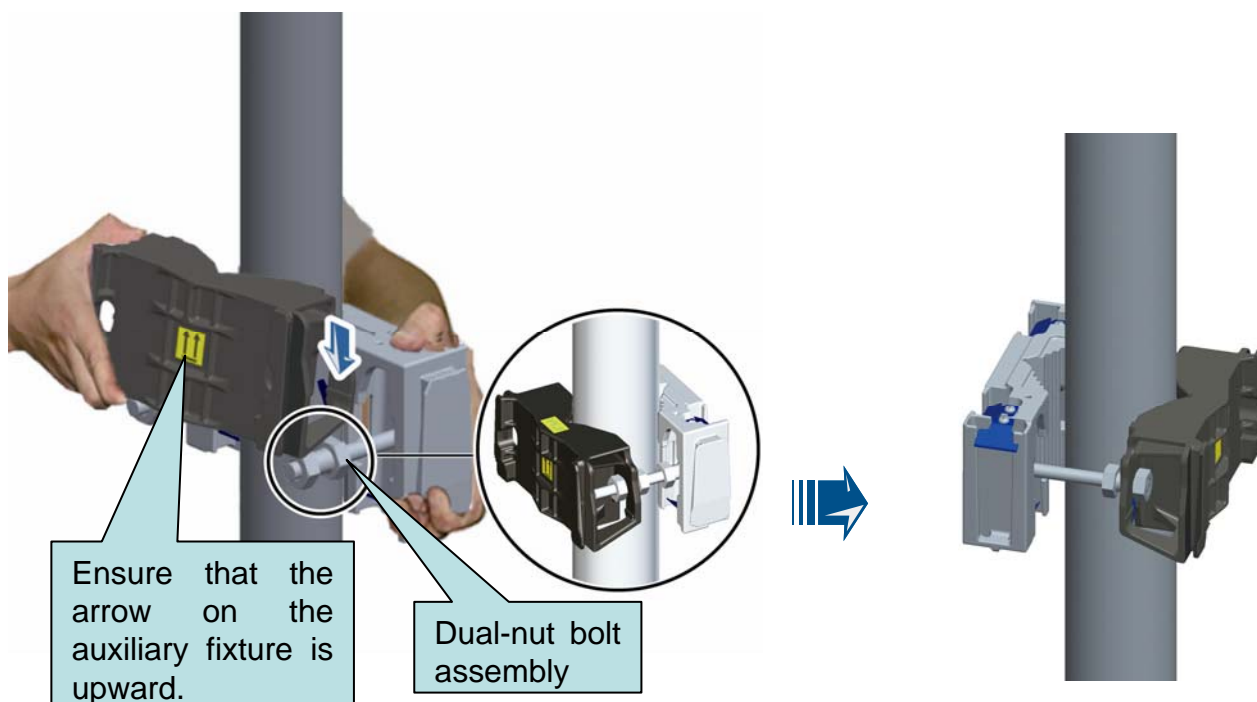
📖 NOTE

It is recommended that the bottom of the main fixture be 1200 mm to 1600 mm above the ground for easy maintenance.

Installing the RRU on a Metal Pole

a Installing a Single RRU in Ordinary Mode

2. Install the auxiliary fixture between the nuts of the dual-nut bolt assembly on the main fixture.



TIP

You can fit the auxiliary fixture on one of the dual-nut bolt assemblies before the installation. Thus, you can simply install the auxiliary fixture by fitting the other end of it on the other dual-nut bolt assembly.

NOTE

Fit the auxiliary fixture into the dual-nut bolt assemblies.

3. Use an adjustable wrench (with the diameter of at least 21 mm) to tighten the dual-nut bolt assemblies. In this way, the main and auxiliary fixtures are securely mounted on the pole.

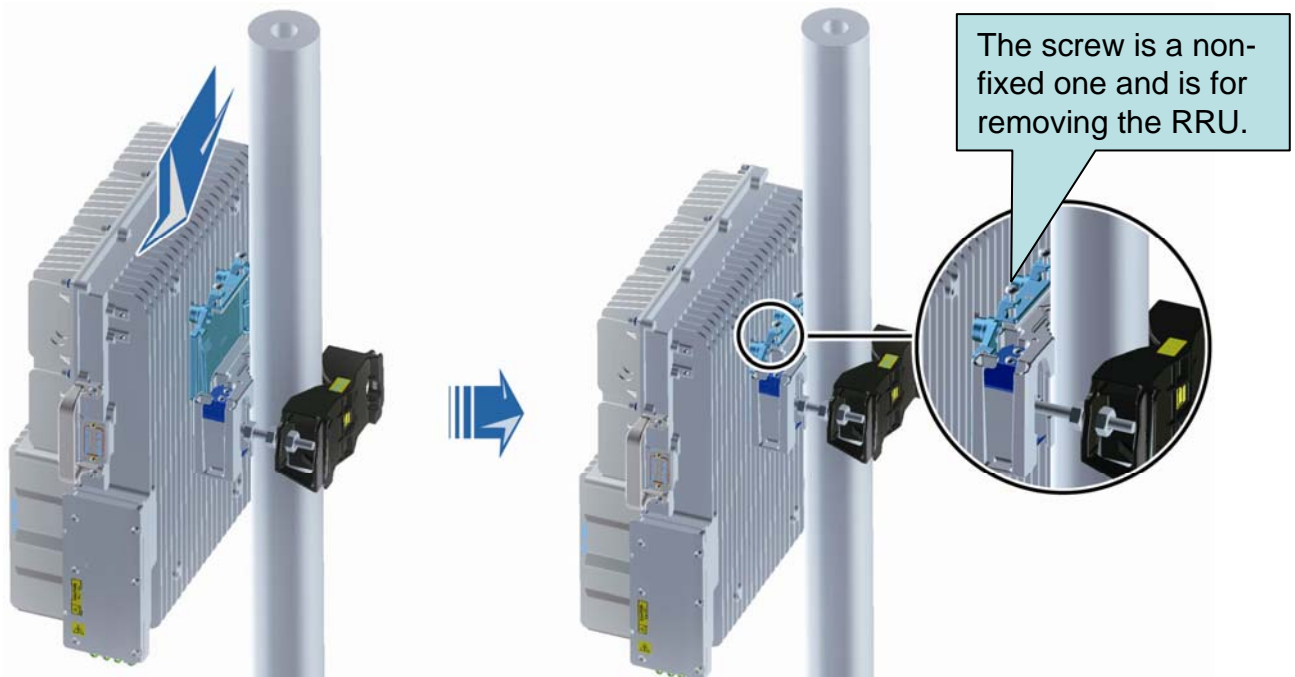


CAUTION

When tightening the nuts, ensure that the two dual-nut bolt assemblies are tightened simultaneously. The fastening torque is 40 N•m.

Installing the RRU on a Metal Pole

4. Install the RRU on the main fixture.



CAUTION

1. When you perform this operation, you need to place the foam pads or paper under the RRU to avoid any damage to the shell.
2. The RF port at the bottom of the RRU does not have load bearing capacity. Do not place the RRU on the ground on its bottom during the installation.

b Installing Two RRUs in Back-To-Back Mode

1. Install an RRU first. For details, see page 7 [Installing a Single RRU in Ordinary Mode](#).

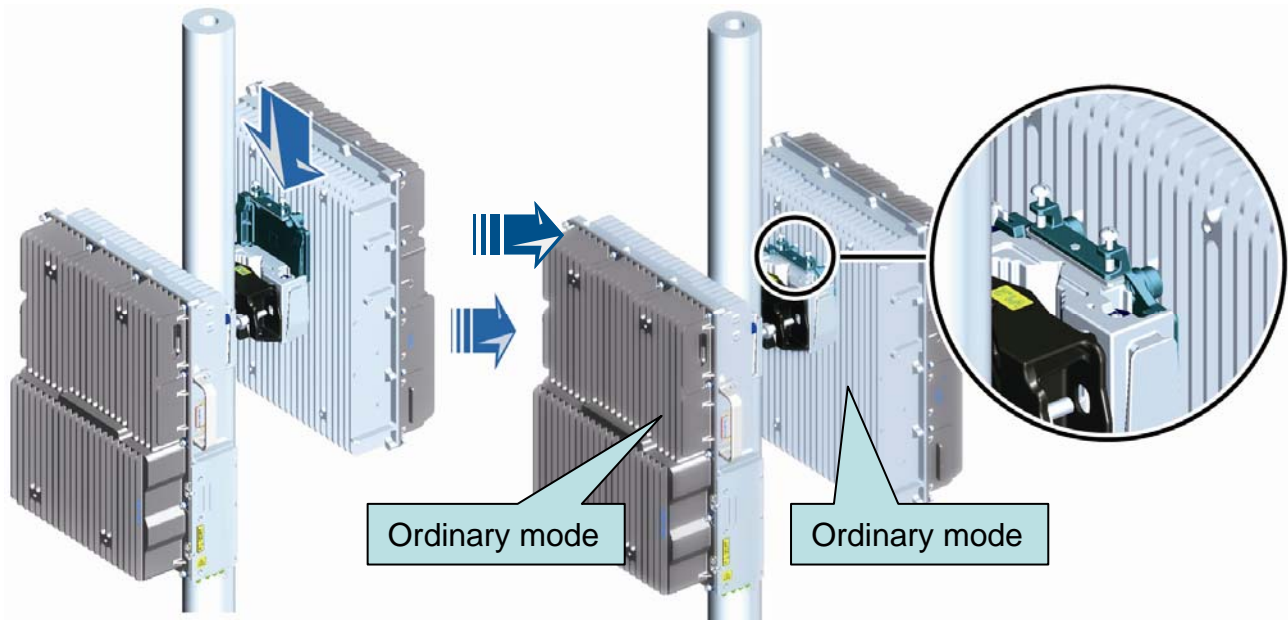
2. Install the main fixture of another RRU. Ensure that the main and auxiliary fixtures are perfectly fitted.



Installing the RRU on a Metal Pole

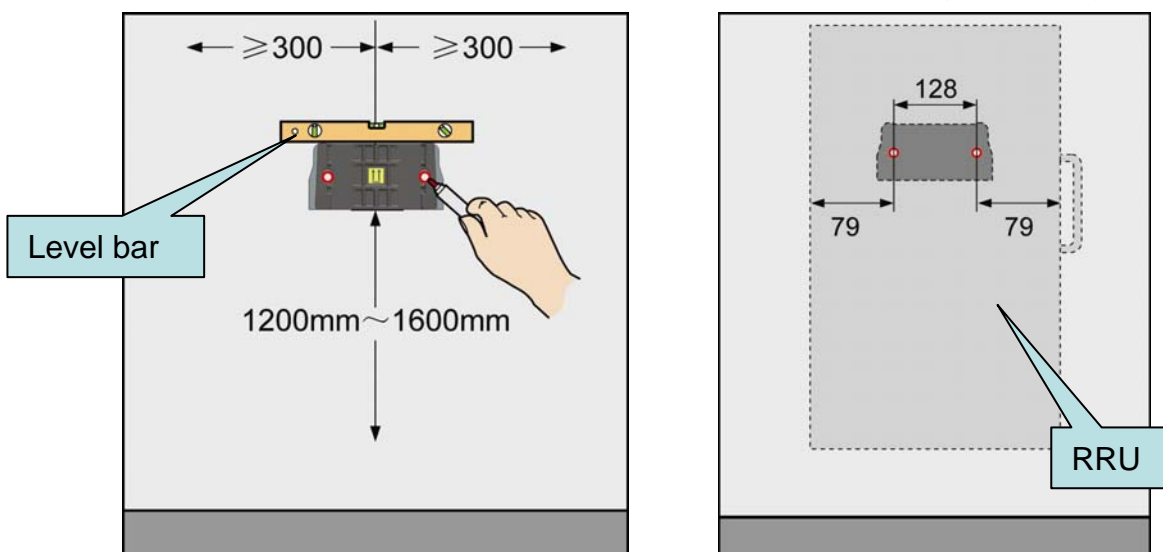
b Installing Two RRUs in Back-To-Back Mode

3. Install the second RRU on the main fixture in reverse mode.



Installing the RRU on a Wall

1. Place the auxiliary fixture on the wall at the installation position, use a level bar to measure the levelness of the fixture, and then mark the anchor points by using a marking pen.

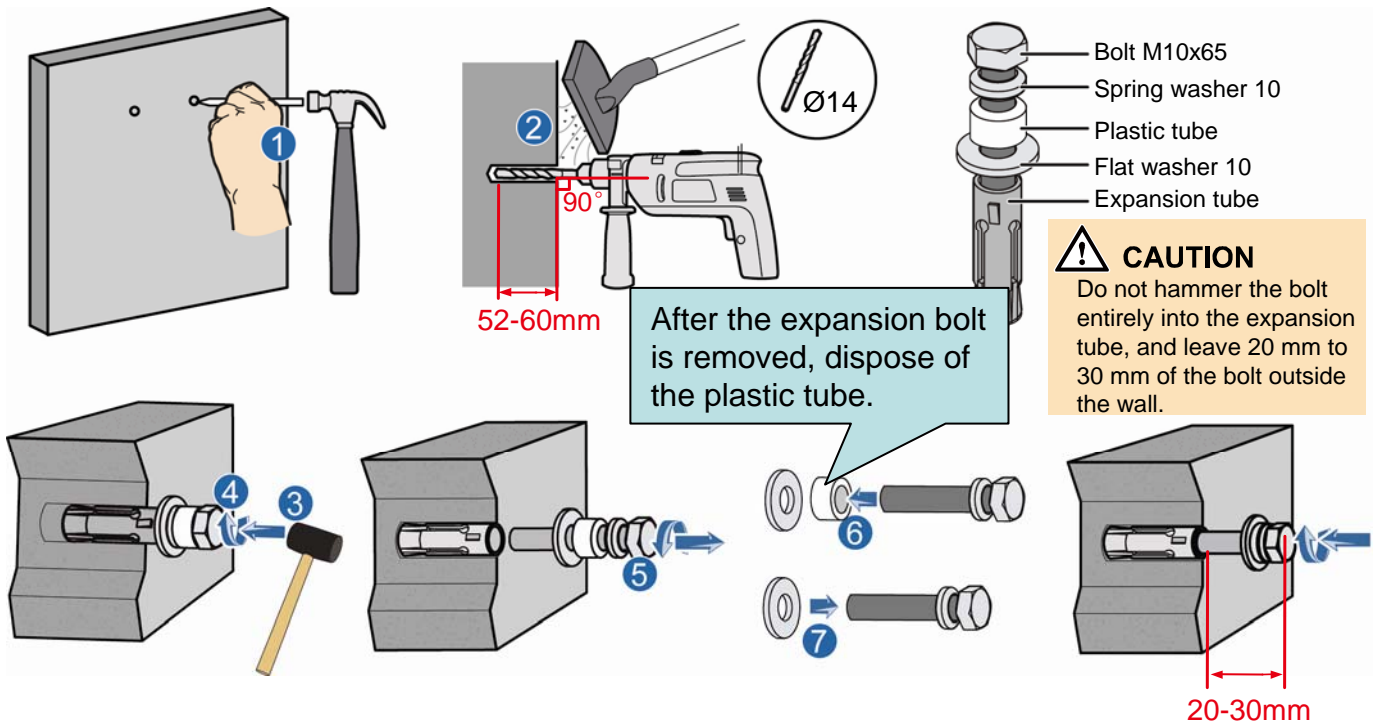


NOTE

It is recommended that the bottom of the auxiliary fixture be 1200 mm to 1600 mm above the ground.

Installing the RRU on a Wall

2. Drill holes at the anchor points and then install the expansion bolt assemblies.

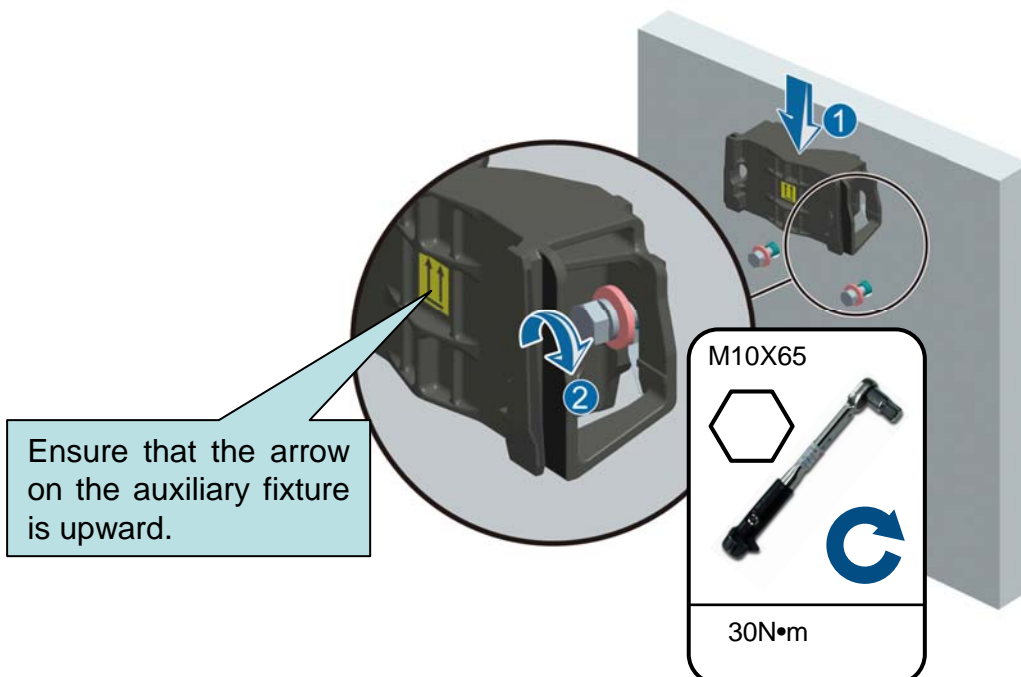


CAUTION

When RRUs are installed on a wall, the specifications of the wall are as follows:

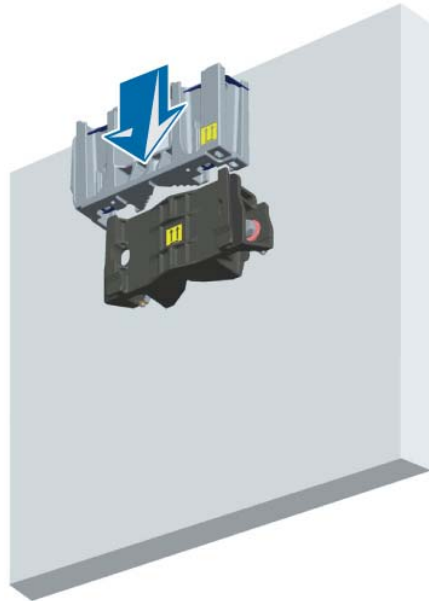
- For one RRU, the wall has a weight-bearing capacity of 76 kg.
- The fastening torque of the expansion bolt reaches 30 N·m, the expansion bolt works properly, and no damages such as cracks are on the wall.

3. Fit the auxiliary fixture on the expansion bolts downward, and then tighten the bolts by using a combination wrench (with the diameter of at least 17 mm).

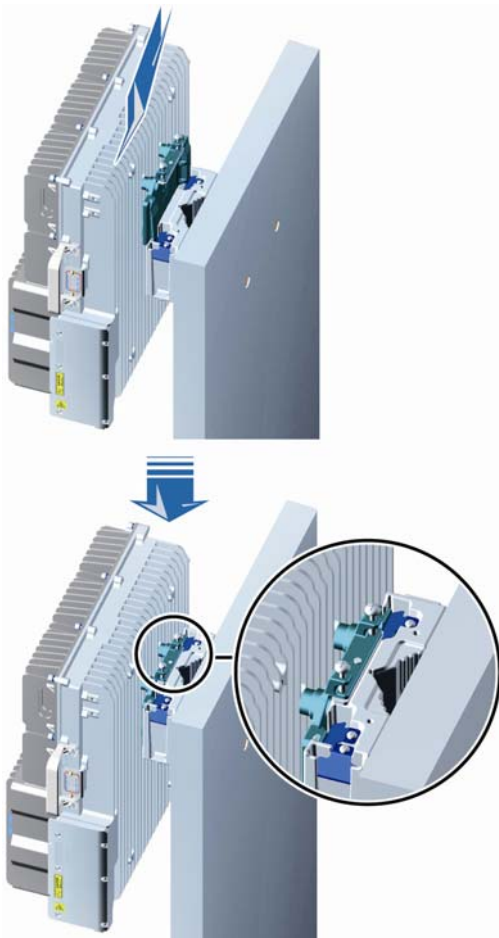


Installing the RRU on a Wall

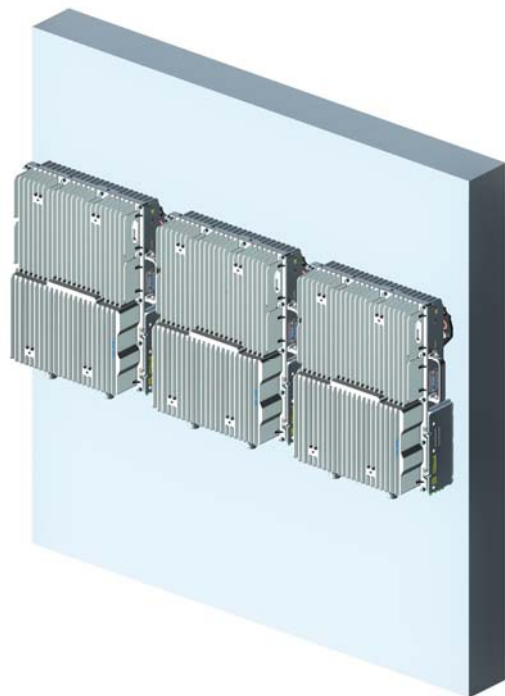
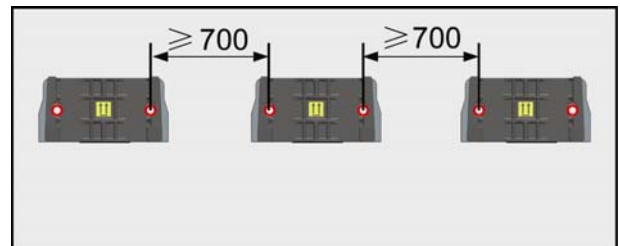
4. Install the main fixture.



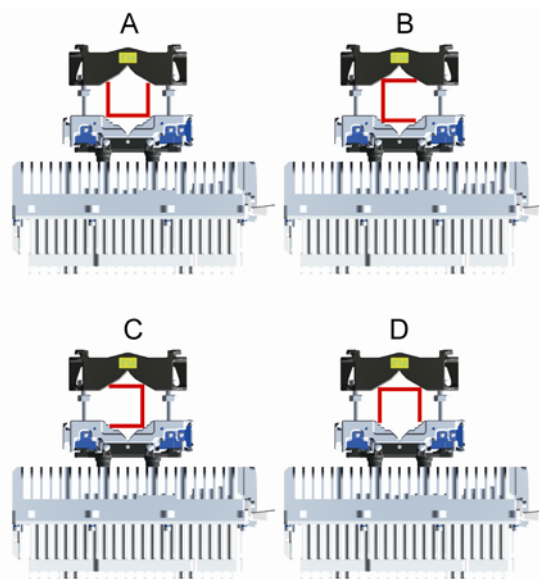
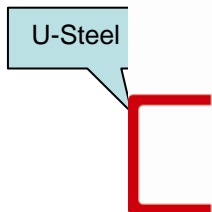
5. Install the RRU.



6. Install Multiple RRUs.



Installing the RRU on a U-Steel

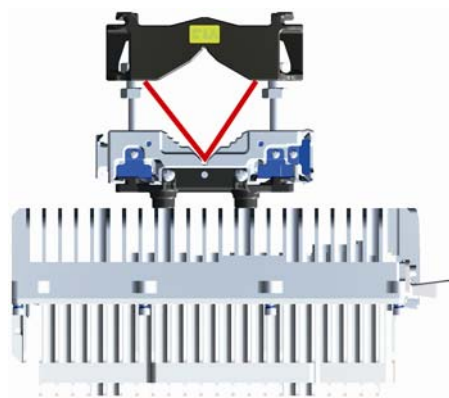
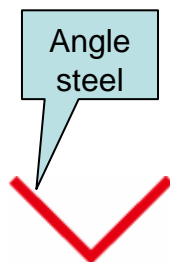


Top view

NOTE

The procedure for installing the RRU on a U-steel is the same as that for installing the RRU on a metal pole.

Installing the RRU on an Angle Steel



Top view

NOTE

The procedure for installing the RRU on an angle steel is the same as that for installing the RRU on a metal pole.

Installing the RRU Cables

a RRU Cable Connections

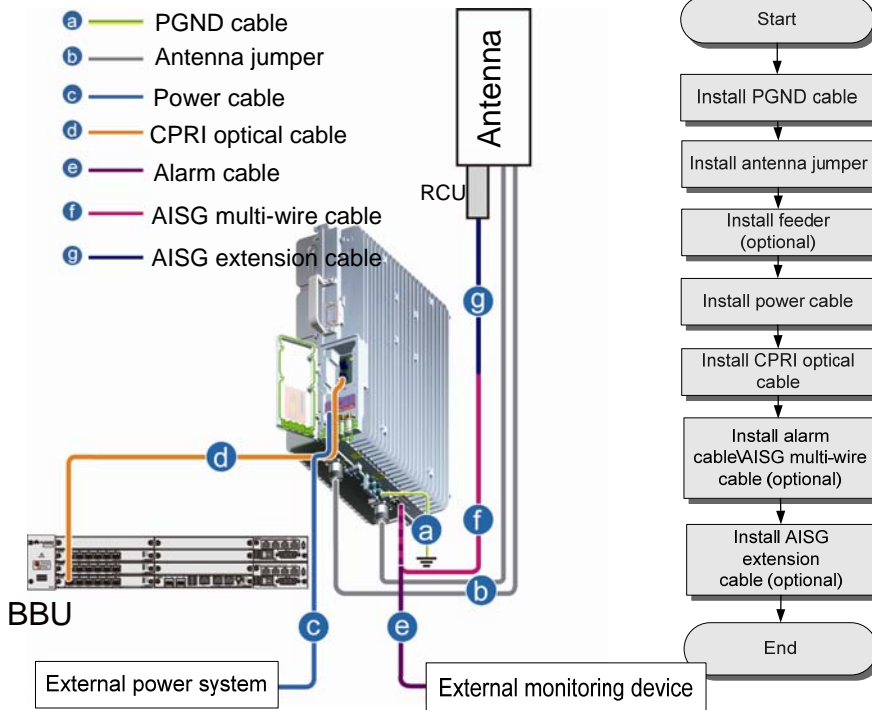
Cable List

Cable	Connector Type	Connector to...
① PGND cable (16mm ²)	OT terminal (M6)	Grounding bolt on the RRU
	OT terminal	Nearest grounding bar
② Antenna jumper	DIN male connector	Ports labeled ANT_TX/RXA and ANT_TX/RXB on the RRU (Only the ANT_TX/RXA port supports the OOK signal).
	DIN male connector	Feeder or antenna
③ Power cable	Two OT terminals (M4)	The blue OT terminal is connected to socket labeled NEG(-)0 in the RRU cabling cavity. And the black OT terminal is connected to socket labeled RTN(+)0.
	Bare wire	External power supply
④ CPRI optical cable	DLC connector	The connectors labeled 1A and 1B are connected to the optical module on the port labeled CPRI_W on the RRU
	DLC connector	The connectors labeled 2A and 2B are connected to port labeled CPRI0, CPRI1 or CPRI2 on the LBBP board of the BBU.
⑤ Alarm cable	DB9 male connector	Port labeled RET/MON at the bottom of the RRU
	Eight cord end terminals	External alarm devices
⑥ AISG multi-wire cable	Waterproof DB9 connector	Port labeled RET/MON on the RRU
	Standard AISG female connector	Standard AISG male connector of the AISG extension cable or RCU
⑦ AISG extension cable	Standard AISG male connector	Standard AISG female connector of the AISG multi-wire cable
	Standard AISG female connector	Standard AISG male connector of the RCU

Installing the RRU Cables

a RRU Cable Connections

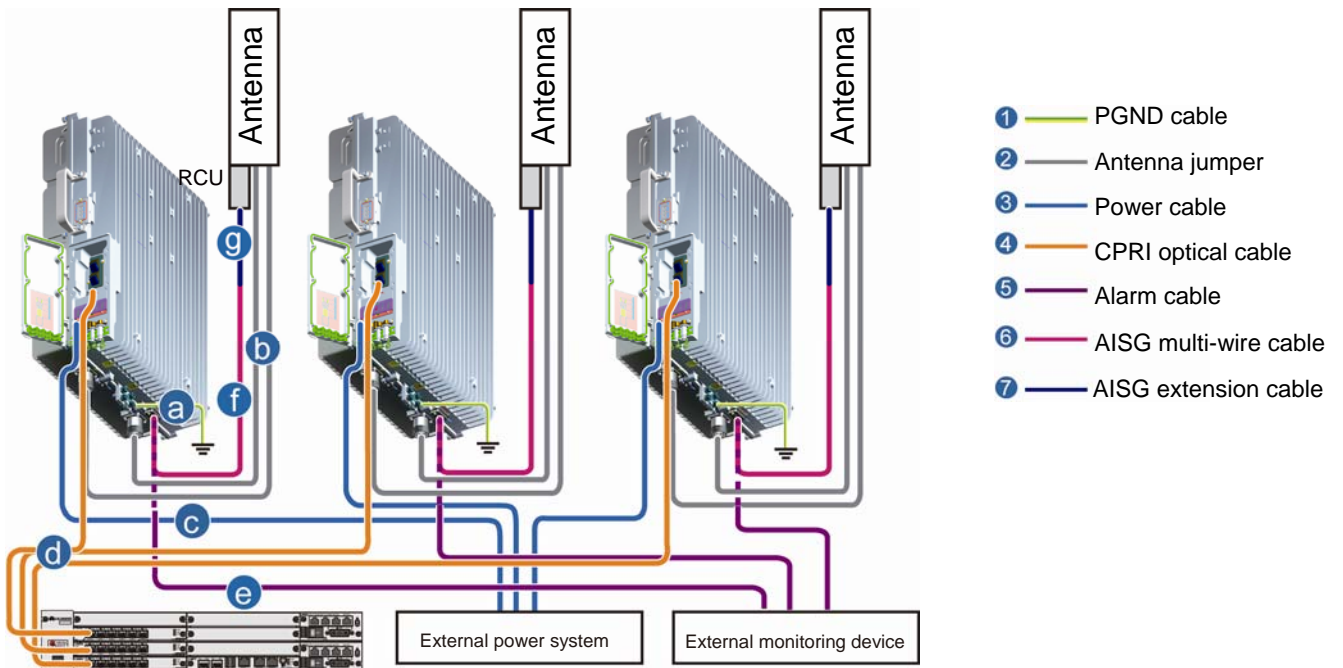
Single RRU



NOTE

The RET/MON port on the RRU is multi-functional, and can be installed with either AISG multi-wire cable or alarm cable. When the length of the AISG multi-wire cable is not enough, you can choose the optional AISG extension cable.

Multiple RRU



NOTE

For detail information of the cable, see [Cable List](#) on Page 13.