

ACBox 12-In 1-Out AC Combiner Box

Quick Guide

Issue: 04
Part Number: 31509104
Date: 2021-04-01

HUAWEI TECHNOLOGIES CO., LTD.

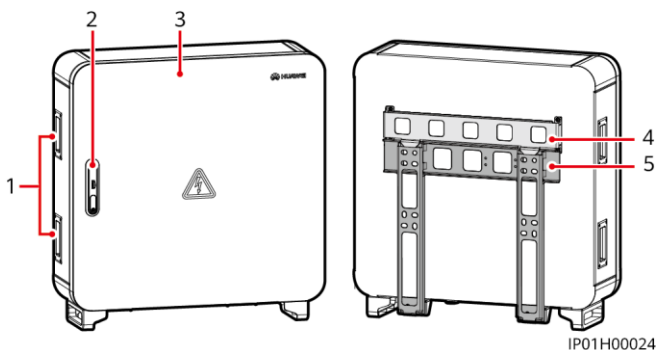


NOTICE

1. The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.
2. Before installing the device, carefully read the ACBox 12-In 1-Out AC Combiner Box User Manual to get familiar with product information and precautions.
3. Only certified electricians are allowed to operate the device. Operators should understand the components and functioning of a grid-tied PV power system, and they should be familiar with relevant local standards.
4. Before installing the device, check that the package contents are intact and complete against the packing list. If any damage is found or any component is missing, contact your dealer.
5. Use insulated tools when installing the device. For personal safety, wear insulation gloves and safety shoes.
6. When installing the device or connecting cables, use appropriate tools and take necessary protective measures to avoid damaging devices during operation.
7. Huawei shall not be liable for any consequence caused by violation of the storage, transportation, installation, and operation regulations specified in this document and the user manual.

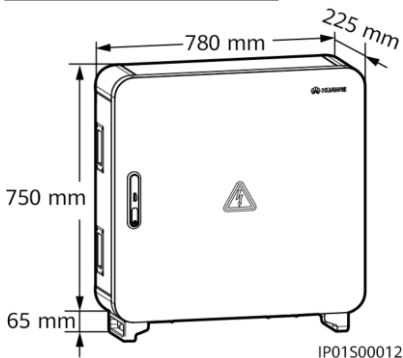
1 Overview

Appearance

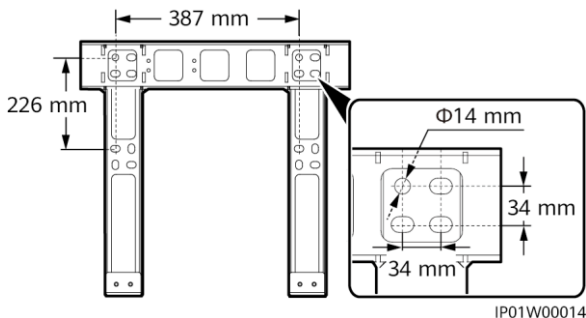


- (1) Handles
- (2) Enclosure door lock
- (3) Enclosure door
- (4) Mounting plate
- (5) Mounting bracket

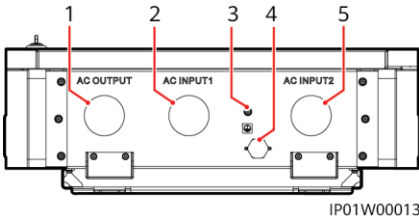
Enclosure Dimensions



Mounting Bracket Dimensions



Ports

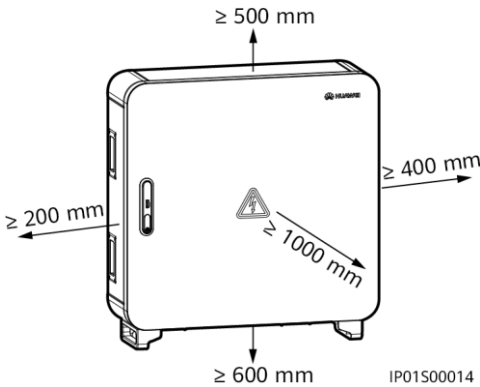


- (1) Cable hole for the AC output power cable (AC OUTPUT)
- (2) Cable hole 1 for the AC input power cable (AC INPUT1)
- (3) PE point
- (4) Ventilation valve
- (5) Cable hole 2 for the AC input power cable (AC INPUT2)

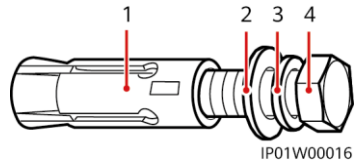
2 Installing the ACBox

2.1 Installation Preparations

Installation Space



Expansion Bolt



- (1) Expansion sleeve
- (2) Flat washer
- (3) Spring washer
- (4) M12x60 bolt

NOTE

The M12x60 expansion bolts and M12x40 bolt assemblies are supplied with the ACBox. M12x40 bolt assemblies are used for support-mounting and pole-mounting the ACBox. Such a bolt assembly consists of a flat washer, a spring washer, and an M12x40 bolt.

2.2 Installing the Mounting Bracket

NOTE

The mounting bracket has four groups of tapped holes, each group containing four tapped holes. Mark any hole in each group based on site requirements and mark four holes in total. Two round holes are preferred.

Wall-mounted Installation

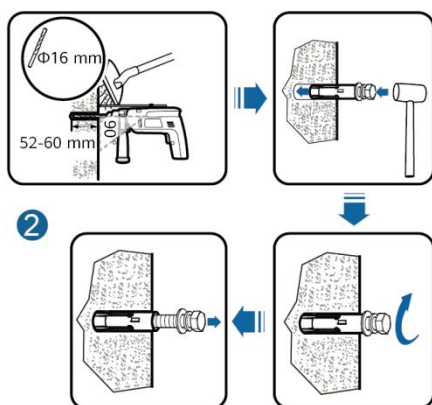
DANGER

Avoid drilling holes in the utility pipes and/or cables attached to the back of the wall.

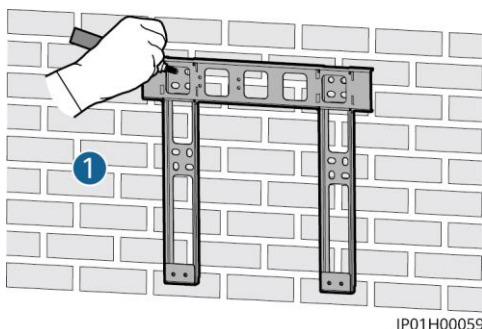
NOTICE

- To prevent dust inhalation or contact with eyes, wear safety goggles and an anti-dust respirator when drilling holes.
- Clean up any dust in and around the holes using a vacuum cleaner and measure the distance between holes. If the holes are inaccurately positioned, drill a new set of holes.
- Level the head of the expansion sleeve with the concrete wall after removing the bolt, spring washer, and flat washer. Otherwise, the mounting bracket will not be securely installed on the concrete wall.

2. Install expansion bolts.

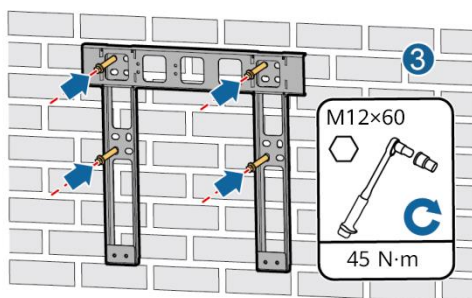


1. Mark hole positions.



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3. Secure the mounting bracket.



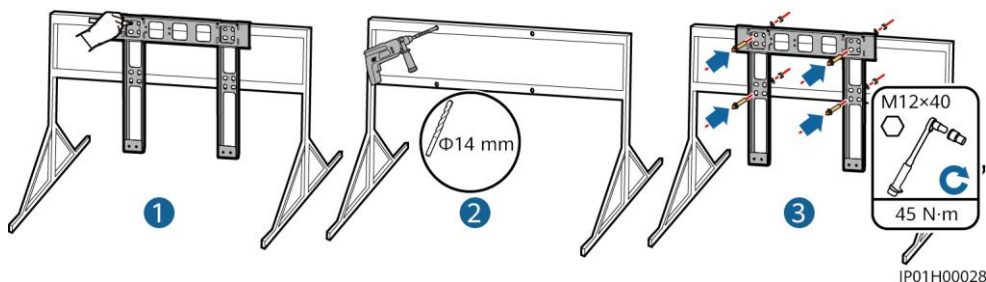
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Support-mounted Installation

1. Mark hole positions.

2. Drill holes. (You are advised to apply anti-rust paint on the hole positions for protection.)

3. Secure the mounting bracket.



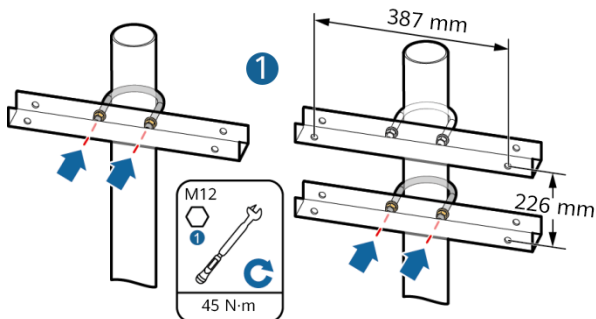
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Pole-mounted Installation

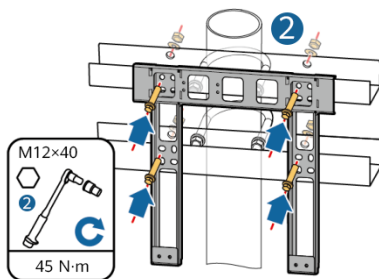
NOTE

- To pole-mount an ACBox, you need to prepare pole-mounting brackets by yourself based on the ACBox dimensions. You are advised to use M12 U-shaped bolts to secure the pole-mounting brackets.
- Figures are for reference only. The actual poles and pole-mounting brackets prevail.

1. Secure the pole-mounting brackets.



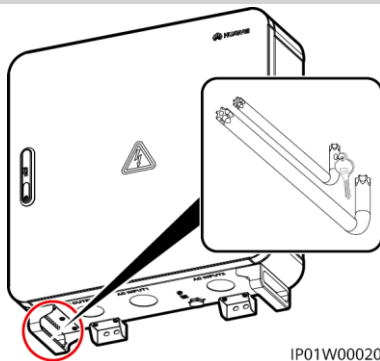
2. Secure the mounting bracket.



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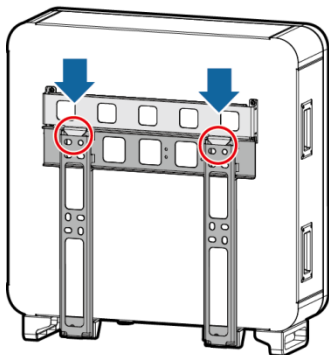
2.3 Securing the Enclosure

1. Remove the security torx wrench and enclosure door key from the base of the enclosure and save them for later use.

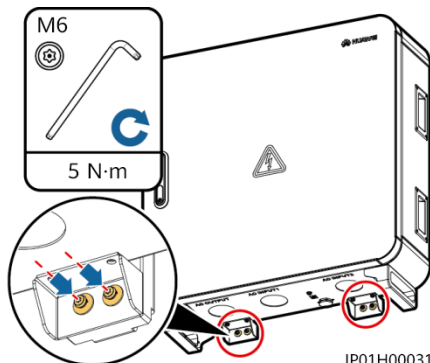


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2. Install the enclosure on the mounting bracket.



3. Tighten the security torx screws using a security torx wrench.



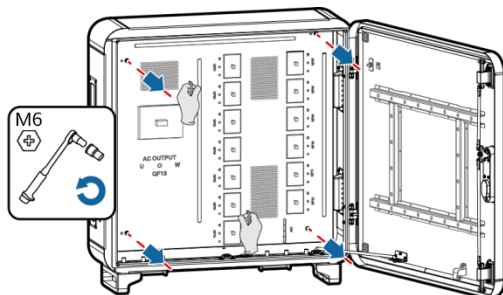
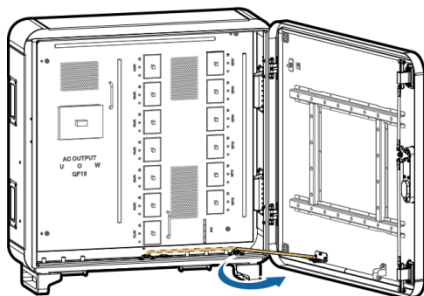
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3 Opening the Enclosure Door

WARNING

- Before opening the enclosure door, turn off all upstream switches for the ACBox. If you have to operate an energized ACBox, wear insulation gloves and take preventive measures.
- If you need to open the enclosure door on rainy or snowy days, take protective measures to prevent rain or snow from entering the enclosure. If it is impossible to take protective measures, do not open the enclosure door on rainy or snowy days.

1. Insert the key into the lock hole in the enclosure door and open the lock.
2. Open the enclosure door and keep it open with the support bar.
3. Hold the handles on the cover and remove the cover.



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NOTE

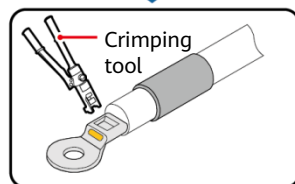
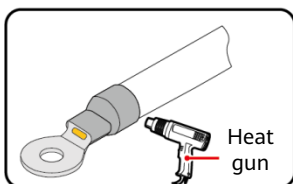
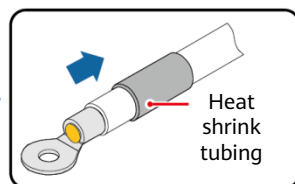
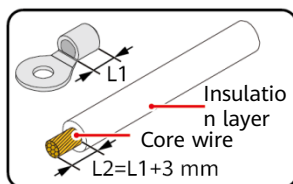
Remove the four screws from the cover. Start from the one at the lower left corner, and then the rest in counterclockwise sequence.

4 General Operations

4.1 Crimping an OT Terminal

NOTICE

- Pay attention not to damage the core wire when stripping a cable.
- The cavity formed after the conductor crimp strip of the OT terminal is crimped must wrap the core wires completely. The core wires must contact the OT terminal closely.
- Wrap the wire crimping area with heat shrink tubing or PVC insulation tape. The following figure uses heat shrink tubing as an example.
- When using the heat gun, protect devices from being scorched.

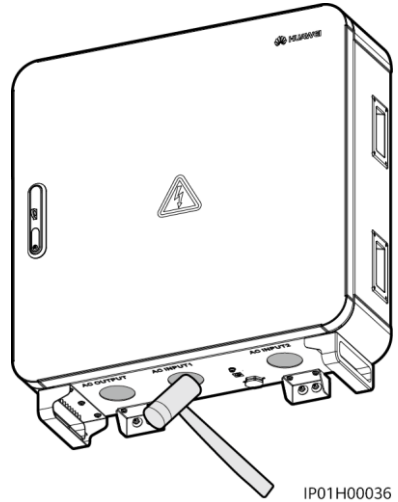


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4.2 Knocking Off the Barrier Chip from a Cable Hole

NOTICE

- Before connecting the PE cable, AC input power cable, and AC output power cable for the first time, knock off the barrier chips from the cable holes 1 and 2 for the AC input power cable and the cable hole for the AC output power cable.
- The edges of the cable holes for the AC input and output power cables are sharp. Recommended: Use a file to smooth the edge of the cable hole. Protect yourself during operation from being hurt.
- The FEK-65B cable glands of Mirai Industry Co., Ltd. are recommended for the cable holes for the AC input and output power cables.



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5 Installing Cables

5.1 Preparing Cables

Prepare cables and OT terminals based on site requirements.

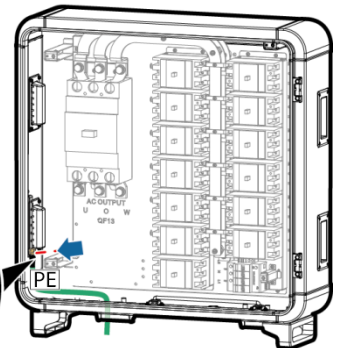
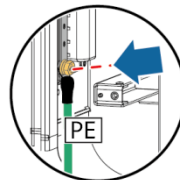
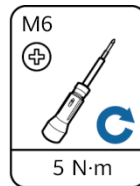
No.	Cable	Recommended Model or Specifications	Cross-sectional Area Range of the Cable
1	AC input power cable	Three-core outdoor copper armored cable with an OT-M5 terminal	3.5–8 mm ²
2	AC output power cable	Three-core outdoor copper armored cable with an OT-M12 terminal	150–200 mm ²
3	PE cable	Single-core green outdoor copper cable with an OT-M6 terminal	3.5–22 mm ²

5.2 Installing the PE Cable

1. Crimp an OT terminal.
2. Secure the PE cable.

NOTE

- Recommended: Route the PE cable through the cable hole for the AC output power cable then to the ground bar.
- Connect the PE cable to the nearest ground bar.
- Recommended: To enhance the corrosion resistance of a ground terminal, apply silica gel or paint.



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5.3 Installing the AC Input Power Cable

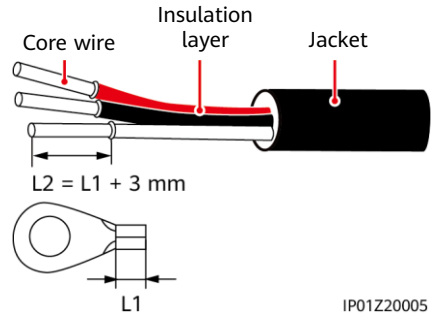
NOTE

Connect the AC input power cable from the ACBox to input circuit breakers QF01 to QF12. Recommended: Route the AC input power cables to input circuit breakers QF01 to QF06 through cable hole 1; route the AC input power cables to input circuit breakers QF07 to QF12 through cable hole 2.

1. Remove an appropriate length of the jacket and insulation layer from the AC input power cable using a wire stripper.

NOTICE

- The lengths of the jackets and insulation layers that need to be removed from the AC input power cables to input circuit breakers QF01 to QF06 are different. When connecting a stripped cable, ensure that the exposed insulation layer is all in the enclosure, and the jacket is all outside the enclosure.
- For the lengths of the jackets and insulation layers that need to be removed from the AC input power cables to input circuit breakers QF07 to QF12, refer to the AC input power cables to input circuit breakers QF01 to QF06.



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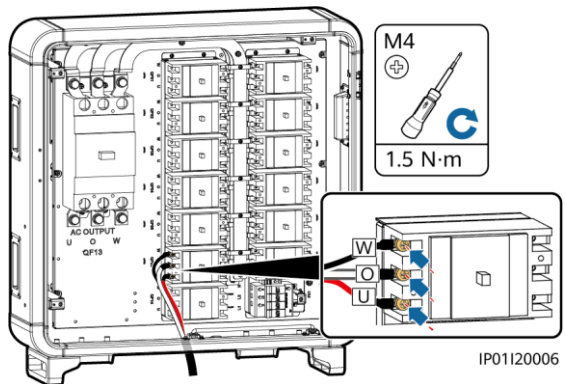
2. Crimp an OT terminal.
3. Route the cable through the cable holes 1 and 2 for the AC input power cable.
4. Connect the AC input power cable to the U, O, and W terminals on the circuit breaker, and tighten the bolts using a torque screwdriver.

NOTE

The right figure shows how to connect the AC input power cable to input circuit breaker QF06. The cables to input circuit breakers QF01 to QF05 and QF07 to QF12 are connected in the same way.

NOTICE

To avoid device damage, do not mix up the U, O, and W terminals when connecting cables.



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5.4 Installing the AC Output Power Cable

1. Remove an appropriate length of the jacket and insulation layer from the AC output power cable using a wire stripper.

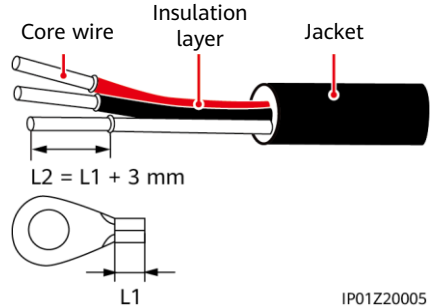
NOTICE

When connecting a stripped cable, ensure that the exposed insulation layer is in the enclosure, and the jacket is outside the enclosure.

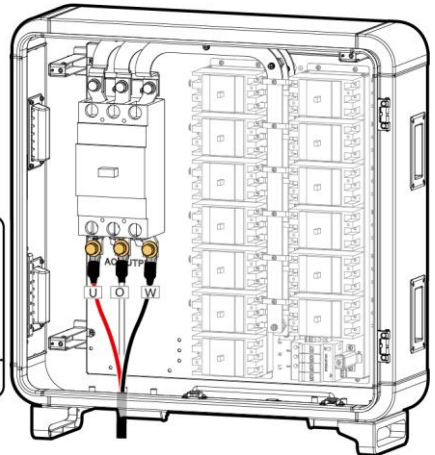
2. Crimp an OT terminal.
3. Route the cable through the cable hole for the AC output power cable.
4. Connect the AC output power cable to the U, O, and W terminals on circuit breaker QF13, and tighten the bolts using a torque wrench.

NOTICE

When using a torque wrench to tighten a bolt, use an M12 wrench to tighten the nut at the same time.



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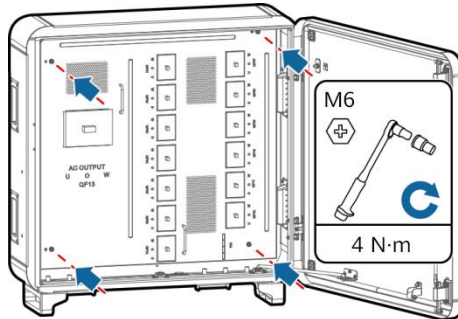


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6 Verifying the Installation

1. The ACBox is installed correctly and securely.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
2. All cables are connected correctly and securely and bound neatly, without exposed metal.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
3. All used cable holes at the enclosure bottom are blocked by fireproof material.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
4. All switches in the enclosure are off.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
5. The enclosure interior is clean, without dust, dirt, or foreign matter.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>
6. The paint on the enclosure exterior is intact. If paint has flaked off, repaint that area to prevent corrosion.	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>

7 Installing the Cover



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8 Powering On the System

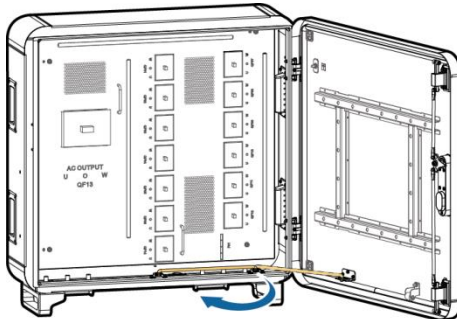
⚠ DANGER

Put on insulation gloves before powering on the system.

1. Switch circuit breaker QF13 on the AC output side to ON.
2. Switch circuit breakers QF01 to QF12 on the AC input side to ON one by one.

9 Closing the Enclosure Door

1. Retrieve the support bar.
2. Rotate the enclosure door lock to lock the door.



IP01H00032

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