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HUAWEI UPS5000-E Modular Uninterruptible Power System User Guide

Contents

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HUAWEI UPS5000-E Modular Uninterruptible Power System

Product Information

The UPS5000-E-(400 kVA-600 kVA) is a power supply system consisting of power modules, control module, power distribution module covers, bypass module, main input switch, a maintenance bypass switch, output switch, and bypass input switch. The UPS5000-E-400K-FMS model has a weight of 680 kg and dimensions of 2000 mm x 1200 mm x 850 mm. The UPS5000-E-500K-FMS model has a weight of 800 kg and dimensions of 2000 mm x 1200 mm x 850 mm. The UPS5000-E-600K-FMS has a weight of 1025 kg and dimensions of 2000 mm x 1400 mm x 850 mm. The UPS5000-E-400K-SMS, UPS5000-E-500K-SMS, and UPS5000-E-600K-SMS are standard configuration models that do not have mains input switch, bypass input switch, or output switch.

Overview

| Model	UPS5000-E-400K-FMS	UPS5000-E-500K-FMS	UPS5000-E-600K-FMS
Weight (full configuration)	680 kg	800 kg	1025 kg
Dimensions (H x W x D)	2000 mm x 1200 mm x 850 mm		2000 mm x 1400 mm x 850 mm

NOTICE

1. Before installation, read the user manual carefully to get familiar with product information and safety precautions.
2. Use insulated tools during installation and operation.
3. Only engineers certified by the Company or its agent are allowed to install, commission, and maintain the UPS. Otherwise, personal injury or equipment damage may occur, and the resulting UPS faults are beyond the warranty scope.
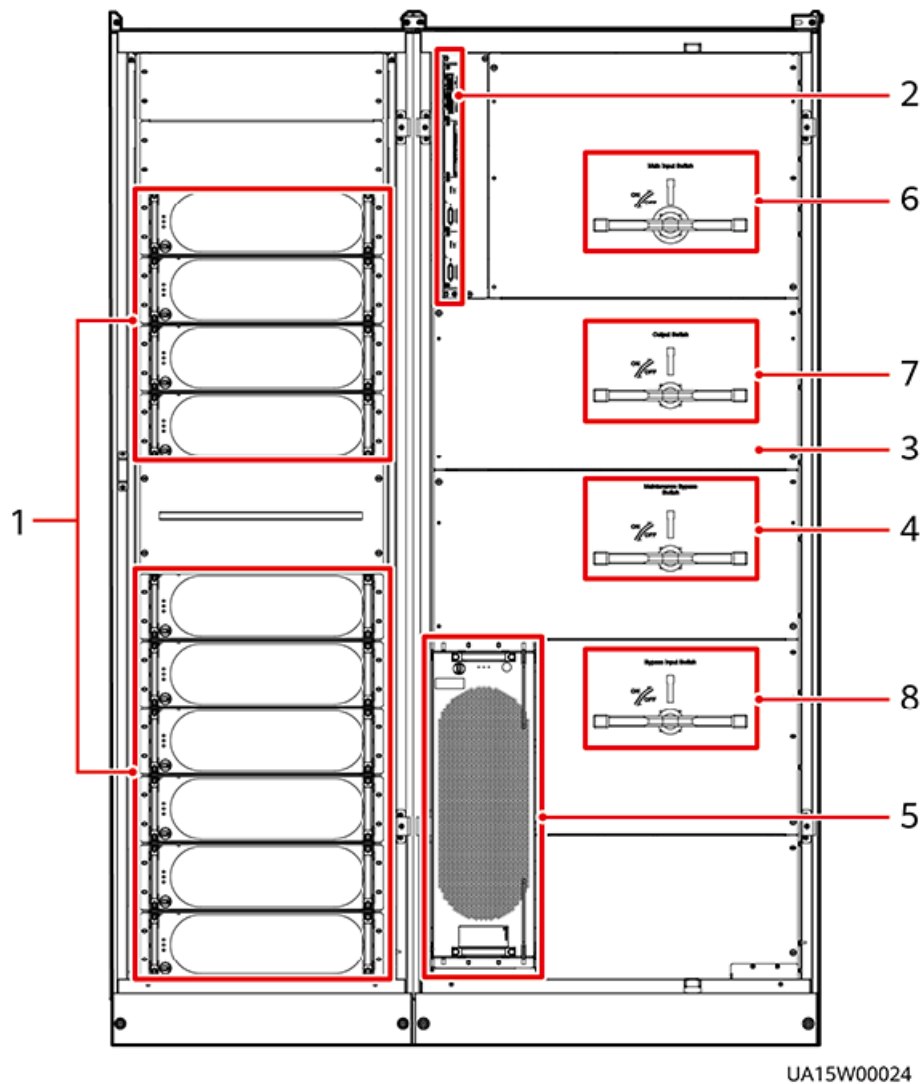
UPS5000-E-400K-FMS
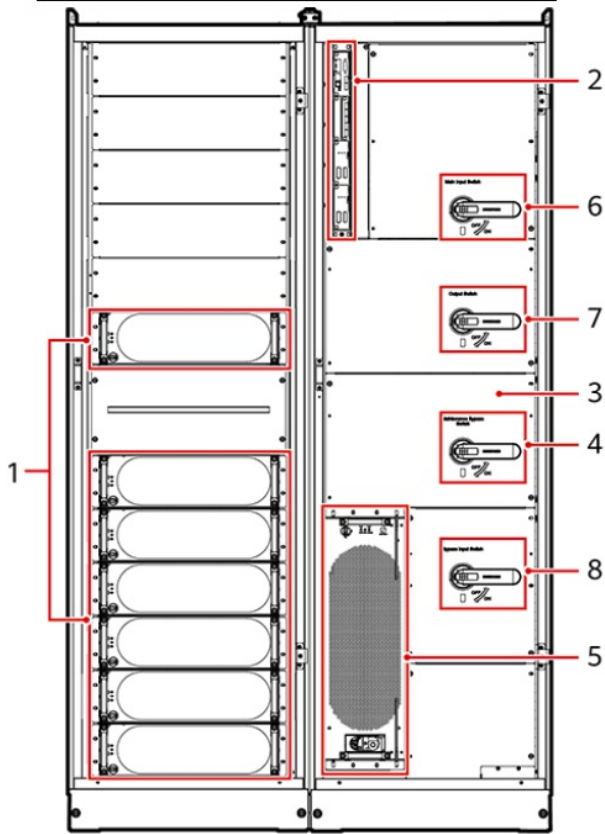
UPS5000-E-500K-FMS

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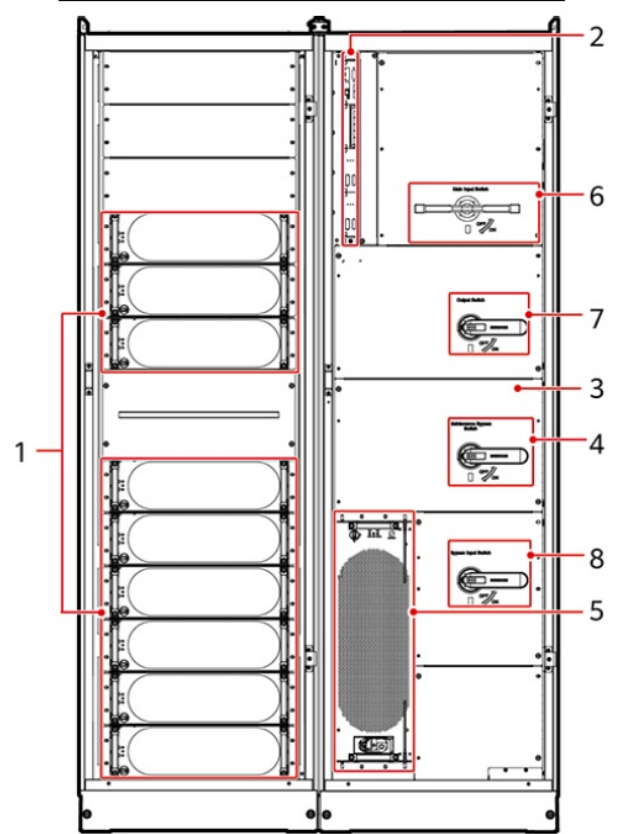
UA13W00020

1. Power modules
2. Control module
3. Power distribution module covers
4. Maintenance bypass switch
5. Bypass module
6. Main input switch
7. Output switch
8. Bypass input switch

UPS5000-E-600K-FMS

UA15W00024

1. Power modules
2. Control module
3. Power distribution module covers
4. Maintenance bypass switch
5. Bypass module
6. Main input switch
7. Output switch
8. Bypass input switch

NOTE: UPS5000-E-400K-SMS, UPS5000-E-500K-SMS, and UPS5000-E-600K-SMS are models in standard configuration. A UPS in standard configuration has no mains input switch, bypass input switch, or output switch.
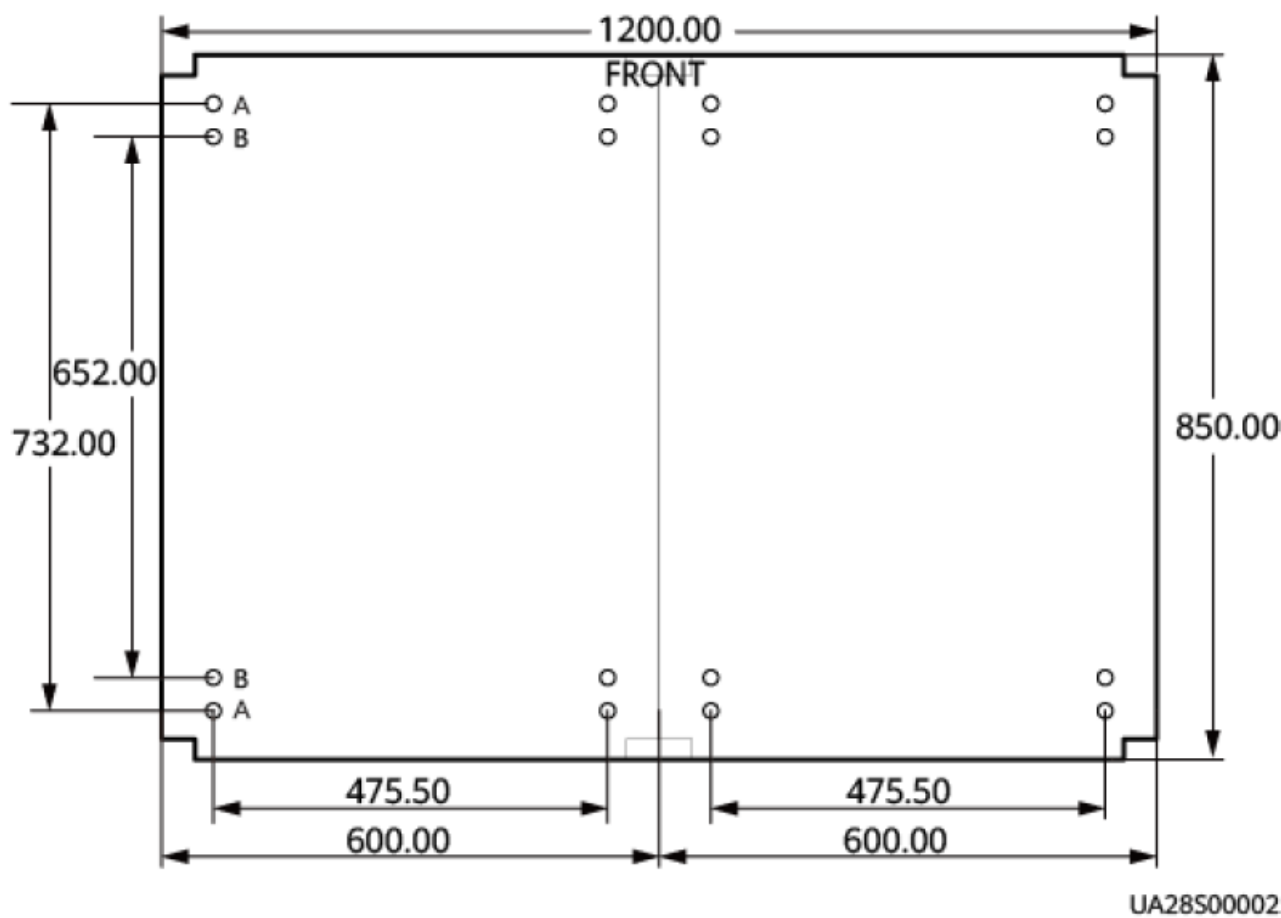
Installing the UPS

Determining the 2.1 UPS Installation Position
The UPS can be installed on the channel steel or floor. Determine the mounting hole positions using a marking-off template (unit: mm), drill holes, and install expansion sleeves based on site requirements.

- **A:** Mounting holes on the channel steel
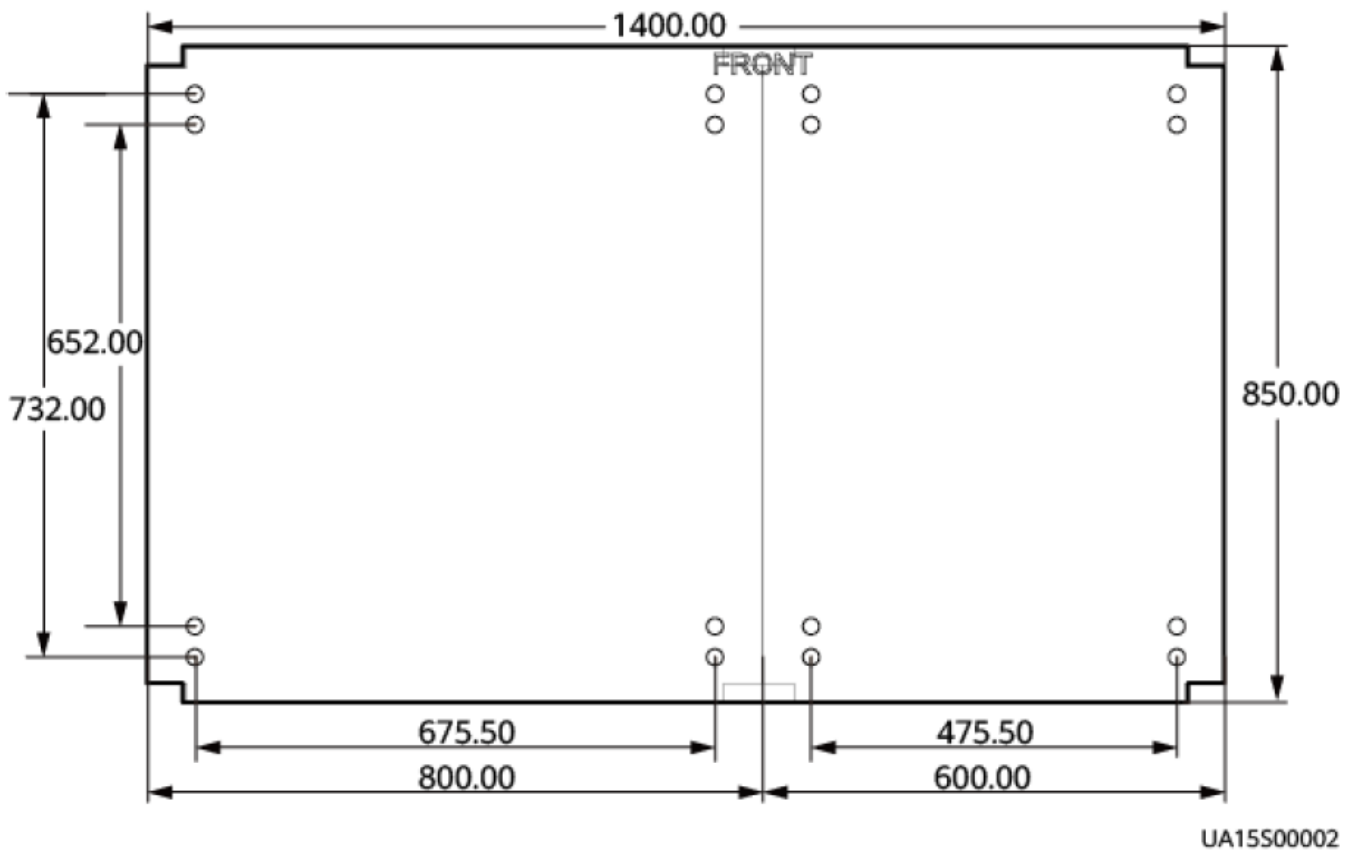- **B:** Mounting holes on the floor

400/500K Hole Dimensions

Unit: mm

UA28S00002

600K Hole Dimensions

Unit: mm

UA15S00002

Securing the UPS

- **Floor mounting:** Secure the cabinet to the floor by using eight M12x60 expansion bolts.
- **Channel steel mounting:** Secure the cabinet to channel steel by using eight M12x60 common bolts.

(1) Cabinet mounting holes (floor mounting mode)

(2) Cabinet mounting holes (channel steel mounting mode)

UA13000083
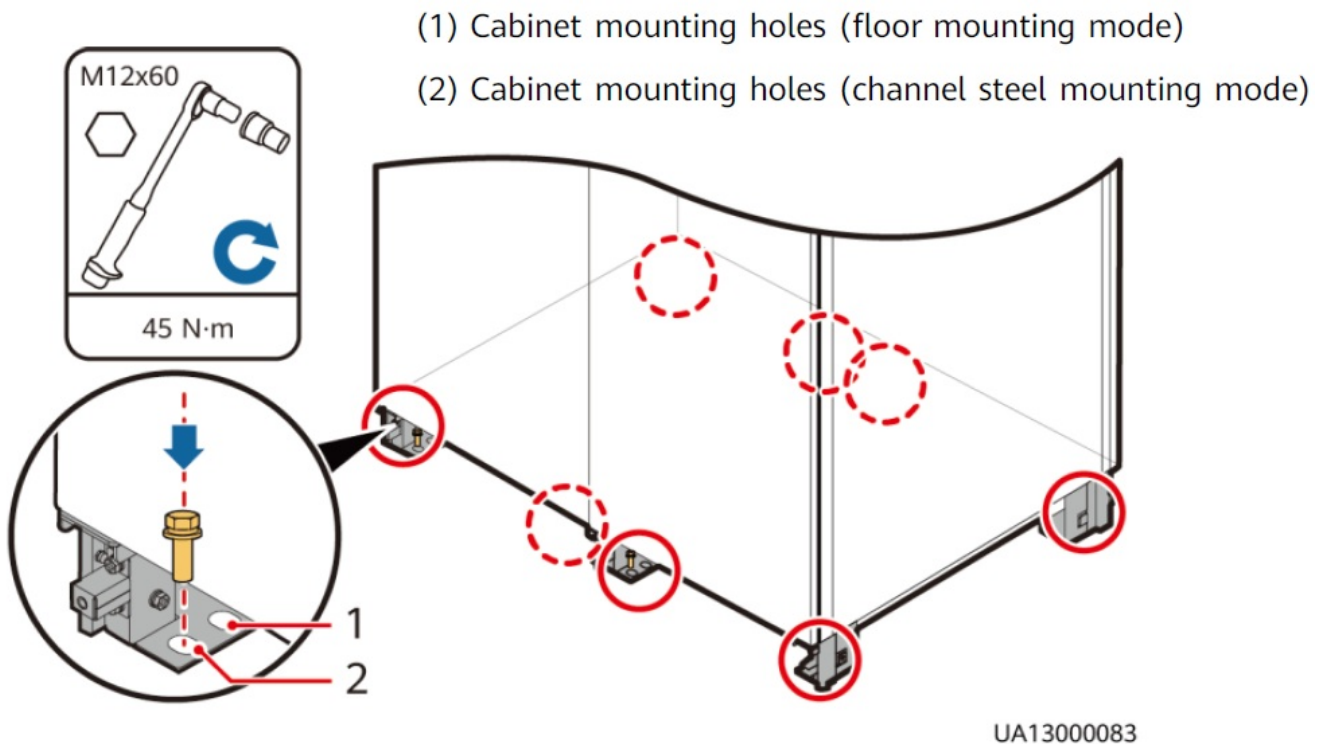
Installing the Front, Rear, Left, and 2.3 Right Anchor Baffle Plates

M6x16 (12PCS)

3 N·m

UA13H00011
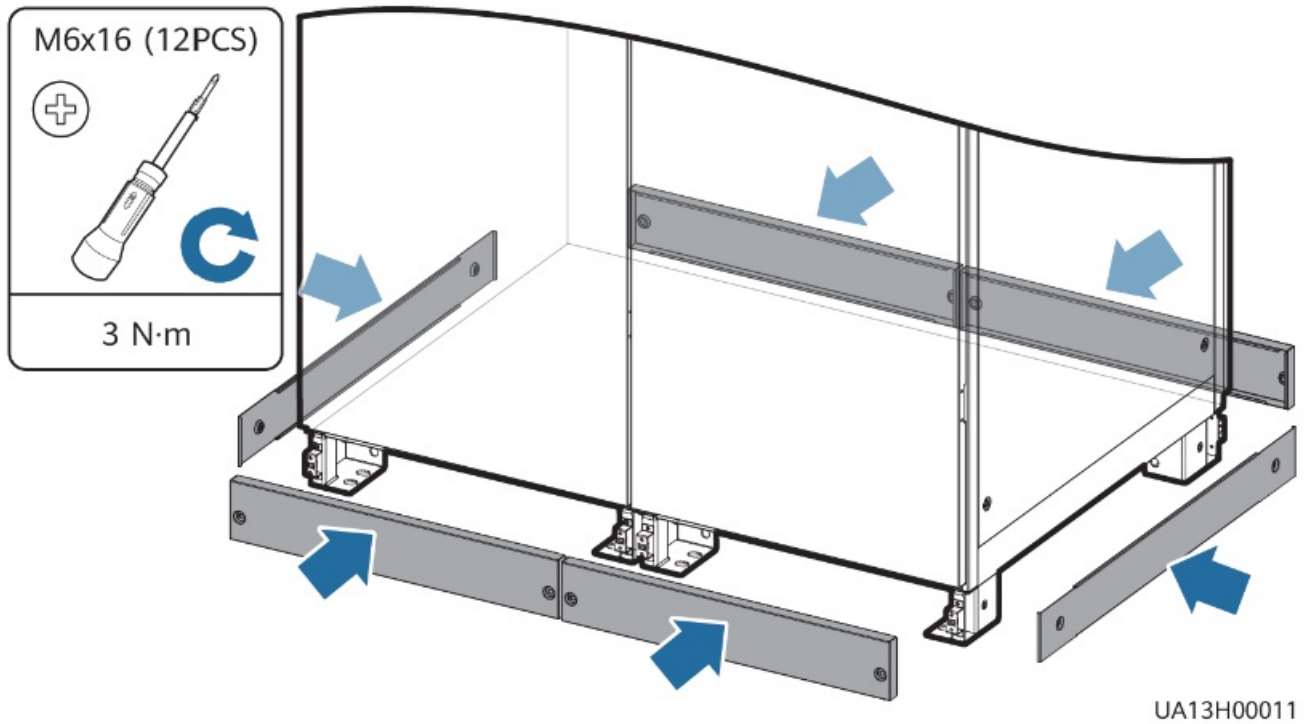
Installing Cables

UPS Cable Connection Reference
WARNING

- Prepare cables away from the cabinets to prevent scraps from falling inside. Cable scraps may ignite and cause personal injury or device damage.
- After cables have been installed, clean the cabinets in a timely manner. Keep the cabinets and surrounding environment clean and tidy.
- You need to prepare terminals onsite. The stripped length of the copper wire should be the same as that of the part of the terminal that covers the conductor.
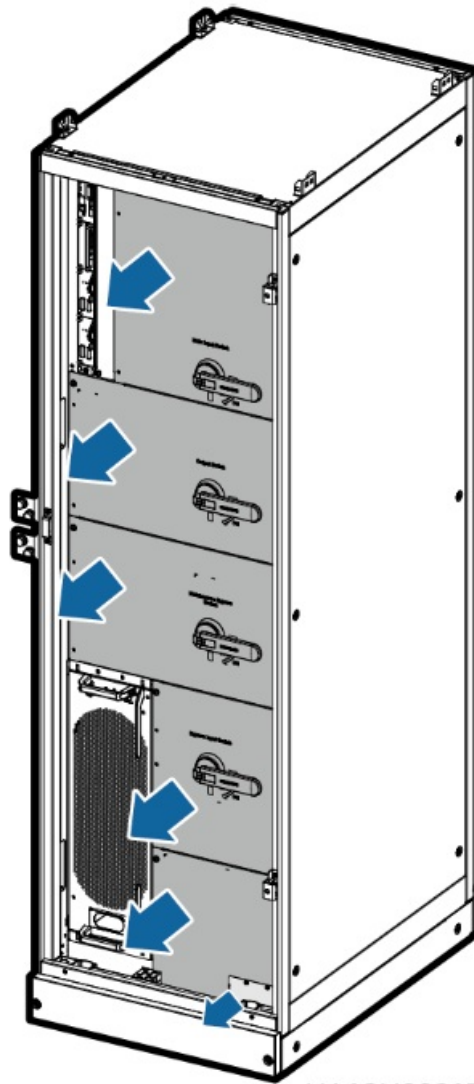

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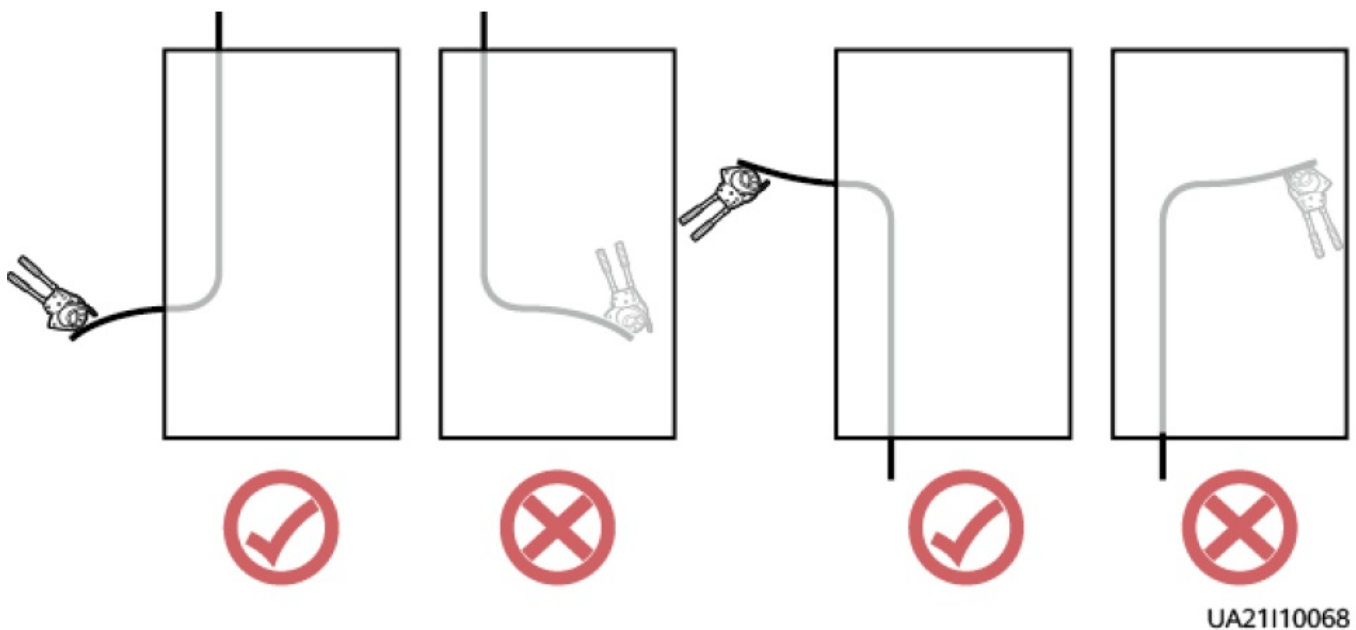
NOTE The cabling route is for reference only. Connect cables based on site requirements.

Installing Cables

1. **Scenario 1: Routing Cables from the Top**

   1. Open the front door of the bypass cabinet, and remove power distribution covers (UPS5000-E-400K-FMS is used as an example).

UA13H00017

   2. Remove the top cover from the cabinet based on cable routes and dimensions.
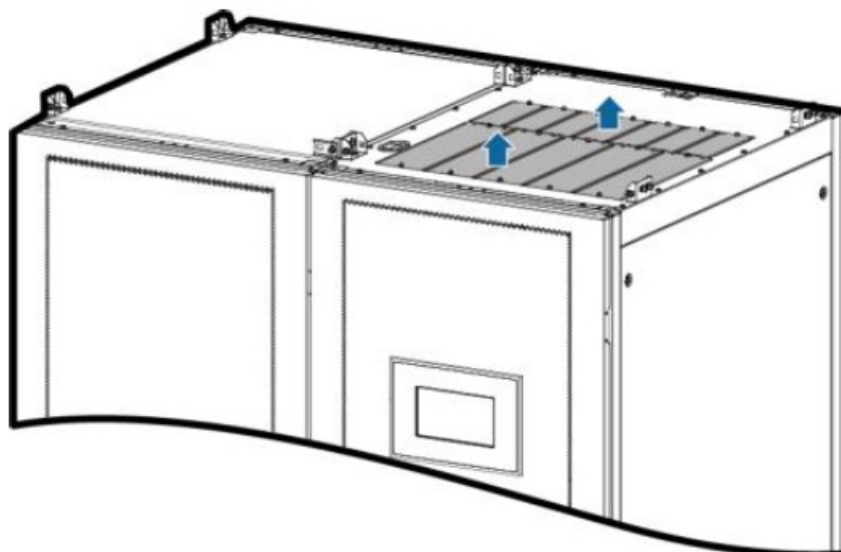
UA13H00019

   3. Remove the copper bar between the mains and bypass inputs. (Skip this step if there is only one power

source.)
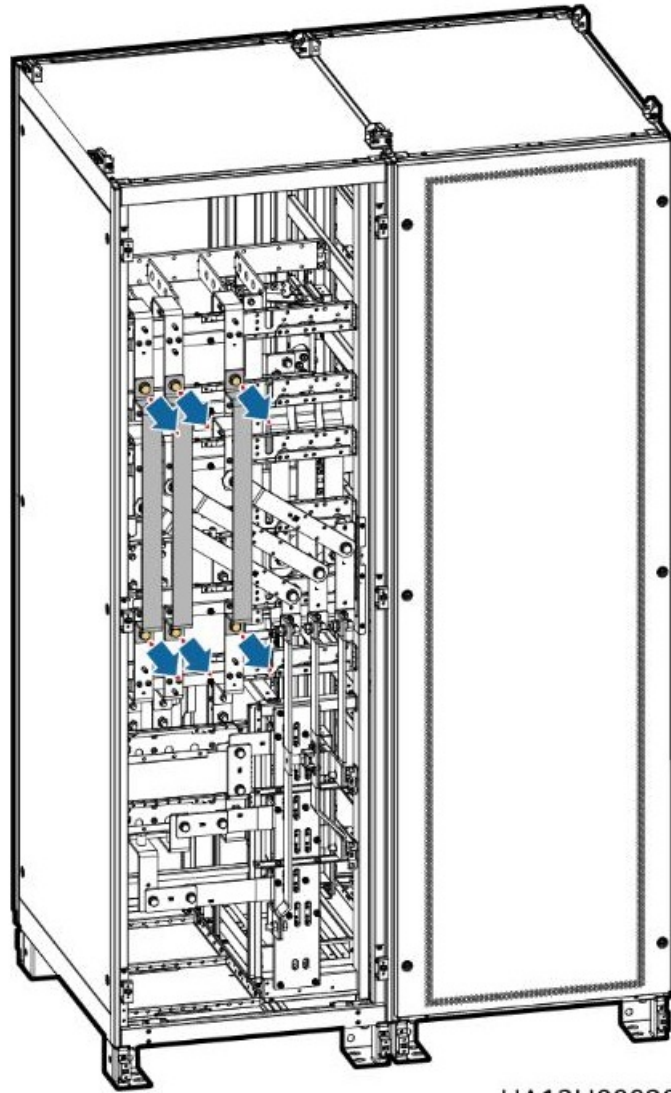
UA13H00020

4. Connect the ground cable to the UPS.

M12x35

47 N·m

PE
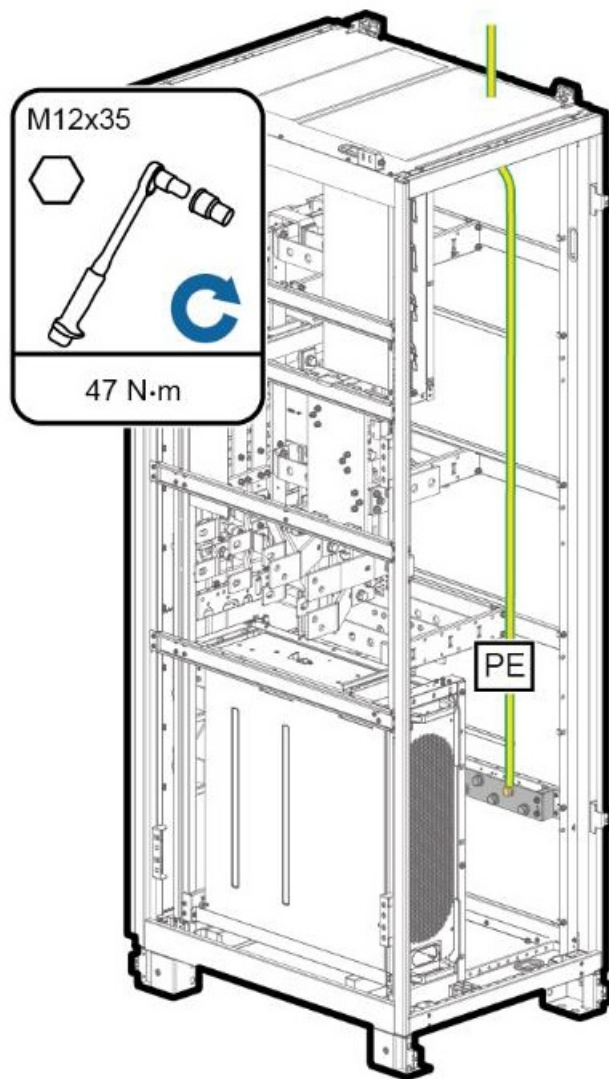
UA13H00018

5. Connect the mains input power cable.

M16x50

N 1L1 1L2 1L3

120 N·m
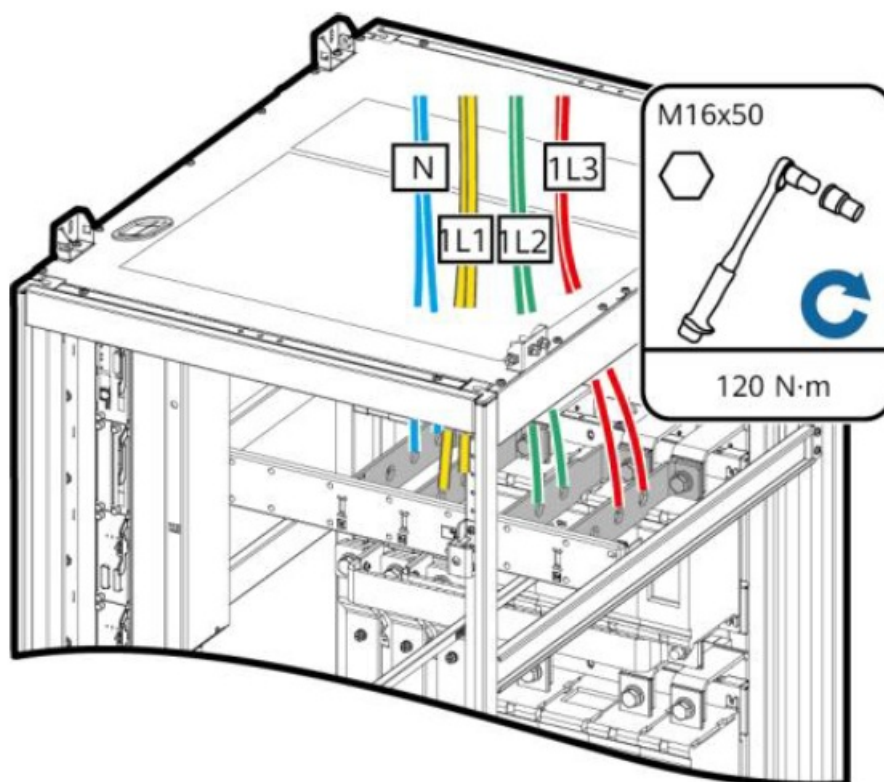
UA13I10021

6. Connect the output power cable.
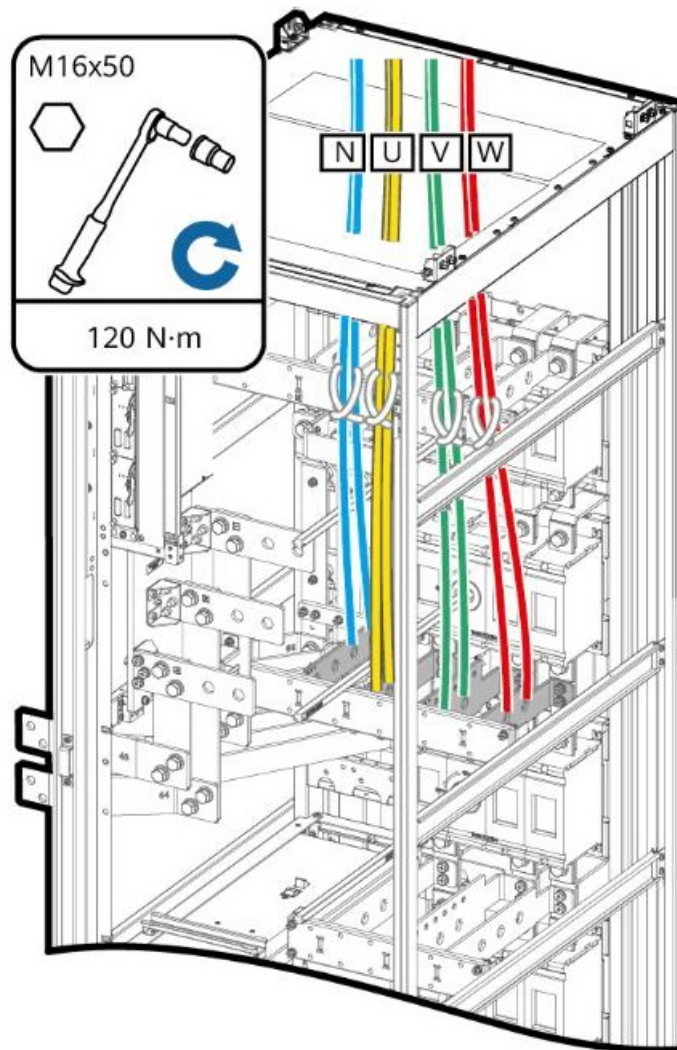
UA13I10022

7. Connect the bypass input power cable.

M16x50

120 N·m
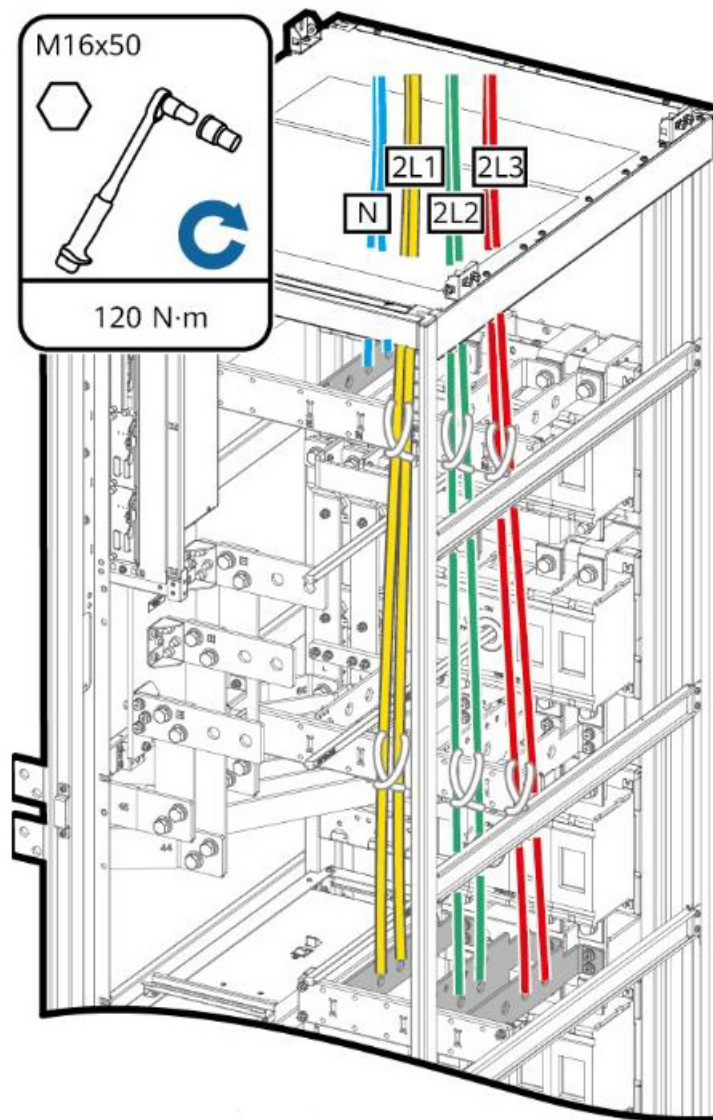
UA13I10025

8. Connect the battery cable.
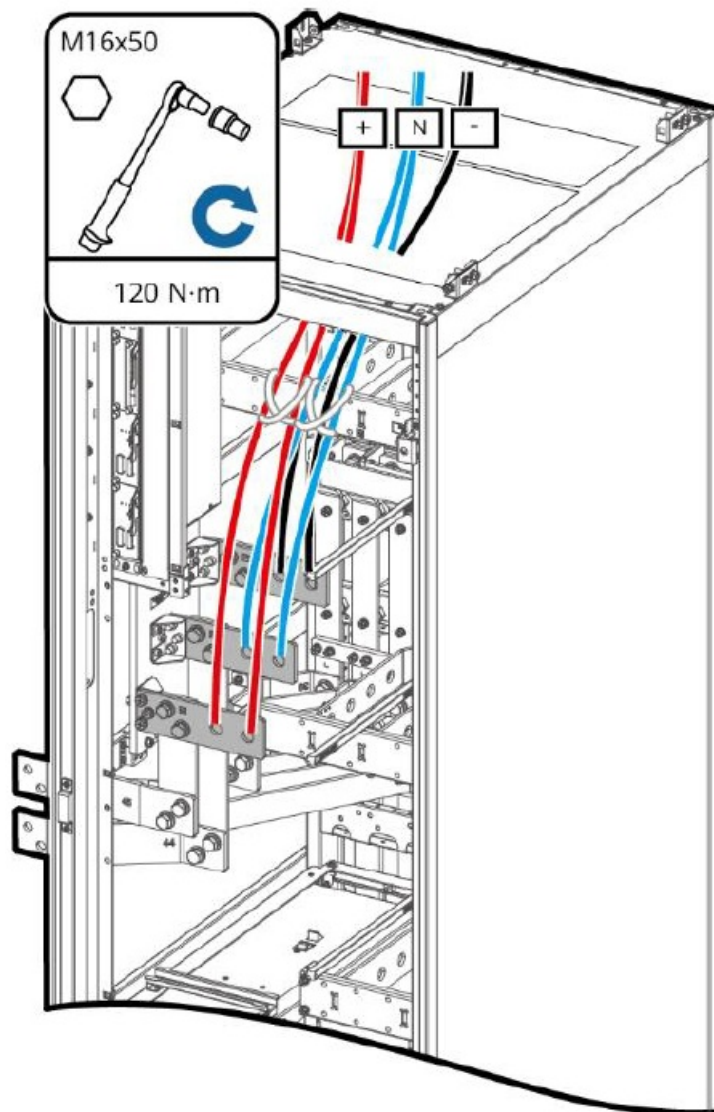
UA15000152

9. Connect signal cables.
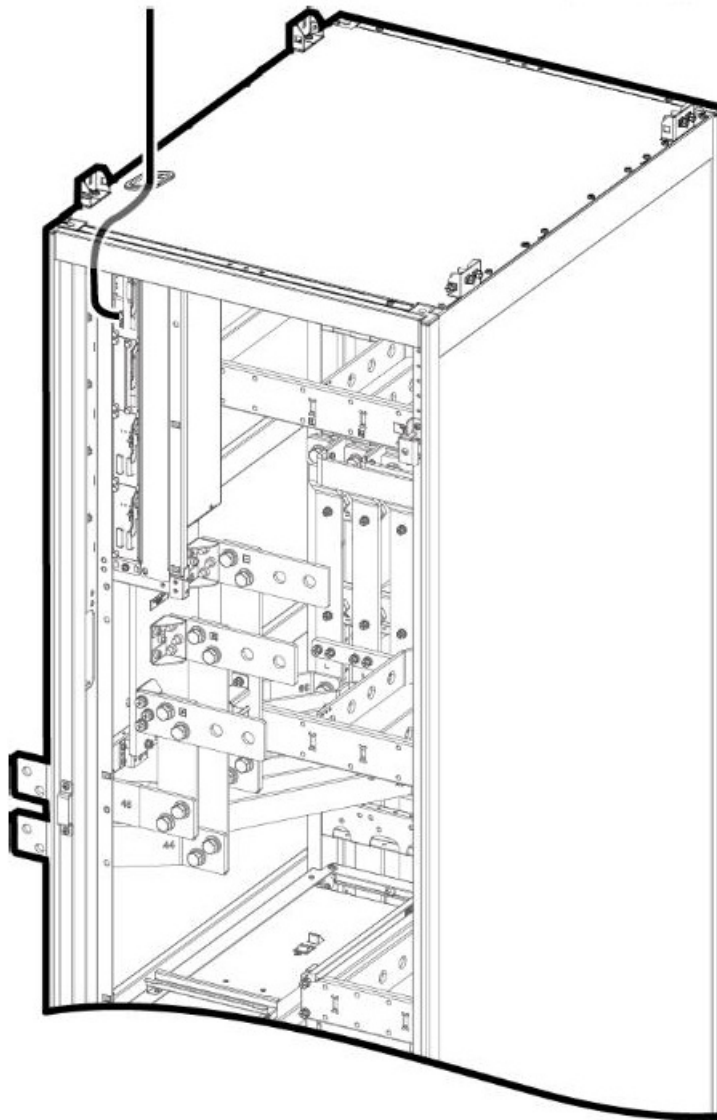
UA13I10024

NOTE: The figure shows the signal cable routing and is for reference only. Connect the cable based on the actual situation. Route a neutral wire from the middle of the positive and negative battery strings. Take a battery string consisting of 40 batteries as an example. A neutral wire is routed from the middle of positive and negative battery strings, each consisting of 20 batteries.
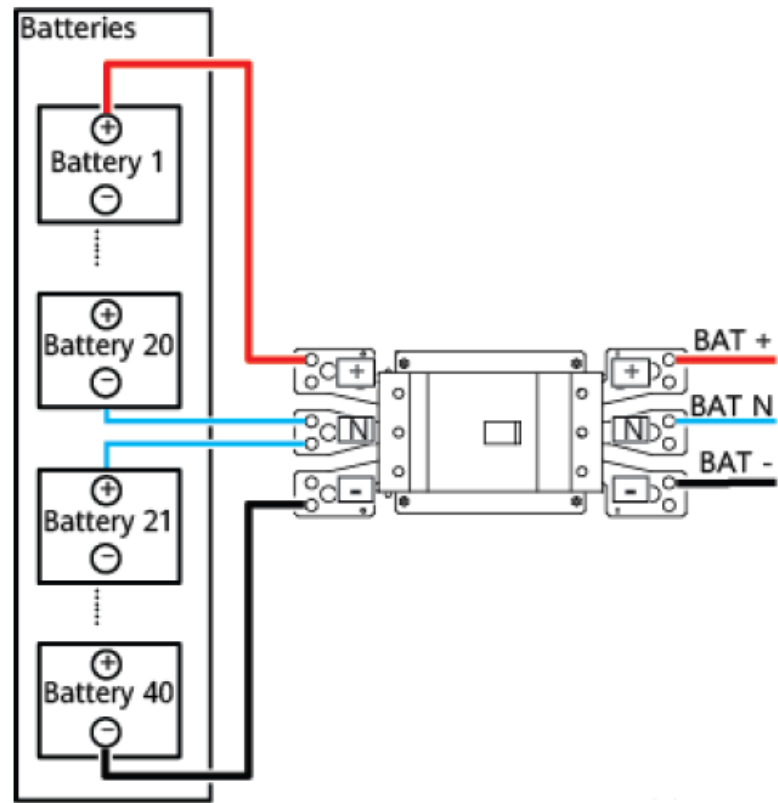
For the cable connection method for the TN-C system, see the user manual.

2. **Scenario 2: Routing Cables from the Bottom**

    1. Remove the cable covers from the bottom of the cabinet, drill holes in the covers, attach grommet strips to the hole edges for protecting cables, and reinstall the cable covers.

    2. Connect power cables and signal cables.

UA15I10020
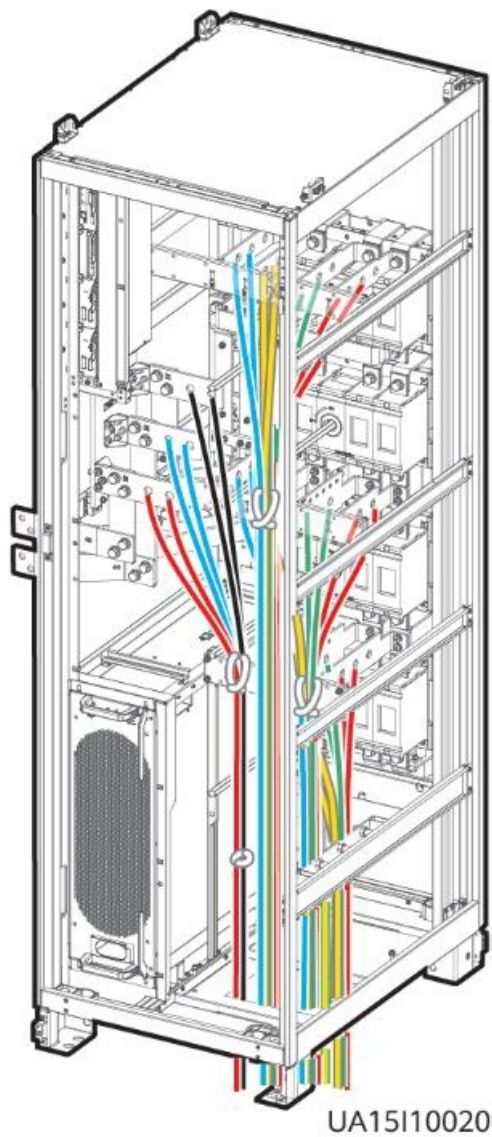
For the screw specifications and torque used for connecting cables in a bottom cable routing scenario, refer to the top cable routing scenario. This section only shows the cable routes in the bottom cable routing scenario.

Verifying the Installation

1. Check that there is no foreign matter in the cabinet.

UA13W00012
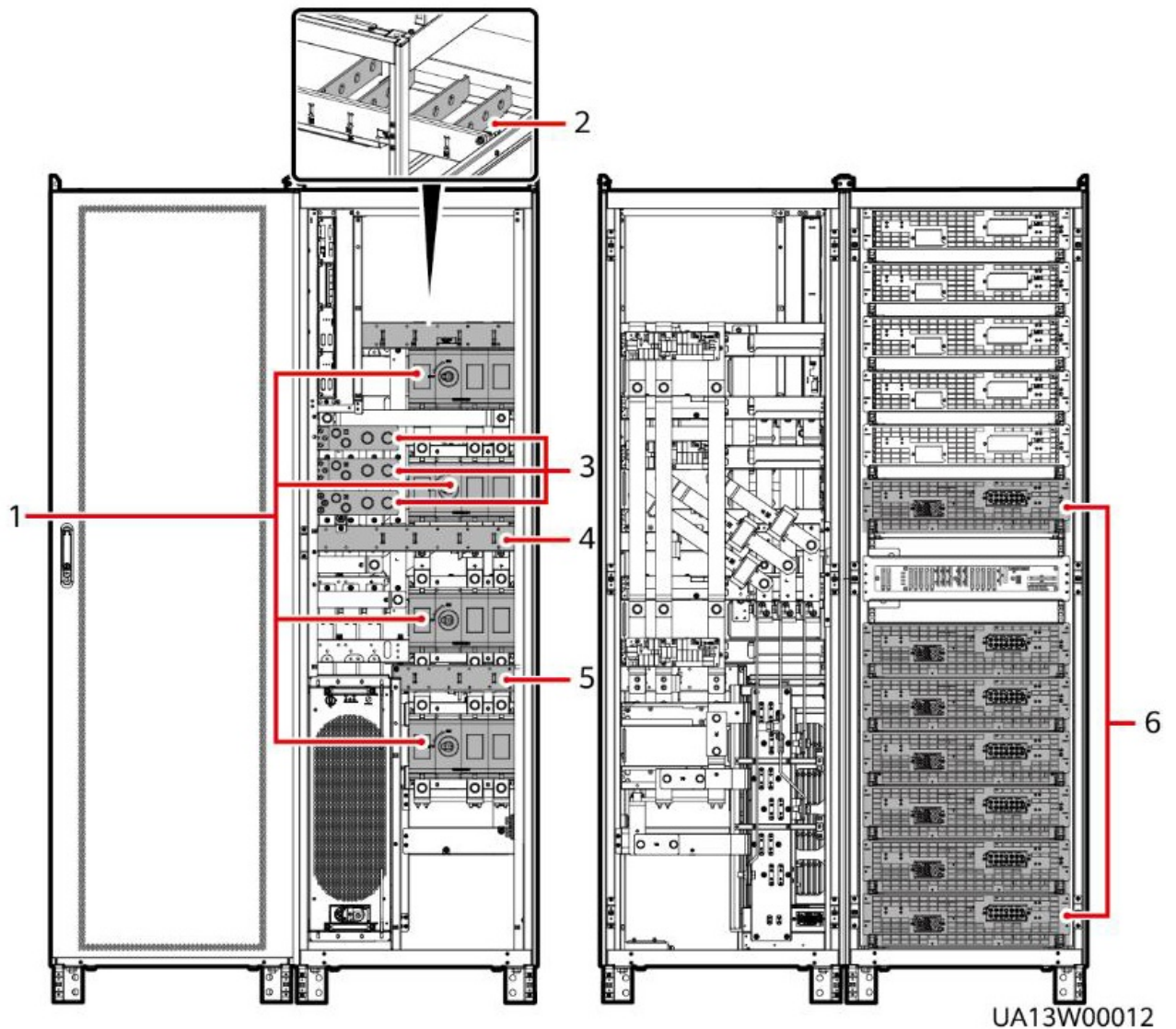
1. Switches
2. Mains input wiring copper bars
3. Battery input wiring copper bars
4. Output wiring copper bars
5. Bypass input wiring copper bars
6. Rear of the cabinet

2. After routing cables and checking cable connections, use sealing putty to fill in the gap between the cables and the cabinets. (Remove the paper protective film from the sealing putty and retain the transparent film. When using the putty, ensure that the transparent film faces upward.)

Paper protective film
Transparent film
Sealing putty
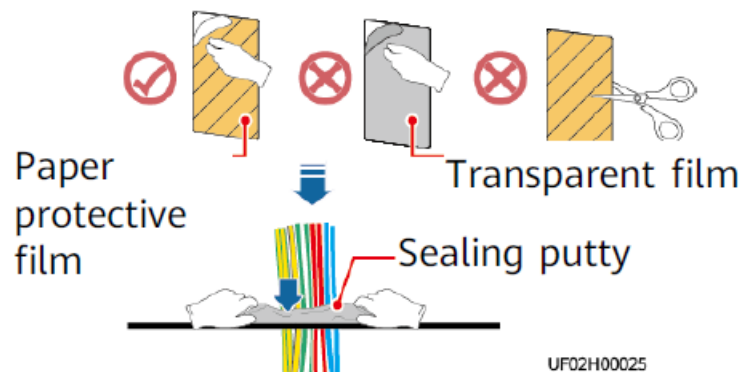
UF02H00025

3. After verifying the installation, reinstall all the covers.
4. Do not remove the dust cover before power-on to prevent dust from entering the UPS.

Dust cover

UF02H00014
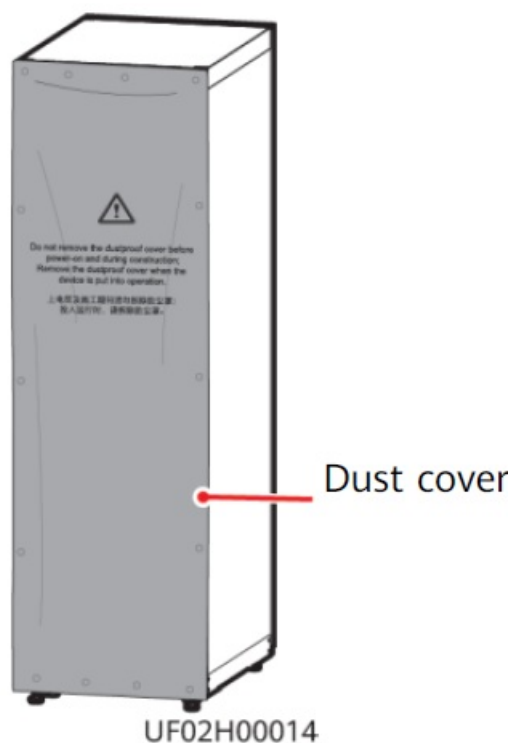
Powering On and Starting the UPS

NOTICE

1. Before powering on the UPS, ensure that the UPS has passed all check items in the UPS5000 Commissioning and Acceptance Report and Chapter 4.
2. Measure the voltage and frequency of the mains and bypass inputs of the UPS, or the voltage and frequency output from the external input power distribution cabinet (PDC) to the UPS. Ensure that the line voltage is in the range of 138–485 V AC and the frequency is in the range of 40–70 Hz.

Powering On the UPS

Turn on the upstream bypass and mains input switches.

↓

(For a UPS in full configuration) Turn on the UPS bypass input switch, output switch, and mains input switch.

↓

After the UPS is powered on, initialization begins. The MDU displays an initialization progress bar.

Initial Startup

1. Obtain the startup password through the app. After the application is approved, enter the password on the service authorization screen of the device to complete device authorization.
2. Set the language, time, date, network parameters, system parameters, and battery parameters on the Settings Wizard screen.

Settings > Settings Wizard — Language

English ✓	中文简体
Русский	Español
Português	Français
Italiano	Deutsch

Next Cancel

Settings > Settings Wizard — Time

Date format:	YYYY-MM-DD
YYYY-MM-DD:	2022-05-26
Time zone:	UTC +8:00
City:	Beijing
Time:	15:54:07

Previous Next Cancel

Settings > Settings Wizard — Network Param.

IP address allocation:	Manual
IP address:	192.168.000.010
Subnet mask:	255.255.255.000
Gateway:	192.168.000.001
IPv6 address:	fc::10

Previous Next Cancel

Settings > Settings Wizard — System Param. 1

Single/Parallel:	Single

Previous Next Cancel

Settings > Settings Wizard — System Param. 2

Output voltage level(V):	400
Output frequency(Hz):	50

Previous Next Cancel

Settings > Settings Wizard — Battery Param

Battery type:	VRLA batt.
Single battery voltage(V):	12
Single battery capacity(Ah):	600
Batteries in a battery string:	40
Number of battery strings:	1

Previous Finish Cancel

3. After you perform the settings, the Bypass mode and No battery alarms are reported by the MDU and do not need to be cleared. If there is any other alarm, you need to rectify the fault.

4. If the system has connected to the remote EPO switch, you need to choose Monitoring > UPS System > Running Parameter > System Settings on the WebUI and set EPO detection to Enable.

5. View the system running status diagram on the MDU to check that the UPS is working in bypass mode.

Starting the Inverter

1. On the main menu, choose Common Functions and tap Inv. ON.

2. In the displayed login window, enter the user name and password, and tap ↵ .

3. In the displayed dialog box, tap Yes to start the inverter.

System User	LCD Preset Password	WebUI Preset Password
admin (system administrator)	000001	Change me
operator (common user)	000001	Change me

Powering On Loads

1. After the inverter starts, the UPS works in normal mode. The Bypass mode alarm disappears.
2. After confirming that the battery strings are properly connected, turn on the battery string input circuit breaker. If there are multiple battery strings, turn on the circuit breaker for each battery string and then the general circuit breaker between battery strings and the UPS. The No battery alarm disappears from the MDU.
3. Turn on the UPS downstream output switch to supply power to the loads.

(Optional) Setting Parameters 5.4 for the BCB Box

1. On the LCD, choose Settings > Dry Contact Settings, set MUE05A connection to Enable, and set BCB connection [OL] and Battery breaker [STA] to Enable.
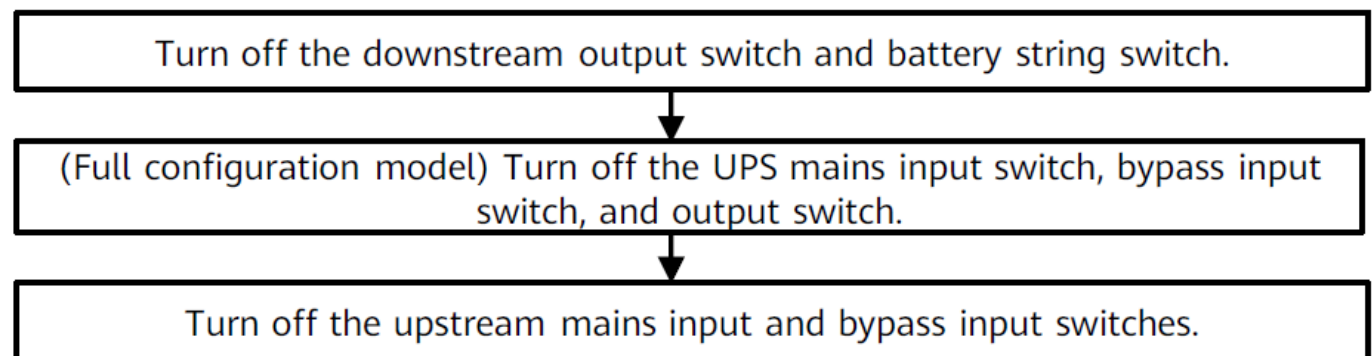
Shutting Down the UPS

NOTICE After the inverter is shut down, if the bypass is normal, the UPS transfers to bypass mode; if the bypass is not normal, the UPS supplies no power. Before shutting down the UPS, ensure that all loads have shut down.

Shutting Down the Inverter to Transfer the UPS to Bypass Mode
On the system LCD, choose Common Functions > Inv. OFF. After confirmation, the inverter is shut down.

Powering Off a Single UPS

Turn off the downstream output switch and battery string switch.

↓

(Full configuration model) Turn off the UPS mains input switch, bypass input switch, and output switch.

↓

Turn off the upstream mains input and bypass input switches.

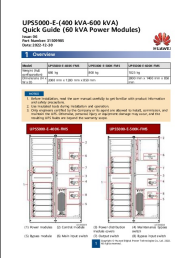**Huawei Digital Power Technologies Co., Ltd.**
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People's Republic of China
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Documents / Resources

HUAWEI UPS5000-E Modular Uninterruptible Power System [pdf] User Guide
UPS5000-E Modular Uninterruptible Power System, UPS5000-E, Modular Uninterruptible Power System, Uninterruptible Power System

References

- ⚙ **Huawei - Building a Fully Connected, Intelligent World**