



RRU3931E

V100R011C10

Site Maintenance Guide

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1 RRU3931E Site Maintenance Guide

Introduction

This document describes routine maintenance items for a RRU3931E, such as power-on and power-off operations. It also explains how to replace the components and modules.

Product Version

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

Product Name	Solution Version	Product Version
RRU3931E	<ul style="list-style-type: none">● SRAN11.1 and later versions● RAN18.1 and later versions● eRAN11.1 and later versions	V100R011C10 and later versions

Intended Audience

This document is intended for:

- System engineers
- Site maintenance engineers

Organization

[1.1 Changes in RRU3931E Site Maintenance Guide](#)

This section describes the changes in *RRU3931E Site Maintenance Guide*.

[1.2 Turning On or Off Indicators](#)

Indicators on the RRU3931E can be turned on or off.

1.3 Powering On or Off a RRU3931E

The indicator status of a RRU3931E must be observed following a power-on to determine its running status. Normal power-off can be used to power off a RRU3931E.

1.4 Replacing a RRU3931E

RRU3931Es employ modular design and faulty ones must be replaced promptly. Replacing a RRU3931E interrupts all ongoing services carried by it.

1.5 Replacing an Optical Module

An optical module implements photoelectric conversion, enabling optical transmission between a RRU3931E and other devices. Before replacing an optical module, disconnect the fiber optic cable from the optical module. The disconnection interrupts transmission of optical signals.

1.1 Changes in RRU3931E Site Maintenance Guide

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1.1 Changes in RRU3931E Site Maintenance Guide

This section describes changes in *RRU3931E Site Maintenance Guide*.

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This is a draft.

1.2 Turning On or Off Indicators

Indicators on the RRU3931E can be turned on or off.

1.2.1 Turning On Indicators

Indicators on a RRU3931E may need to be turned on before routine maintenance is performed.

Procedure

Instruct the network operator to run the **SET INDICATORSW** command on the RRU3931E to turn on the indicators.

```
Configuration example: SET INDICATORSW: INDICATORSWITCH=ON;
```

The installation or maintenance personnel can locally observe the indicator status.

1.2.2 Turning Off Indicators

After installation or maintenance is completed, indicators on a RRU3931E can be turned off as required.

Procedure

Instruct the network operator to run the **SET INDICATORSW** command on the RRU3931E to turn off the indicators.

```
Configuration example: SET INDICATORSW: INDICATORSWITCH=OFF;
```

The installation or maintenance personnel can locally observe that all the indicators except the WIFI indicator are off.

1.3 Powering On or Off a RRU3931E

The indicator status of a RRU3931E must be observed following a power-on to determine its running status. Normal power-off can be used to power off a RRU3931E.

1.3.1 Powering On a RRU3931E

This section describes how to power on a RRU3931E and determine its running status by its indicator status.

Prerequisites

- The RRU3931E and its cables have been installed.
- The input voltage of the RRU3931E ranges from 110 V AC to 220 V AC, and the frequency ranges from 50 Hz to 60 Hz.

Context



NOTICE

After a RRU3931E is unpacked, power it on within 24 hours. If the RRU3931E is powered off for maintenance, restore power to it within 24 hours.

Procedure

Step 1 Power on the RRU3931E.



DANGER

Do not look into optical modules without eye protection after the RRU3931E is powered on.

Step 2 Wait for 3 to 5 minutes, and observe the indicator status. Then, take actions based on the indicator status.

Table 1-1 RRU3931E indicator status

If...	Then...
The RUN indicator blinks (on for 1s and off for 1s), the ALM indicator is off, and the RRU3931E is running correctly	End the power-on check task.
Any other indicator status is observed	The RRU3931E is faulty. Rectify the faults, and go to Step 1

NOTE

- Check the status of indicators on all cascaded RRU3931Es in cascading networking.
- A RRU3931E takes about 3 minutes to complete the startup procedure, during which the indicator status is negligible.
- During a startup, a RRU3931E reads and writes the flash memory and therefore the indicators blinking quickly may blink irregularly for 1s to 2s, which does not affect services.

----End

1.3.2 Powering Off a RRU3931E

This section describes how to power off a RRU3931E.

Procedure

Step 1 Switch off the external power supply equipment for the RRU3931E.

----End

1.4 Replacing a RRU3931E

RRU3931Es employ modular design and faulty ones must be replaced promptly. Replacing a RRU3931E interrupts all ongoing services carried by it.

Prerequisites

- Tools and materials, such as electrostatic discharge (ESD) gloves, torque wrench, and M10 hex key screwdriver, are ready.
- The RRU3931E to be replaced has been confirmed, and a new RRU3931E has been prepared.
- You have obtained site visit permission.

Procedure

Step 1 Ask the network operator to perform the following preparations for a RRU3931E replacement:

1. Block all the cells served by the RRU3931E to be replaced.
 - Run the **BLK CELL** command if the RRU3931E works in LTE mode.
 - Run the **BLK ULOCCELL** command if the RRU3931E works in UMTS mode.
2. Change the SN to that of the new RRU3931E.
3. Upload a configuration file for the new RRU3931E over FTP. For details, see *RRU3931E Commissioning Guide*.
4. Copy the configuration file and required software package to a TF card or a laptop where the LMT has been installed.



NOTICE

Do not touch the RRU3931E that is just powered off until it cools down.

Step 2 Switch off the external power supply equipment for the RRU3931E to be replaced.



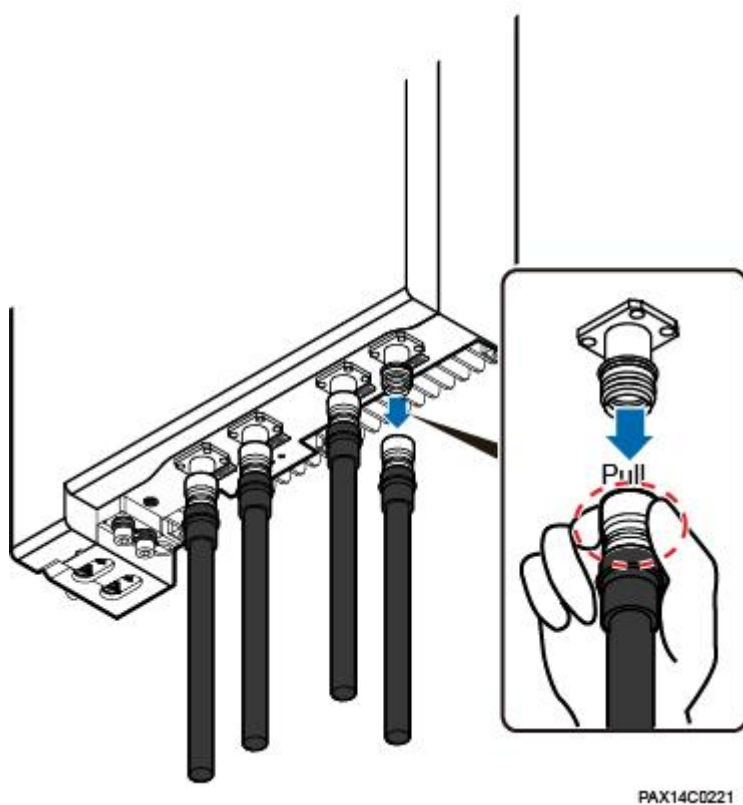
NOTICE

Take proper ESD protection measures, for example, wear ESD gloves, to prevent electrostatic damage to the RRU3931E or its electronic components.

- Step 3** Put on ESD gloves.
- Step 4** Record the horizontal angle and vertical angle of the RRU3931E. Pay attention to the direction.
- Step 5** Record cable connection positions on the bottom and side maintenance cavities of the RRU3931E.
- Step 6** Remove the cables on the RRU3931E bottom and side maintenance cavities from external devices.

When removing an RF jumper, hold tightly the metal part (in the red dotted circle in **Figure 1-1**) of the Smart-type N male connector and pull it down with proper force. See **Figure 1-1**.

Figure 1-1 Removing an RF jumper

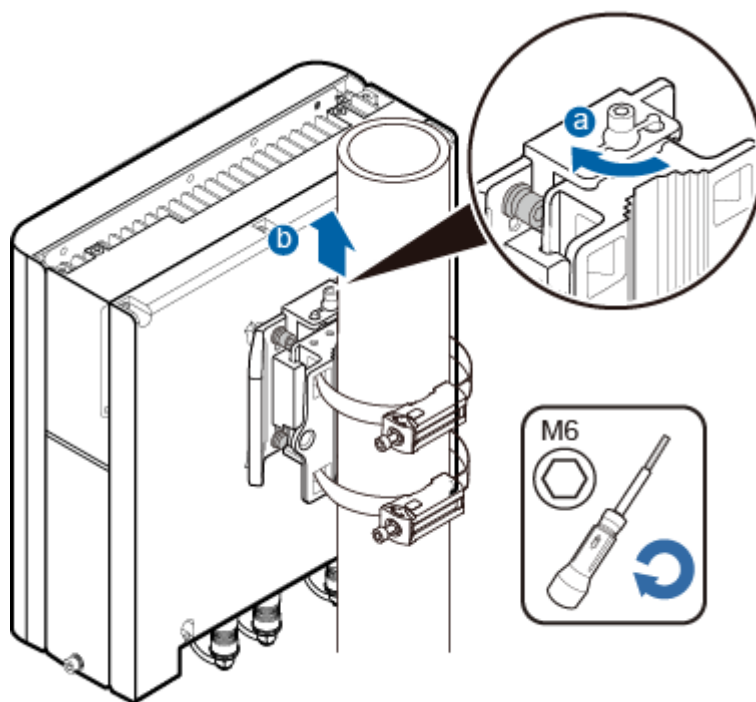


- Step 7** Use an M10 hex key screwdriver to remove the angle adjusting screw on the top of the RRU3931E attachment plate. Push the RRU3931E and its attachment plate upward out of the angle adjusting mounting bracket. See **Figure 1-2**.

 **NOTICE**

When demounting a RRU3931E, hold the handles tight and gently lift the RRU3931E to prevent it from falling.

Figure 1-2 Demounting a RRU3931E



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- Step 8** Install a new RRU3931E and adjust the horizontal and vertical angles to be the same as those recorded in [Step 3](#). Use the M10 hex key screwdriver to torque the angle adjusting screw on the top to 28 N·m.
- Step 9** Connect all the cables on the new RRU3931E and seal the vacant ports with waterproof rubber plugs.
- Step 10** Power on the new RRU3931E by following instructions provided in [1.3.1 Powering On a RRU3931E](#) "1.3.1 Powering On a RRU3931E."
- Step 11** Check the operating status of the new RRU3931E by its indicator status. For the meanings of the indicator status, see section "Ports and Indicators" in *RRU3931E Hardware Description*.
- Step 12** Download the configuration file and software package to the new RRU3931E using either of the following methods:
- Using the LMT
 - On the **Upgrade Software** tab page, select **Download Configuration File** and **Download Version Software** to download the configuration file and software package. Select **Activate Configuration File** and **Activate Version Software** to activate the configuration file and software package. After the activation is completed, the RRU3931E automatically restarts and runs the new software. For details, see *LMT User Guide*.
 - Check that no alarm is generated on the new RRU3931E. For details, see *LMT User Guide*.
 - Using a TF card. For details, see *RRU3931E Commissioning Guide*.
- Step 13** Request the network operator to perform the following operations:
1. Unblock all cells served by the RRU3931E.

- Run the **UBL CELL** command if the RRU3931E works in LTE mode.
 - Run the **UBL ULOCELL** command if the RRU3931E works in UMTS mode.
2. Manually synchronize inventory data.
 3. Manually change the RRU3931E status from **TESTING** to **NORMAL**.

Step 14 Take off the ESD gloves and pack up all the tools.

---End

Follow-up Procedure

- Place the replaced RRU3931E into an ESD bag. Then, place the ESD bag into a foam-padded carton or the packing box of the new RRU3931E.
- Fill in the fault form with the detail information of the replaced RRU3931E.
- Contact the local Huawei office to handle the faulty RRU3931E.

1.5 Replacing an Optical Module

An optical module implements photoelectric conversion, enabling optical transmission between a RRU3931E and other devices. Before replacing an optical module, disconnect the fiber optic cable from the optical module. The disconnection interrupts transmission of optical signals.

Prerequisites

- The type and number of optical modules to be replaced are confirmed, and new optical modules are ready.
- Tools and materials, such as ESD gloves, M10 Phillips screwdrivers, ESD box or ESD bag, are ready.

Context

- Optical modules are inserted in FE/GE2 and FE/GE3 ports of the RRU3931E.
- Optical modules are hot-swappable.
- Optical module replacement involves disconnecting the fiber optic cable, removing the faulty optical module, inserting a new optical module, connecting the fiber optic cable to the new module, and waiting for the link on the Ethernet optical port to resume. The whole process takes about 5 minutes.

Procedure

Step 1 Put on ESD gloves.




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

- Step 2** Switch off the external power supply equipment for the RRU3931E.
- Step 3** Opening the maintenance cavity covers. If the maintenance cavity covers cannot be opened because the RRU3931E is installed on a wall with large-angle adjustment, perform the following operations:
1. Record the adjusted angle for the RRU3931E.
 2. Adjust the horizontal angle of the RRU3931E.
 3. Open the maintenance cavity covers.
- Step 4** Record the connection positions of the faulty optical module and fiber optic cable.
- Step 5** Press the bulge on the optical connector and remove the connector from the faulty optical module.



Do not look into the disconnected fiber optic cable or optical module without eye protection.

- Step 6** Lower the puller on the faulty optical module, and then pull the puller until the optical module is removed from the RRU3931E.
- Step 7** According to the label on the faulty optical module, prepare a new one of the same type. Install the new optical module into the FE/GE optical port on the RRU3931E.
-  **NOTE**
- The new optical module must match the rate at the optical FE/GE port.
- Step 8** Insert the optical connector into the optical module, and closing the maintenance cavity covers.
- Step 9** Power on the new RRU3931E by following instructions provided in [1.3.1 Powering On a RRU3931E](#)"1.3.1 Powering On a RRU3931E."
- Step 10** Check the transmission of FE/GE signals by the indicator status. For the meanings of the indicator status, see section "Ports and Indicators" in *RRU3931E Hardware Description*.
- Step 11** Take off the ESD gloves and pack up all the tools.

----End

Follow-up Procedure

- Place the replaced optical module into the ESD box or bag. Then, place the ESD box or bag into a foam-padded carton or the packing box of the new optical module.
- Fill in the fault form with the detail information of the replaced optical module.
- Contact the local Huawei office to handle the faulty optical module.