

ESS-240V12-(9AhBPVBA,7AhBPVBA) Battery Pack Quick Installation Guide

Issue: 05
Part Number: 31505551
Date: 2019-01-08



Copyright © Huawei Technologies Co., Ltd. 2019. All rights reserved.

1 Precautions

Safety Precautions

To ensure safety of humans and the equipment, pay attention to the safety symbols on the equipment and all the safety instructions in this document. The "NOTE", "CAUTION", and "WARNING" marks in this document do not represent all the safety instructions. They are only supplements to the safety instructions. When operating Huawei equipment, in addition to following the general precautions in this document, follow the specific safety instructions given by Huawei. Huawei will not be liable for any consequences that are caused by the violation of safety regulations and design, production, and usage standards.

Local Safety Regulations

When operating Huawei equipment, you must follow the local laws and regulations.

Personnel Requirements

1. Only trained and qualified personnel are allowed to install, operate, and maintain Huawei devices.
2. You can modify default parameters only after being granted approval from Huawei technical support.

Symbols



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage.

Data loss, performance deterioration, or unanticipated results.

NOTICE is used to address practices not related to personal injury.



Calls attention to important information, best practices and tips.

NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Human Safety

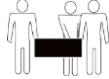
1. Before performing any operation, carefully read this document.
2. To prevent electric shocks, get tools insulated and wear insulation gloves when connecting cables.
3. To prevent personal injury, wear protective shoes when moving batteries.
4. In case of fire, use a dry power fire extinguisher to put out the fire. Using a fluid fire extinguisher may cause electric shocks.
5. Do not touch uninsulated battery terminals. Otherwise, electric shocks may occur.
6. Using incorrect battery models may cause explosion. Dispose of used batteries by following the instructions.
7. Cut off power supply and remove all metal objects such as watches and rings before maintenance.
8. Do not move the battery pack by holding its mounting brackets, front panel, or terminal cover. Because the battery pack is heavy, several persons are required to move it in compliance with safety regulations.



< 18 kg (< 40 lb)



18–32 kg (40–70 lb)



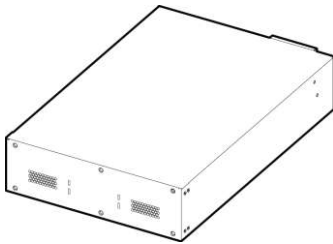
32–55 kg (70–120 lb)



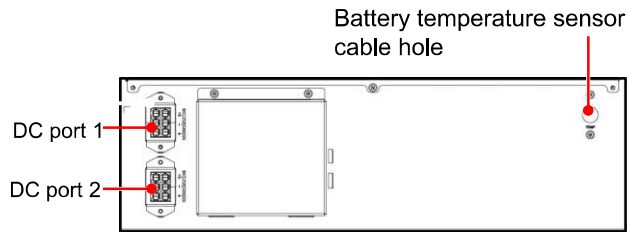
> 55 kg (> 120 lb)

2 Appearance

ESS-240V12-(9AhBPVBA, 7AhBPVBA) appearance





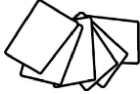
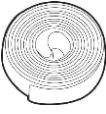
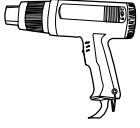











ESS-240V12-(9AhBPVBA, 7AhBPVBA) rear panel



Battery pack	Weight	Dimensions (H x W x D)
ESS-240V12-7AhBPVBA01	61 kg	130 mm x 430 mm x 685 mm
ESS-240V12-7AhBPVBA02	51 kg	
ESS-240V12-9AhBPVBA01	69 kg	
ESS-240V12-9AhBPVBA02	65 kg	

3 Preparations

3.1 Tools

 Wire stripper	 Polyvinyl chloride (PVC) insulation tape	 Cotton cloth	 Heat shrink tubing (Φ6)
 Heat gun	 Cable tie	 Phillips screwdriver (PH2 x 150 mm or PH3 x 250 mm)	 Flat-head screwdriver
 Protective gloves	 Electrostatic discharge (ESD) gloves	 Electrician's knife	 Insulation gloves
 Hydraulic pliers	 Multimeter	 Torque screwdriver	 WARNING Get installation tools insulated to prevent electric shocks.

3.2 Unpacking and Checking

NOTICE

1. Do not move the battery pack by holding its mounting brackets, front panel, or terminal cover.
2. Remove rings, watches, and other metal objects before you move a battery pack.

No.	Item
1	Visually inspect the battery pack appearance for shipping damage. If any shipping damage is found, report it to the carrier immediately.
2	Check the battery pack bar code, which is at the rear panel of the UPS, near the DC port, and ensure that it complies with the order. If there is any discrepancy, contact your local Huawei office immediately.

4 Installation

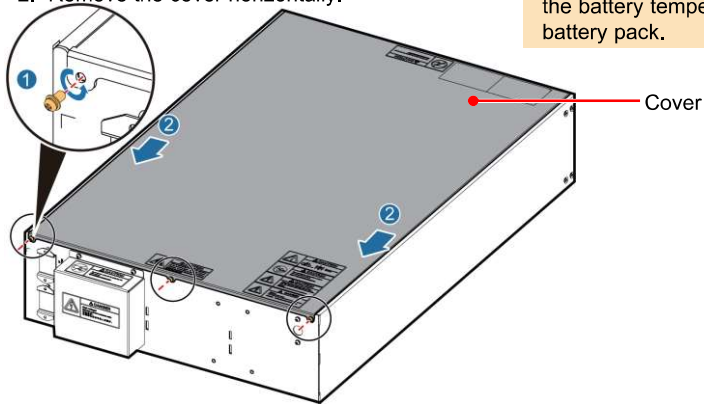
(Optional) Installing a Battery Temperature Sensor

1. Remove the three screws that secure the cover of the battery pack.
2. Remove the cover horizontally.

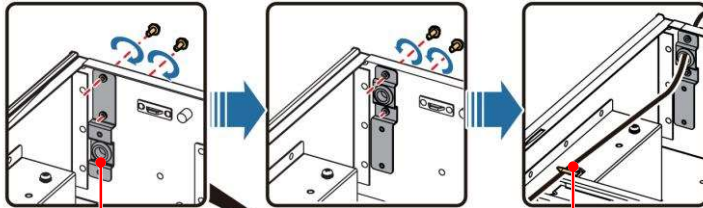


NOTE

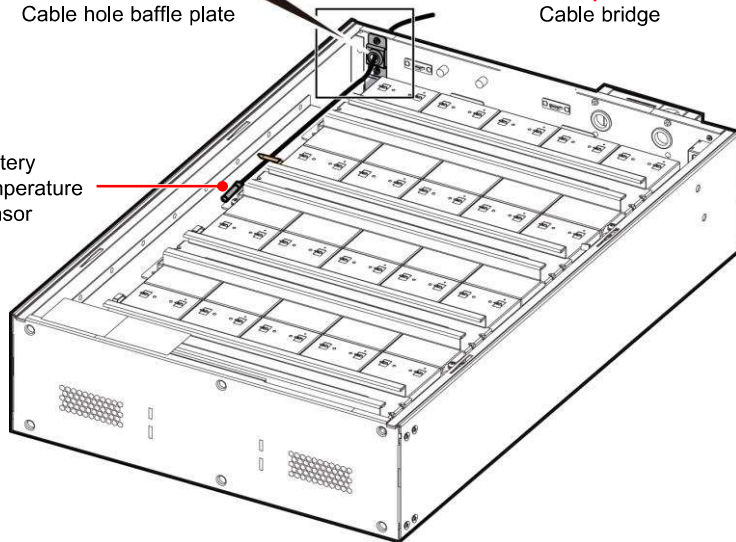
If multiple battery packs are installed, install the battery temperature sensor for only one battery pack.



3. Remove the cable hole baffle plate of the battery temperature sensor, rotate the baffle plate 180 degrees, and secure it with the removed screws. Route the battery temperature sensor into the battery pack through the cable hole, and secure the sensor cable to the cable bridge by using a cable tie.



Battery temperature sensor



4. Reinstall the cover for the battery pack, and secure the cover by using the three removed screws.

Rack-mounting Battery Packs

NOTE

1. A UPS2000-G-6 kVA/10 kVA requires one battery pack to provide standard backup time, and requires two to four battery packs to provide long backup time. For a UPS that provides long backup time, battery packs connect to each other in parallel and then connect to the UPS battery input port. The following figure shows how to connect four battery packs in parallel.

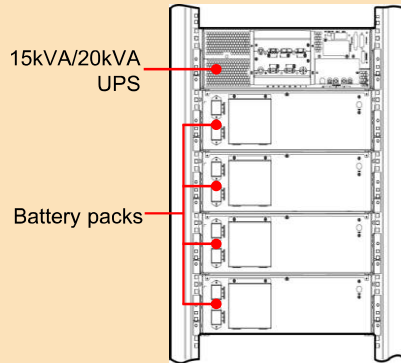


2. If the number of UPS2000-G-6 kVA/10 kVA parallel system is greater than or equal to 3, each UPS can be configured with one to four battery packs. The installation methods for each UPS and battery pack in the parallel system are the same as those in a single UPS system. The installation sequence is: UPS > battery pack > UPS > battery pack ... UPS > battery pack.

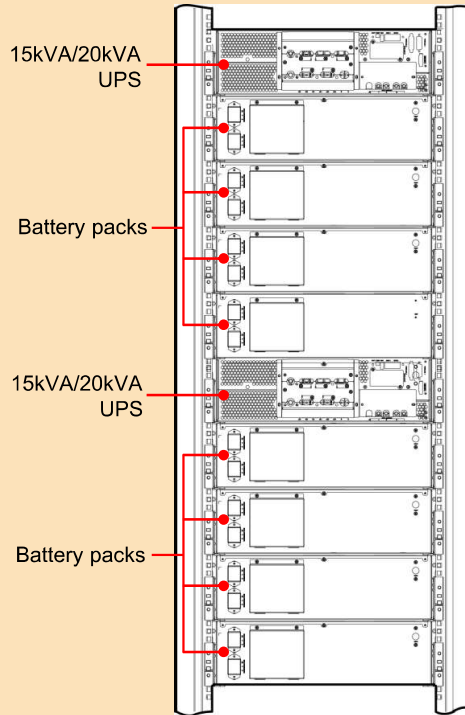


3. The following figures show three methods for installing the UPS2000-G-15 kVA/20 kVA and battery packs.

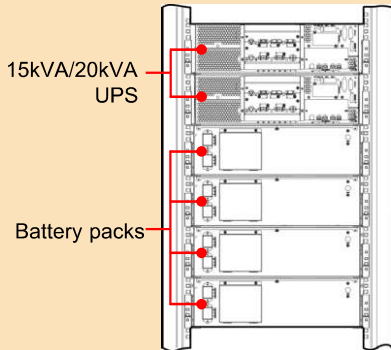
A. One 15 kVA/20 kVA UPS + Four battery packs



C. Two 15 kVA/20 kVA UPSs (1+1 parallel system) + Eight battery packs (not shared)

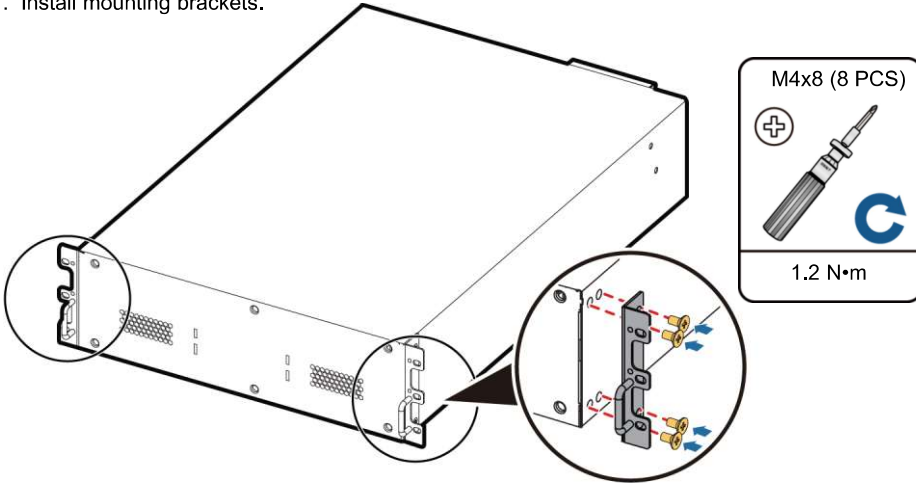


B. Two 15 kVA/20 kVA UPSs (1+1 parallel system) + Four battery packs (shared)



NOTE
This document uses a 19-inch rack as an example. For other racks, see the related UPS quick installation guide.

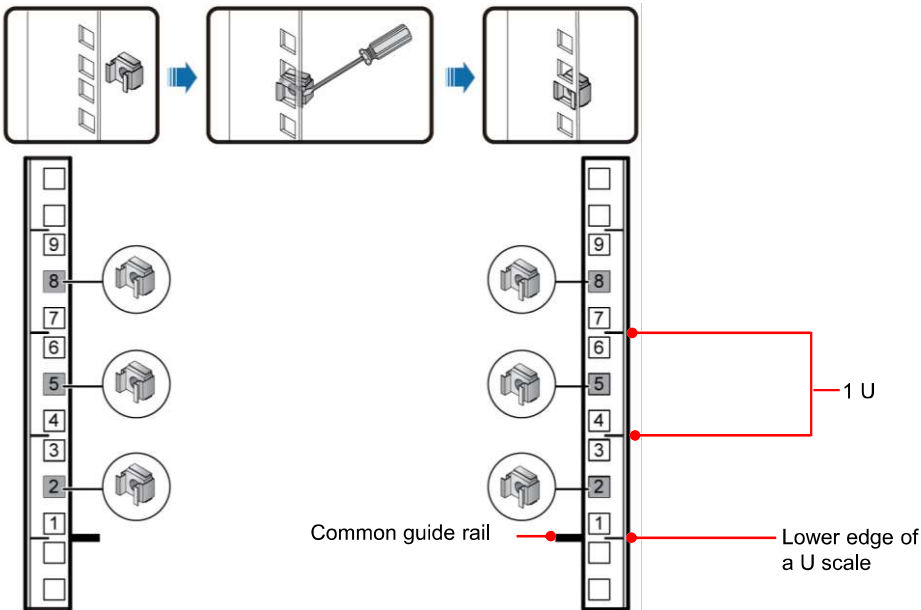
1. Install mounting brackets.



2. Install battery packs. There are two methods.

Method 1: Floating nuts + Common guide rails

Align the lower plane of the guide rail with the lower edge of a U scale. Install floating nuts (six in total) in positions numbered 2, 5, and 8, as shown in the following figure.

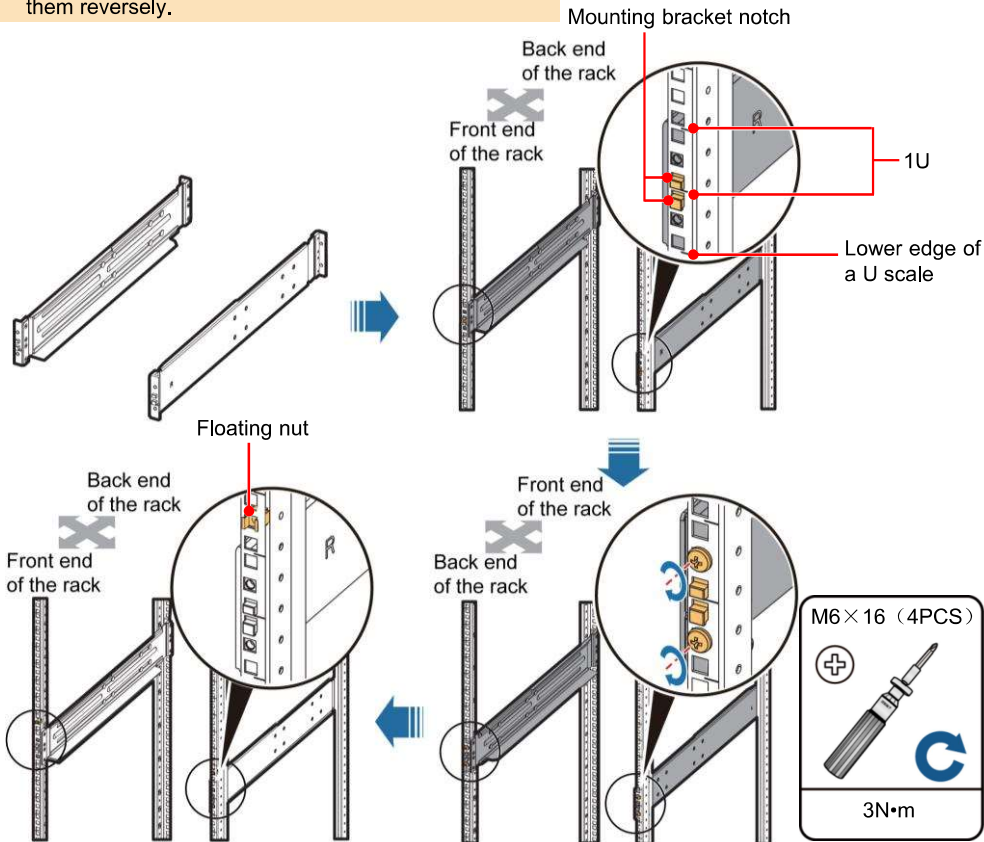


Method 2: Adjustable guide rails (optional) + Floating nuts

- A. Fix the position of the guide rails (2 U) on the rack align the lower edge of a guide rail with the lower edge of a U scale.
- B. Engage the mounting brackets on both ends of the guide rail into the mounting holes, and then secure the back end of the guide rail with M6x16 panel screws. Do not install panel screws on the front end of the guide rail. Use the same method to install the other guide rail.
- C. Install floating nuts in the upper part of the guide rails (front side) on both sides. The following figure shows the installation positions.

NOTICE

The guide rail on the right has the R silkscreen, and the guide rail on the left has the L silkscreen. Do not install them reversely.



NOTE

Guide rails are optional and recommended for rack installation. For a 3 U device, install guide rails and two floating nuts. Secure the device with screws. The floating nuts are delivered with the rack.

- Place the battery pack on the guide rails. Secure the battery pack to the rack using M6x16 screws through the holes in the mounting bracket.

⚠ DANGER

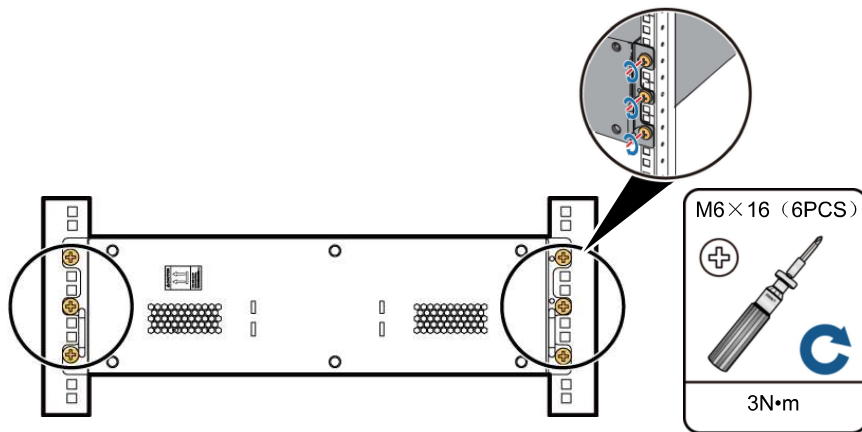
Ensure that the rack is properly grounded before the operation.

⚠ WARNING

Do not touch uninsulated battery terminals. Otherwise, electric shocks may occur.

NOTICE

- Do not move the battery pack by holding its mounting brackets, front panel, or terminal cover.
- Remove rings, watches, and other metal objects before you move a battery pack.
- Do not push the guide rails out of the race when putting the battery pack into the rack, as the front end of the guide rails are not screwed.

**Tower-mounting Battery Packs****NOTE**

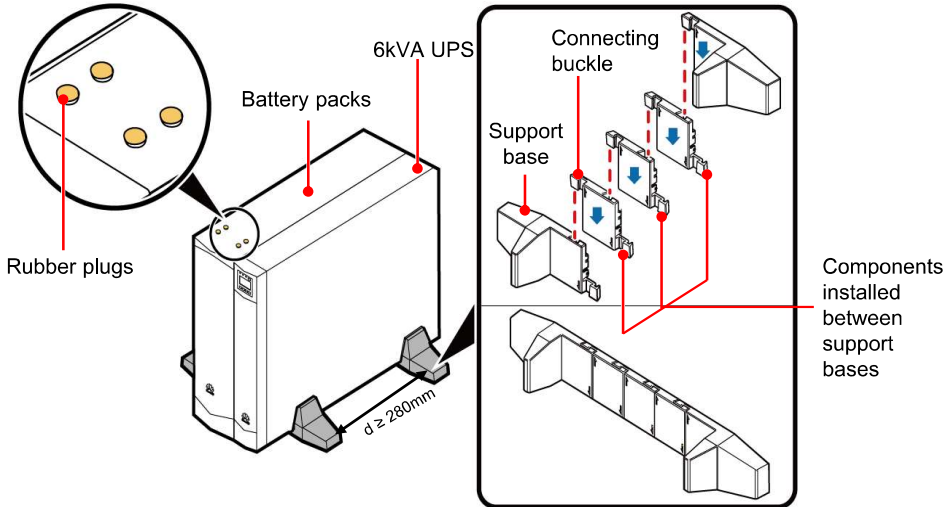
- The text uses how to install a battery packs and a 6 kVA UPS as an example.
- The support base length is adjustable. You can add components to increase the length. A component (1 U) installed between the support bases is required for a 3 U device.
- Exert force to disassemble components in the reverse directions of assembling.
- The minimum distance between two support bases should be 280 mm and the maximum should not exceed the edge of the device. It is recommended that the distance between the front (rear) base and the front (rear) side of the device should be about 100 mm.

- Assemble support bases. When you assemble two support bases, align connecting buckles with holes and insert the buckles vertically, as shown in the following figure.
- Install two groups of support bases for each group of battery packs as follows: Place support bases on the floor, determine the distance (greater than or equal to 280 mm) between the two groups of support bases, place battery packs on the support bases in sequence, and secure them.

3. After the battery packs are tower-mounted, seal the four screw holes on the top with rubber plugs that are delivered with the battery packs.

NOTICE

When to disassemble components use protective gloves to protect hands.



NOTE

1. A UPS2000-G-6 kVA/10 kVA requires one battery pack to provide standard backup time, and requires two to four battery packs to provide long backup time. For a UPS that provides long backup time, battery packs connect to each other in parallel and then connect to the UPS battery input port. (See page 4.)
2. If the number of UPS2000-G-6 kVA/10 kVA parallel system is greater than or equal to 3, each UPS can be configured with one to four battery packs. The installation methods for each UPS and battery pack in the parallel system are the same as those in a single UPS system. The installation sequence is: UPS > battery pack > UPS > battery pack ... UPS > battery pack. For details, see page 5.
3. If the UPS2000-G-15 kVA/20 kVA 1+1 parallel system does not share battery packs, install eight battery packs. For the installation sequence, see the rack-mounted method on page 5.

5 Cable Installation

Open the circuit breaker of the external battery pack or battery rack (if there is), load circuit breaker, front-end input circuit breaker, and UPS AC input circuit breaker. Then connect cables.

NOTE

1. When connecting cables, first connect cables to the UPS, and then insert the cables to terminals on the battery cabinet. When removing cables, first disconnect the cables from the battery cabinet, and then cables from the UPS.
2. Determine cable colors based on industry standards.
3. For the cable connecting the battery packs, connecting battery pack and the UPS2000-G-6 kVA/10 kVA UPS BATT.240 V DC terminal, both ends are PP45 terminals. See Battery cable 01 in the following table.
4. For the cable connecting the battery pack and the UPS2000-G-15 kVA/20 kVA UPS BATT.±240 V DC terminal, one end is a PP45 terminal (connected to the battery pack), and the other end is a M6 OT terminals that are 90 degrees bent and have a cross-sectional area of 16 mm² (connected to the UPS). See Battery cable 02 in the following table.
5. The standard battery pack for the UPS2000-G-6 kVA is ESS-240V12-7AhBPVBA, and the standard battery pack for the UPS2000-G-10 kVA is ESS-240V12-9AhBPVBA. When the UPS2000-G-15 kVA/20 kVA connects to four battery packs (two battery packs of each group are connected in parallel and then the two groups are connected in series), ESS-240V12-7AhBPVBA and ESS-240V12-9AhBPVBA can be used.
6. If customers purchase input and output power cables by themselves, use the cables that comply with standards proposed by Underwriters Laboratories (UL) or International Electrotechnical Commission (IEC).

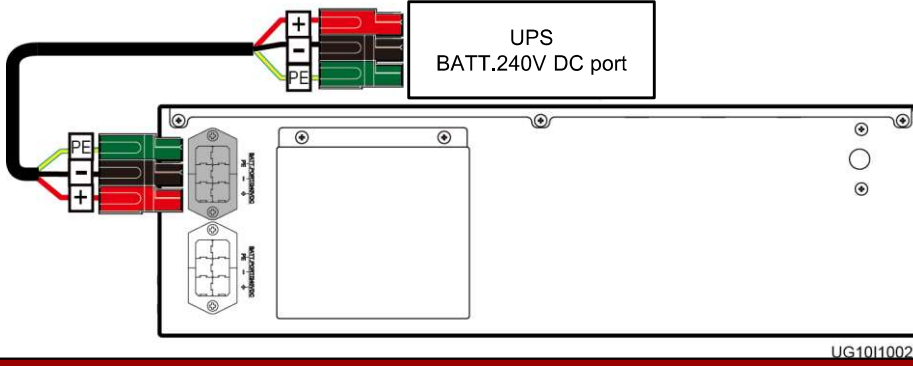
Item	Appearance	Remarks
Battery cable 01		Standard configuration, connecting the battery packs, or connecting battery pack and the UPS2000-G-6 kVA/10 kVA
Battery cable 02		Optional configuration, connecting the battery pack and the UPS2000-G-15 kVA/20 kVA

Connecting Cables to Battery Packs for the UPS2000-G-6 kVA/10 kVA

NOTE
A UPS2000-G-6 kVA/10 kVA requires one battery pack to provide standard backup time, and requires two to four battery packs to provide long backup time. For a UPS that provides long backup time, battery packs connect to each other in parallel and then connect to the UPS battery input port. (See page 5.)

Connecting Cables to Battery Packs for a Single UPS2000-G-6 kVA/10 kVA

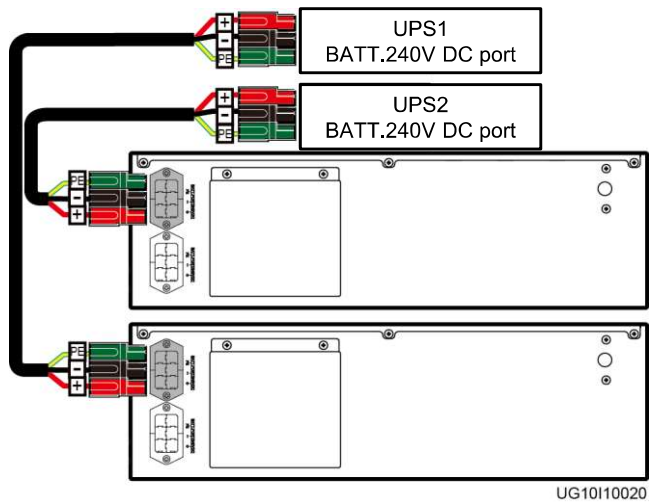
NOTE
For the number of battery packs required by a UPS2000-G-6 kVA/10 kVA that provides standard or long backup time, see page 5. The following figure shows how to connect a UPS that provides standard backup time to a battery pack.



Connecting Cables to Battery Packs for a UPS2000-G-6 kVA/10 kVA Parallel System

NOTE

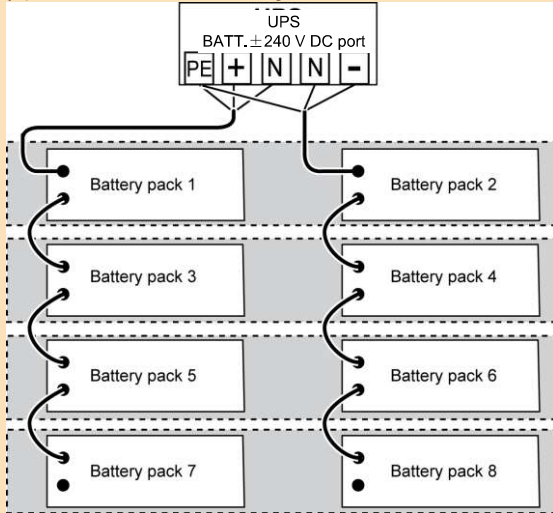
1. For the number of battery packs required by a UPS2000-G-6 kVA/10 kVA parallel system that provides standard or long backup time, see page 5. The following figure shows how to connect each UPS that provides standard backup time in a parallel system to a battery pack.
2. If the number of UPS2000-G-6 kVA/10 kVA parallel system is greater than or equal to 3, each UPS can be configured with one to four battery packs. The cable connection methods for each UPS and battery pack in the parallel system are the same as those in a single UPS system.



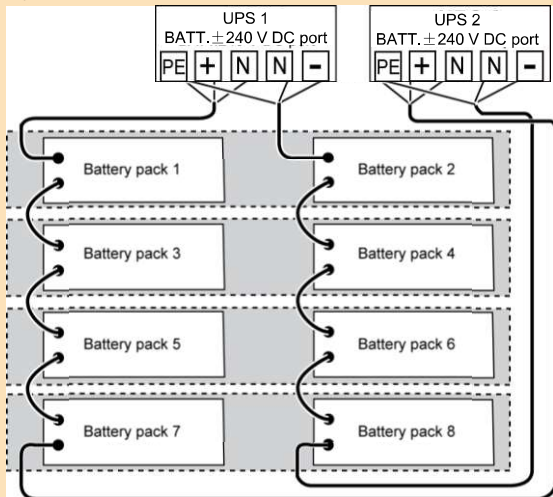
NOTE

1. A 15 kVA/20 kVA UPS with long backup time requires serial connection of two battery packs in each group. A maximum of four groups with eight battery packs can be connected in parallel. If more than two battery packs need to be connected to the 15 kVA/20 kVA UPS with long backup time, the battery packs should be connected in parallel and then connected to the battery input ports of the UPS, as shown in the following figure. Battery packs 1 and 2, battery packs 3 and 4, battery packs 5 and 6, and battery packs 7 and 8 are connected in series respectively. Battery packs 1, 3, 5, and 7 are connected in parallel. Battery packs 2, 4, 6, and 8 are also connected in parallel.

A. Battery pack connections for a single 15 kVA/20 kVA UPS



B. Battery pack connections for parallel 15 kVA/20 kVA UPSs



2. If the UPS2000-G-15 kVA/20 kVA 1+1 parallel system does not share battery packs, the cable connection methods for each UPS and battery pack in the parallel system are the same as those in a single UPS system.



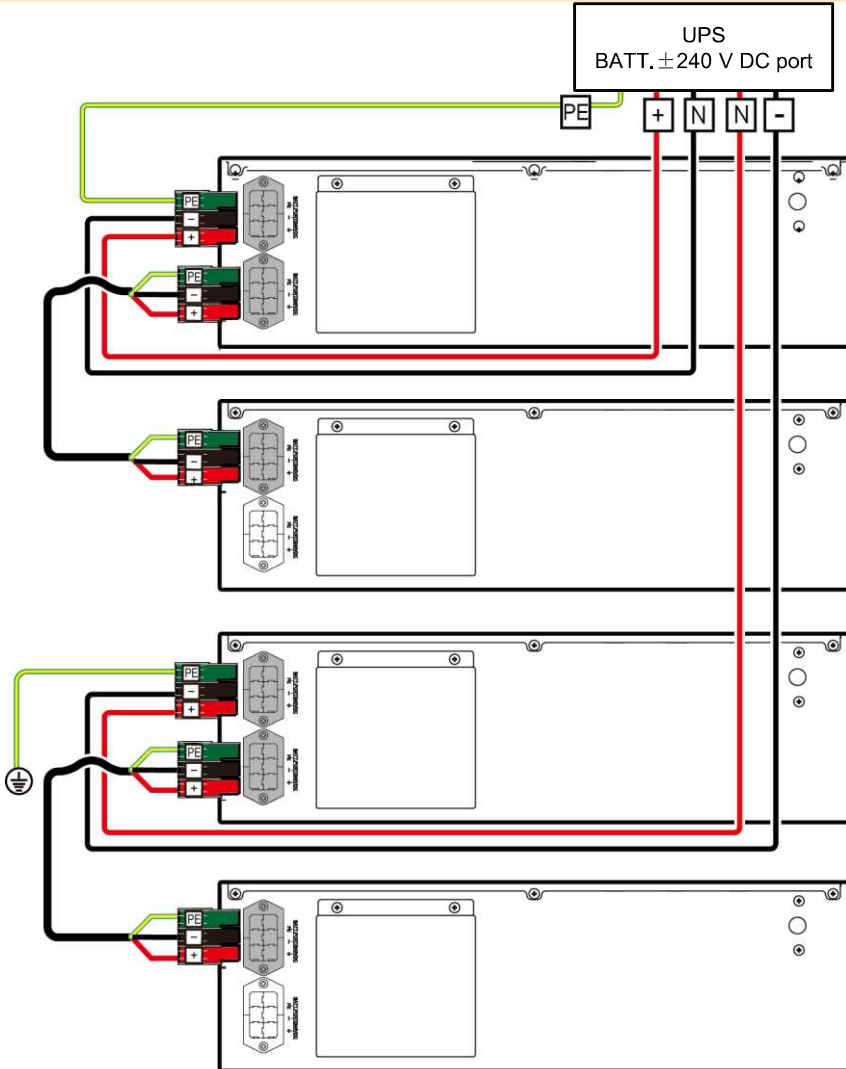
NOTE

A 15 kVA/20 kVA UPS with long backup time requires serial connection of two battery packs in each group. A maximum of four groups with eight battery packs can be connected in parallel. The text uses four battery packs in two groups as an example. If more than four battery packs need to be connected, refer to the connection method illustrated on page 10.

Connecting Cables to Battery Packs for a Single UPS2000-G-15 kVA or UPS2000-G-20 kVA

NOTICE

When a UPS2000-G-15kVA/20 kVA requires two battery packs, set the **Max. current** parameter less than or equal to 2.0 A.

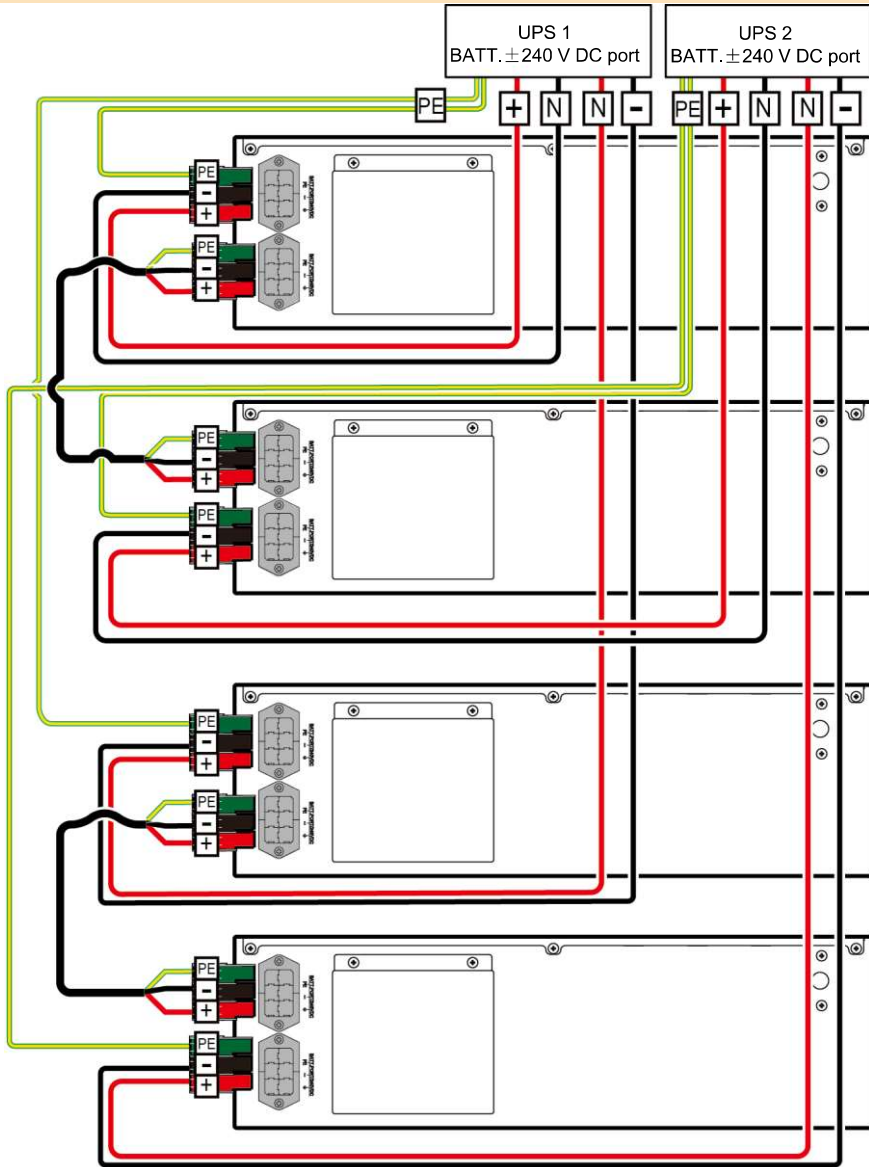


UG10I10010

Connecting Cables to Battery Packs for a UPS2000-G-15 kVA or UPS2000-G-20 kVA Parallel System

NOTE

If the UPS2000-G-15 kVA/20 kVA 1+1 parallel system does not share battery packs, the cable connection methods for each UPS and battery pack in the parallel system are the same as those in a single UPS system.



NOTE

Install the battery pack front panel after cables are properly connected.

UG10110012

Huawei Technologies Co., Ltd.
Huawei Industrial Base, Bantian, Longgang
Shenzhen 518129 People's Republic of China
www.huawei.com