Sigen Gateway (C600, C1200, C600-B, C1200-B) Installation Guide

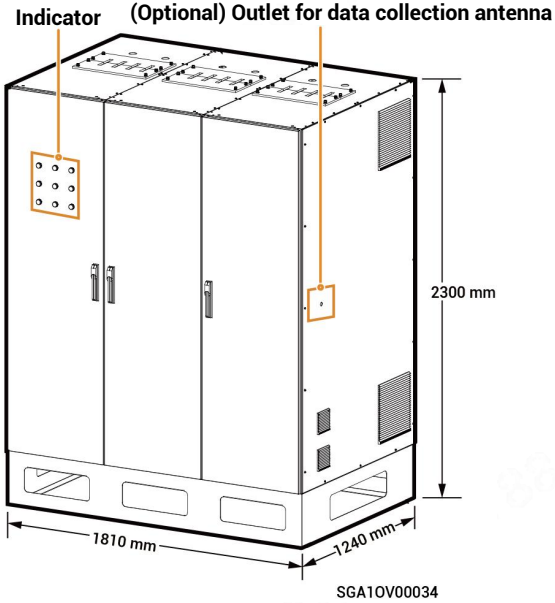
Version: 03
Release Date: 2025-06-20

Caution

- **Only trained or qualified persons with electrical engineering knowledge can work directly on the equipment.**
- **Operators should be familiar with national and local laws, regulations, and standards, and the compositions and operating principles of relevant systems.**
- **Before operations, please carefully read operating requirements and precautions in this document and Important Notice. Any equipment damage caused by improper operation will not be covered under warranty.**

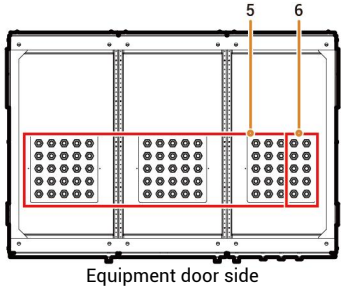
1 Introduction

1.1 Appearance and Dimensions

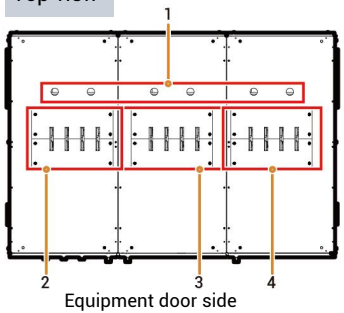


1.2 Port Description

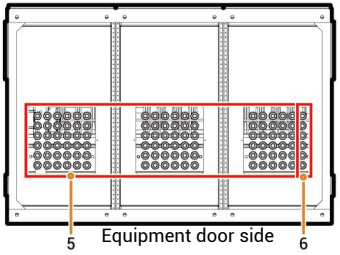
C600/C1200 Bottom View



Top view



C600-B/1200-B Bottom View

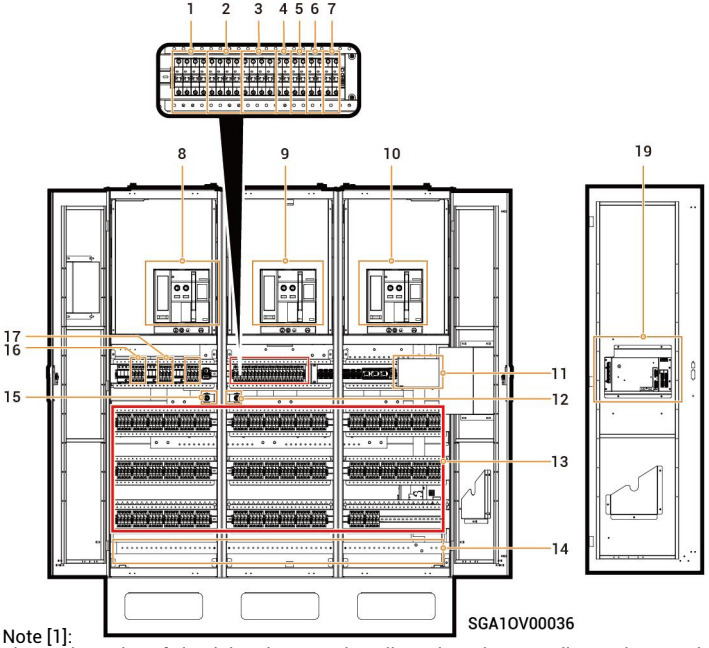


No.	Description
1	Routing hole for PE cable
2	Copper busbar entry (grid AC cable)
3	Copper busbar entry (smart loads/generator AC cable)
4	Copper busbar entry (load AC cable)
5	Routing hole for AC cable of the inverter
6	Routing hole for signal cable

Tips

C600/C1200 only has one difference in the number of miniature circuit breakers in the structure, this manual takes C1200 as an example.

Sigen Gateway C1200 Interior View



No.	Label	Description
1	1QF1	PCB board secondary control switch (connected to the power grid, and power supply switch for indicators)
2	1QF3	PCB board secondary control switch (connected to smart loads/generator, and power supply switch for indicators)
3	1QF5	PCB board secondary control switch (connected to a load, and power supply switch for indicators)
4	1QF7	Secondary control switch of frame circuit breaker (connected to the power grid)
5	1QF8	Secondary control switch of frame circuit breaker (connected to smart loads/generator)
6	1QF9	Secondary control switch of frame circuit breaker (connected to a load)
7	1QF10	Secondary control switch (connected to a fan and a UPS)
8	QA1	Frame circuit breaker[1] (connected to the power grid)
9	QA2	Frame circuit breaker (connected to smart loads[2]/generator)
10	QA3	Frame circuit breaker (connected to a load)
11	SC	Mounting location of data collector
12	SA2	Bypass transfer switch (connected to smart loads/generator)
13	2QF1~2QF30 (C600)	Miniature circuit breaker (a gateway C600 contains 30 miniature circuit breakers, connected to an inverter)
	2QF1~2QF50 (C1200)	Miniature circuit breaker (a gateway C1200 contains 50 miniature circuit breakers, connected to an inverter)
14	PE	Grounding busbar (connects to the PE cable)
15	SA1	Bypass transfer switch (connected to the power grid)
16	1QF2	Surge arrester switch (connected to the power grid)
17	1QF4	Surge arrester switch (connected to smart loads/generator)
18	1QF6	Surge arrester switch (connected to a load)
19	-	Single-pole control box

Note [1]:
The setting value of circuit breaker must be adjusted on site according to the actual situation. For more information about the setting value, see *5.11 ACB tripper device parameter value setting*, and for the operation method, see the Instruction Manual for Circuit Breaker.

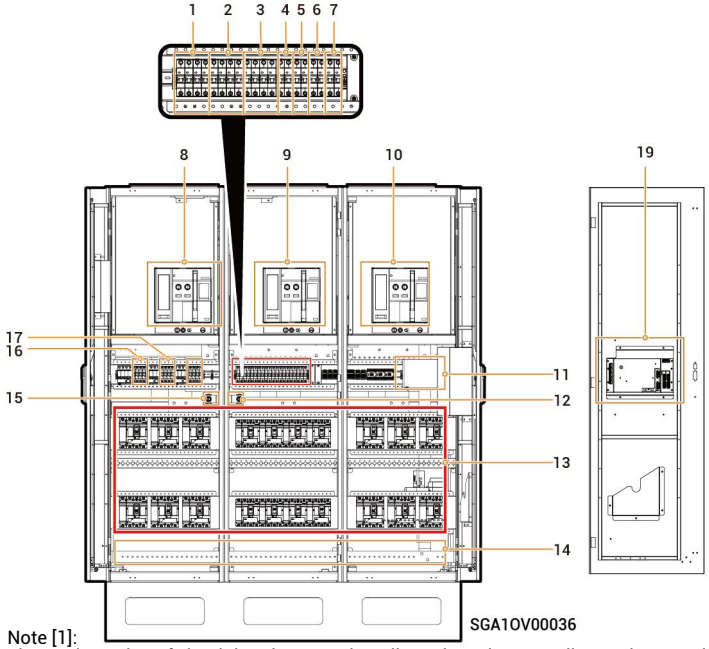
Note [2]:

- All the power equipment in the owner's home can be connected as smart loads.
- To ensure that this product maximizes the benefits to users, it is recommended that the high-power equipment be connected as smart loads (heat pumps, third-party inverter, etc.), which can be cut off when the energy storage system has low power.

Tips

C600-B/C1200-B only has one difference in the number of molded case circuit breakers in the factory structure, this manual takes C1200-B as an example.

Sigen Gateway C1200-B Interior View



No.	Label	Description
1	1QF1	PCB board secondary control switch (connected to the power grid, and power supply switch for indicators)
2	1QF3	PCB board secondary control switch (connected to smart loads/generator, and power supply switch for indicators)
3	1QF5	PCB board secondary control switch (connected to a load, and power supply switch for indicators)
4	1QF7	Secondary control switch of frame circuit breaker (connected to the power grid)
5	1QF8	Secondary control switch of frame circuit breaker (connected to smart loads/generator)
6	1QF9	Secondary control switch of frame circuit breaker (connected to a load)
7	1QF10	Secondary control switch (connected to a fan and a UPS)
8	QA1	Frame circuit breaker[1] (connected to the power grid)
9	QA2	Frame circuit breaker (connected to smart loads[2]/generator)
10	QA3	Frame circuit breaker (connected to a load)
11	SC	Mounting location of data collector
12	SA2	Bypass transfer switch (connected to smart loads/generator)
13	2QF1~2QF10 (C600-B)	Molded case circuit breaker(a gateway C600-B contains 10 molded case circuit breakers, connected to an inverter)
	2QF1~2QF20 (C1200-B)	Molded case circuit breaker(a gateway C1200-B contains 20 molded case circuit breakers, connected to an inverter)
14	PE	Grounding busbar (connects to the PE cable)
15	SA1	Bypass transfer switch (connected to the power grid)
16	1QF2	Surge arrester switch (connected to the power grid)
17	1QF4	Surge arrester switch (connected to smart loads/generator)
18	1QF6	Surge arrester switch (connected to a load)
19	-	Single-pole control box

Note [1]:
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Note [2]:

- All the power equipment in the owner's home can be connected as smart loads.
- To ensure that this product maximizes the benefits to users, it is recommended that the high-power equipment be connected as smart loads (heat pumps, third-party inverter, etc.), which can be cut off when the energy storage system has low power.

2 Inspections Before Installation

- Check whether the components are entirely supplied against the packing list and whether the appearance is in good condition. For any problem, contact your sales representative.
- Parts and accessories supplied with the packing box are personal assets of the owner and must not be taken away from the installation site.
- Check and ensure the completeness of personal protective equipment and installation tools; replenish if necessary.
- Check and ensure the correctness of quantity and specifications of the installer-provided cables; re-prepare if necessary.
- Before installing the equipment, check whether the screws installed before delivery are secured. Before delivery, the tightened screws are marked with lines. If the marks are misaligned, the screws are loose. Tighten the screws again.

Personal Protective Equipment


Safety hat


Goggles


Dust mask

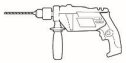

Protective gloves


Insulating gloves

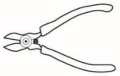

Insulating shoes

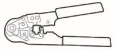

Safety vest

Installation Tools


Power drill


Vacuum cleaner


Wire cutter


Crimp tool


Crimping pliers

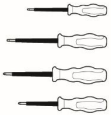

Wire stripper


Scissors


Cable ties


Heat shrinkable sleeve

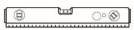

Heat gun


Insulated screwdriver set


Digital torque socket wrench


Marker


Rubber mallet

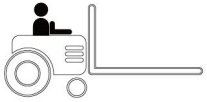

Level

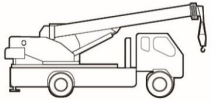

Tape measure


Stainless steel plastic-covered wire rope L>1300 mm × 4


Multimeter


Insulated sleeve set


Forklift (load capacity > 2000 kg)


Crane (load capacity > 2000 kg)


Torque socket wrench


Cold terminal crimping pliers


Insulated L-Shaped Hex Key Set

2.1 Specifications of Installer-provided Cables and Copper Busbar

Caution

- **Please select cable connection or copper busbar connection according to your needs.**
- **The specifications of the installer-provided cables and copper busbar must comply with the cable regulations and standards of the respective country/region.**

2.1.1 Specifications of Installer-provided Cables

No.	Cable Name		Recommended Specification
1	AC cable	Connected to the power grid (L1/L2/L3/N/PE)	0.6 kV/1 kV cross-linked polyethylene (XPLE) power cable • Sigen Gateway C600/C600-B: PE cable OD: 28 ± 2 mm Cross-sectional area of PE cable: 300 mm^2 Cross-sectional area of copper busbar: 120 mm × 5 mm (L1/L2/L3/N) • Sigen Gateway C1200/C1200-B: PE cable OD: 28 ± 2 mm Cross-sectional area of PE cable: 300 mm^2 × 2 Cross-sectional area of copper busbar: 120 mm × 10 mm (L1/L2/L3/N)
		Connected to a Smart loads/generator (L1/L2/L3/N/PE)	
		Connected to a load (L1/L2/L3/N/PE)	
		Connected to an inverter (L1/L2/L3/N/PE: C600/C1200)	0.6 kV/1 kV cross-linked polyethylene (XPLE) power cable • Sigen Gateway C600: Cable OD: 22–25 mm Cross-sectional area of single-core: 16 mm^2 • Sigen Gateway C1200: Cable OD: 22–25 mm Cross-sectional area of single-core: 16 mm^2

No.	Cable Name		Recommended Specification
1	AC cable	Connected to an inverter (L1/L2/L3/N/PE: C600-B/C1200-B)	Notice: Maximum power of inverter connected to 160A MCCB: 80KW. Maximum power of inverter connected to 200A MCCB: 125KW. • Sigen Gateway C600-B: Cross-sectional area of single-core: ➢ INV 50 kW-80 kW: 50 mm² copper wire/70 mm² aluminum wire (160A MCCB) ➢ INV 50 kW-125 kW: 70 mm² copper wire/95 mm² aluminum wire (200A MCCB) Cable OD of single-core: ➢ 50 mm² copper wire/70 mm² aluminum wire: 12.4-14.1 mm ➢ 70 mm² copper wire/95 mm² aluminum wire: 14.1-16.0 mm • Sigen Gateway C1200-B: Cross-sectional area of single-core: ➢ INV 50 kW-80 kW:50 mm² copper wire/70 mm² aluminum wire (160A MCCB) ➢ INV 50 kW-125 kW:70 mm² copper wire/95 mm² aluminum wire (200A MCCB) Cable OD of single-core: ➢ 50 mm² copper wire/70 mm² aluminum wire: 12.4-14.1 mm ➢ 70 mm² copper wire/95 mm² aluminum wire: 14.1-16.0 mm
2	Network cable		Eight-core shielded twisted pair for outdoor use Cross-sectional area of single-core: 0.13 mm² to 0.2 mm²; cable OD: 4 mm to 7.5 mm Cable length: ≤ 100 m[1]
3	DI/DO signal cable		Two-core shielded cable for outdoor use Cross-sectional area of single-core: 0.2 mm² to 1.5 mm²; cable OD: 2 mm to 4 mm

Note [1]: The cable length should be limited for good communication. Too long cable degrades the communication effect.

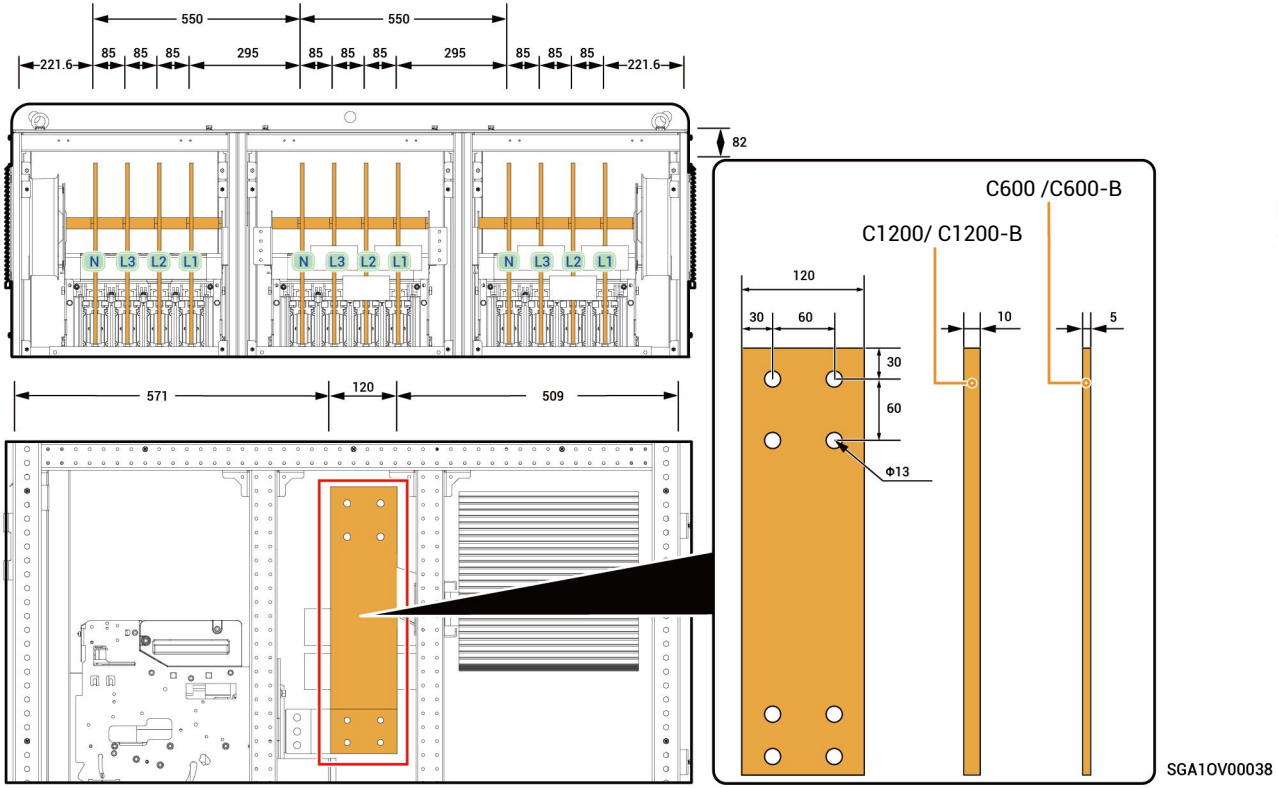
2.1.2 Specifications of Installer-provided Copper Busbar

Tips

- **The figure shows the dimensions of the copper busbar connection inside the equipment. You can buy a copper busbar of the specifications shown in the figure.**
- **The specifications of the copper busbar must comply with the cable regulations and standards of the respective country/region.**

Rear view

Unit: mm



3 Site Requirements

Tips

- **Before installing the equipment, be sure to read the following installation requirements carefully. The company will not bear any responsibility if the equipment malfunctions, is damaged, or even causes a personal safety accident during operation due to failure to operate as required.**
- **During actual installation, the selection of the mounting location should meet local fire protection, environmental protection, and other regulations, as well as local low-voltage power distribution room technical specifications. The specific mounting location planning shall be subject to the installer or EPC.**

Installation Environment

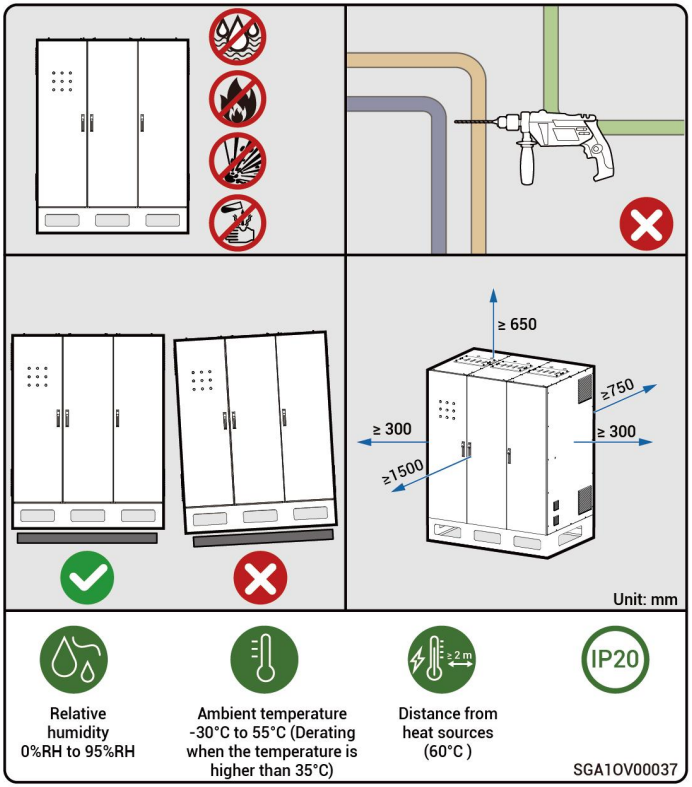
- Do not install the equipment in a smoky, flammable, or explosive environment.
- Do not install the equipment in an environment with conductive metal dust or magnetic dust.
- Do not install the equipment in an environment that is prone to mold and fungi.
- Do not install the equipment in an environment with strong electromagnetic interference.
- The temperature and humidity of the installation environment should meet equipment requirements.
- The equipment should be installed in an area that is at least 500 m away from corrosion sources that may result in salt or acid damage (corrosion sources include but are not limited to seaside, thermal power plants, chemical plants, smelters, coal plants, rubber plants, and electroplating plants).
- In areas with good marine environments (such as Norway, where the nearshore salinity is ≤ 28 psu), the mounting distance of the device from the coastline can be appropriately relaxed to ≥ 200 m.
- If the outer surface of the device is damaged, please repaint the device in time.

Installation Location

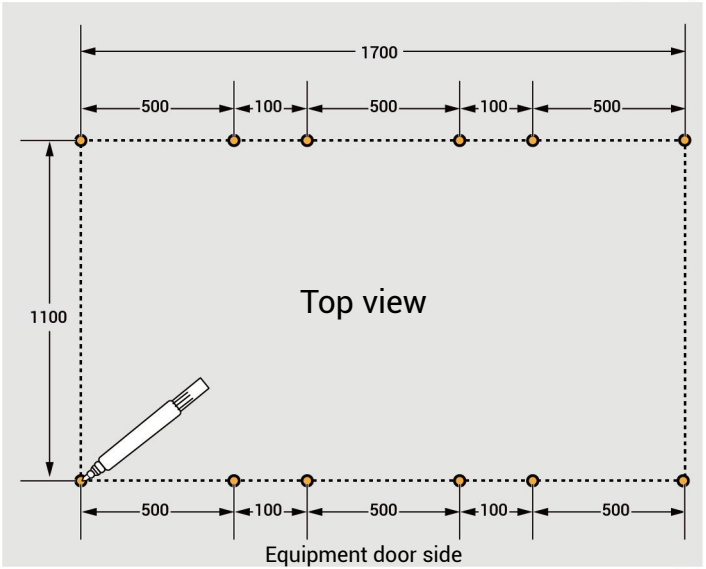
- Do not install the equipment outdoors.
- Do not tilt the equipment or place it upside down. Ensure that the equipment is horizontally installed.
- Do not install the equipment in a place with fire hazards or is prone to moisturizing.
- Do not install the equipment in a sealed, poorly ventilated location without fire protection measures and difficult access for firefighters.
- Do not install the equipment under water sources, including but not limited to water pipes and air conditioner outlet windows, where condensate or water leakage may occur. Otherwise, liquid may enter the equipment and cause short circuit.
- Do not install the equipment in mobile scenarios such as recreational vehicles, cruise ships, and trains.
- The equipment is hot when it is operating. If the equipment is installed indoors, please ensure good indoor ventilation and avoid significant indoor temperature rise by more than 3°C while the equipment is operating. Otherwise, the equipment will be derated.
- The equipment generates heat when it is operating. Do not install the equipment in areas easily accessible to heat dissipation surfaces.
- You are advised to install the equipment in a location where you can easily access, install, operate, maintain it, and view the indicator status.
- The on-grid/off-grid switchover makes noise. It is recommended that the equipment be installed near the AC distribution box, away from the rest area.

Installation Base

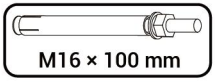
- Do not install the equipment on a flammable base.
- The installation base should meet the load-bearing requirement and should be free of adverse geological conditions including but not limited to rubber soil and soft soil. Solid brick-concrete structures and concrete walls are recommended.
- The installation base should be flat, and the installation area should meet the installation space requirements.
- No plumbing or electrical alignments should be inside the installation base to avoid potential drilling hazards during equipment installation.

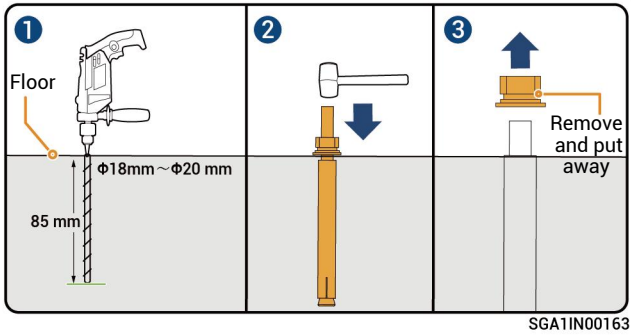


1 **Determine the mounting point.**



Recommended screw specifications (quantity: 12):

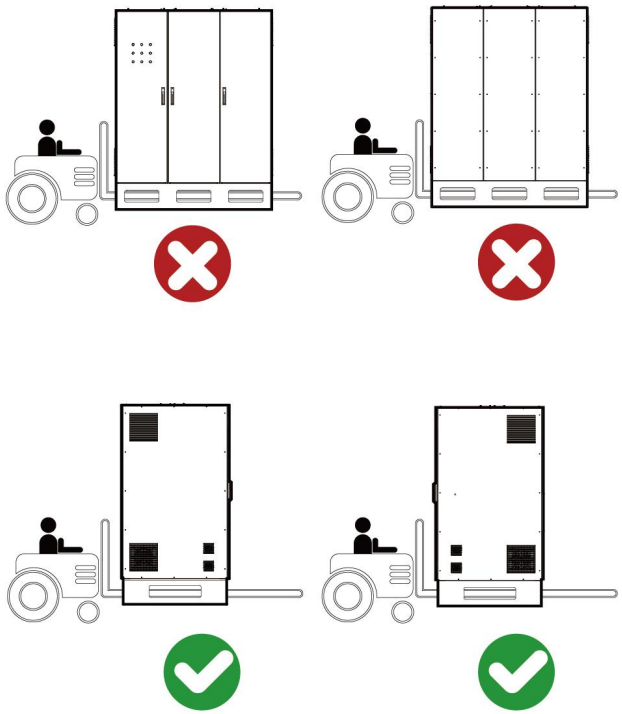




SGA1IN00163

2 Move the equipment to the designated location.

Using a forklift



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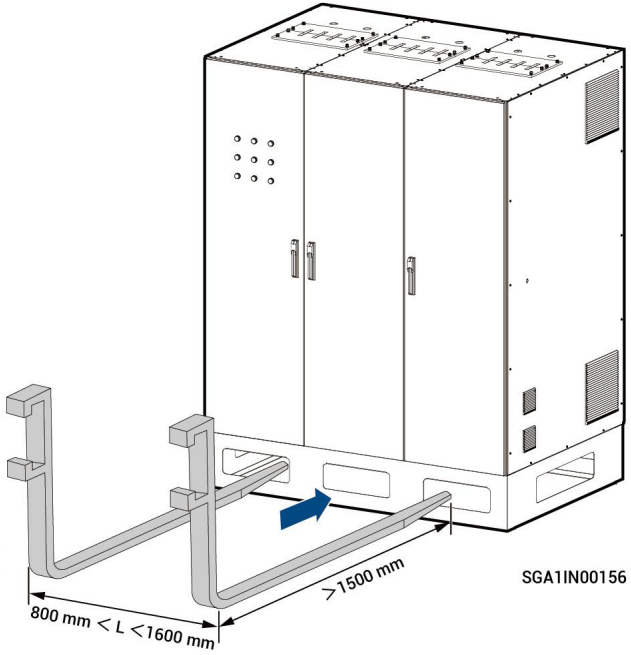
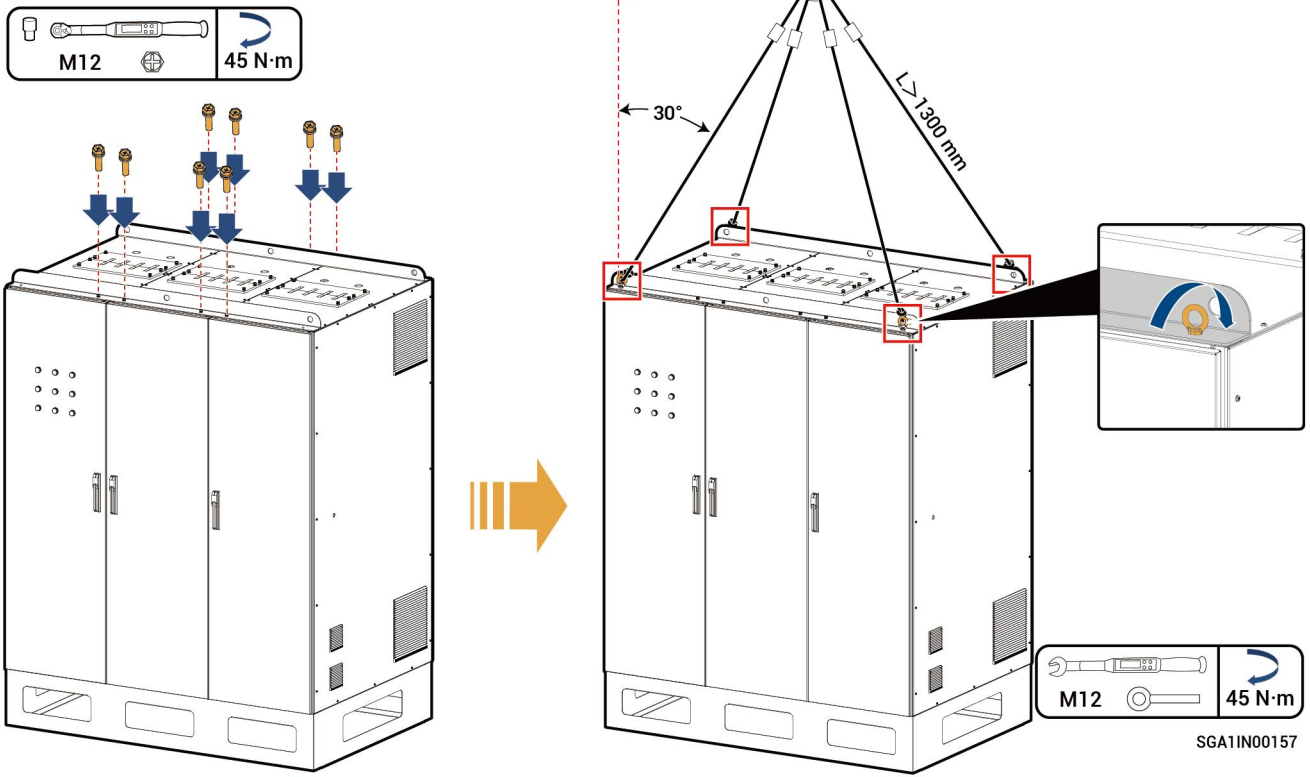
Load capacity of a forklift: ≥ 5000 kg.



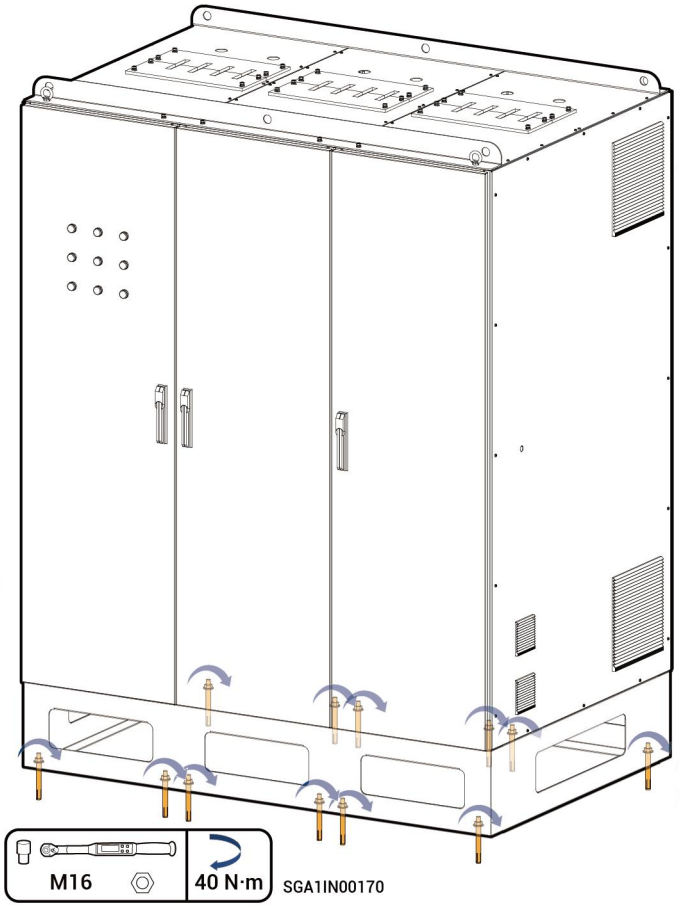
SGA1IN00156

Using a hoist

Lifting capacity of a crane : ≥ 5000 kg.



3 **Fix the equipment.**



5 Cable Connection

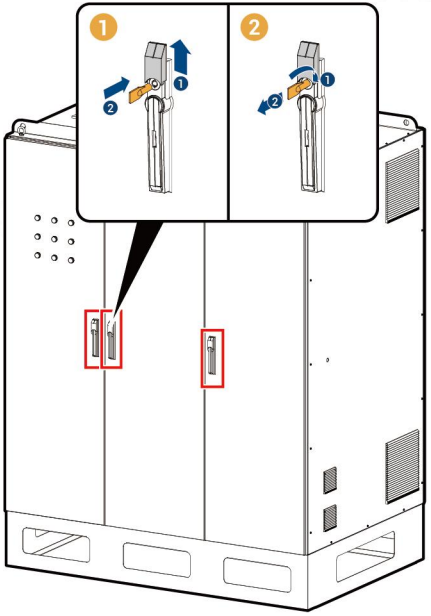
Danger

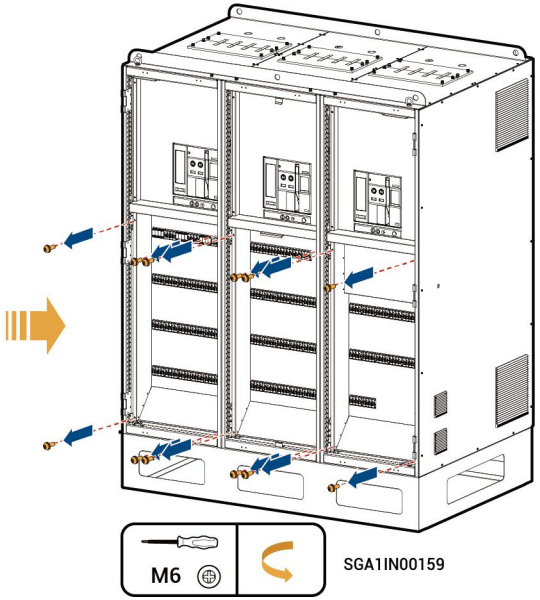
Do not perform operations on the equipment with power on. Before operation, please make sure all power supplies to the equipment have been disconnected, including but not limited to the grid side, inverter, and smart loads/generator power switches.

Tips

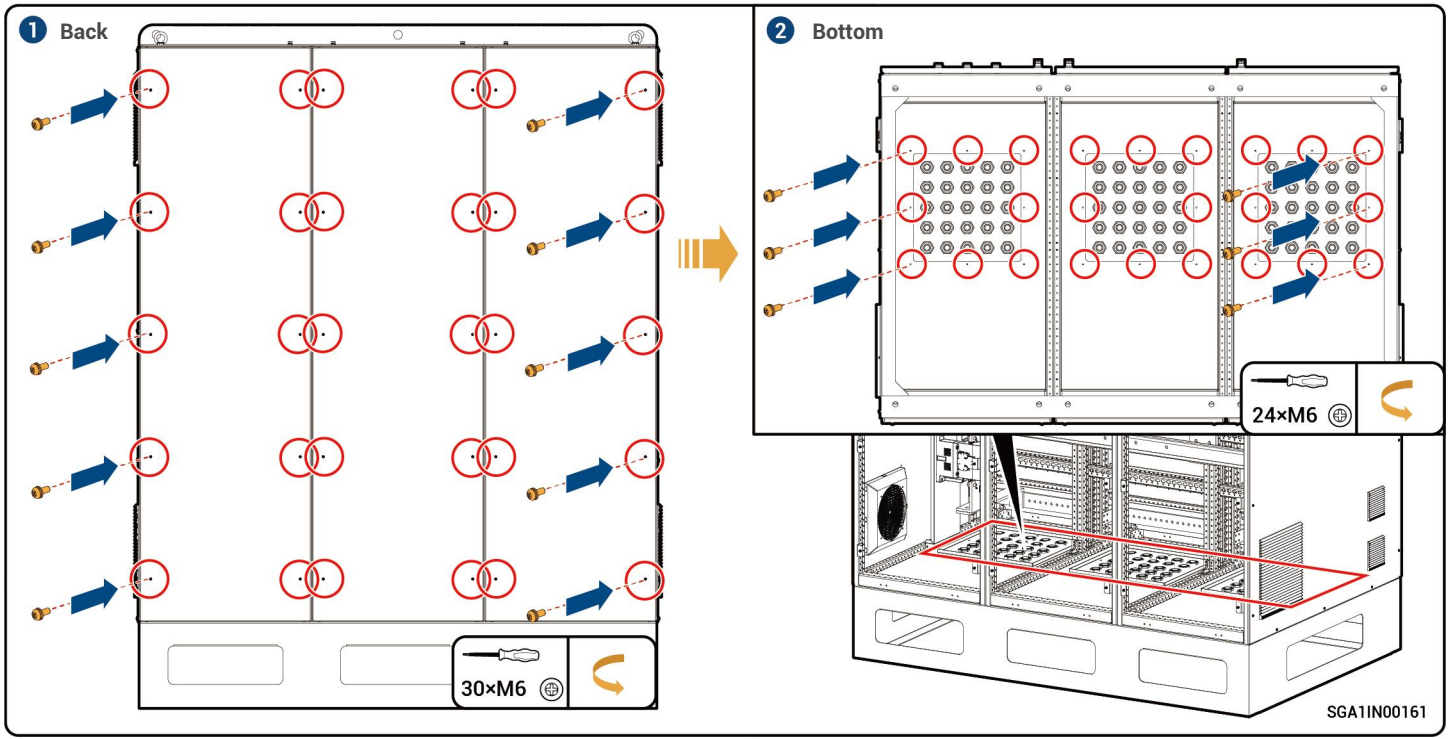
Gateway C1200 is used as an example when the C600, C600-B, C1200, and C1200-B perform the same steps.

5.1 Opening the Cabinet Door





5.2 Removal of the back and bottom mounting plates



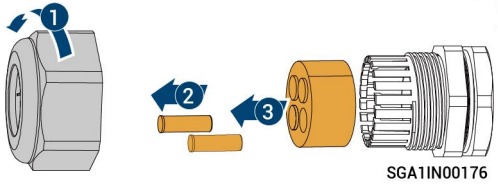
5.3 Treatment of Routing Holes

Caution

Do not cut, remove, or loosen reserved routing holes to avoid the effect on ingress protection.

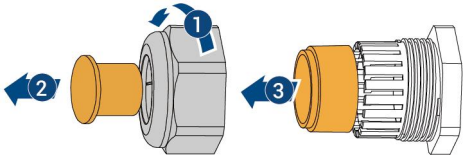
Routing hole for signal cable

M32



Routing hole for inverter AC cable

M32



5.4 Cable Routing

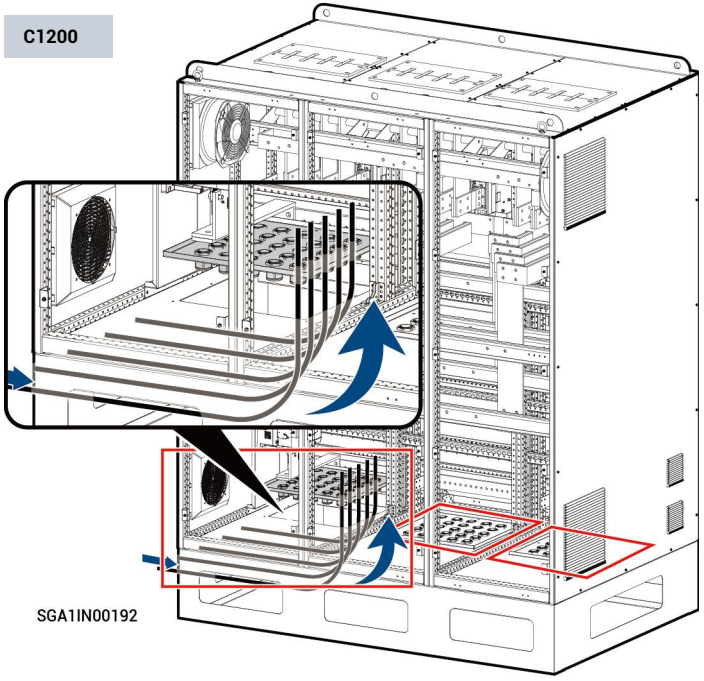
Caution

- **Connect cables according to the corresponding labels to prevent personal injury and equipment damage caused by incorrect cable connection.**
- **To ensure that the inverters, loads, and the Gateway are connected to the common ground point, connect the PE cable.**

Tips

It is suggested that the inverter AC cables be routed in order from inside to outside and from far to near.

C1200



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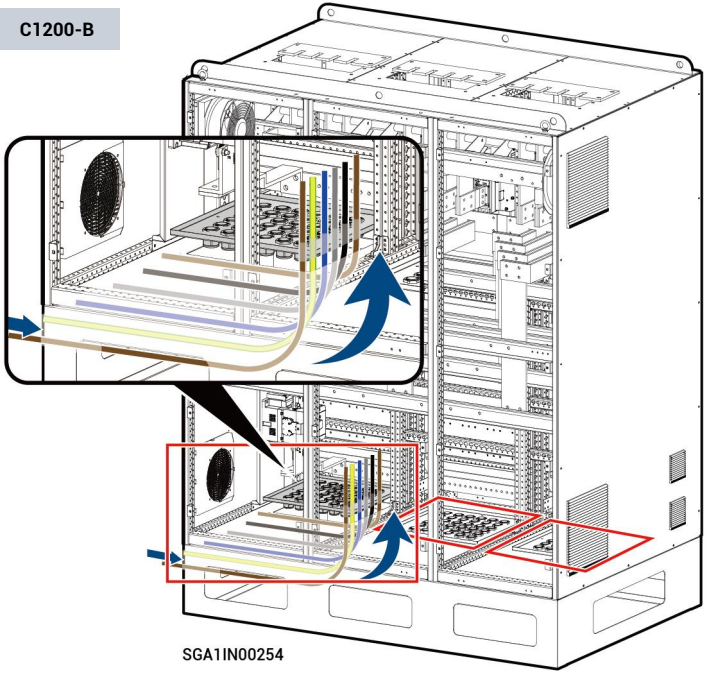
C1200-B



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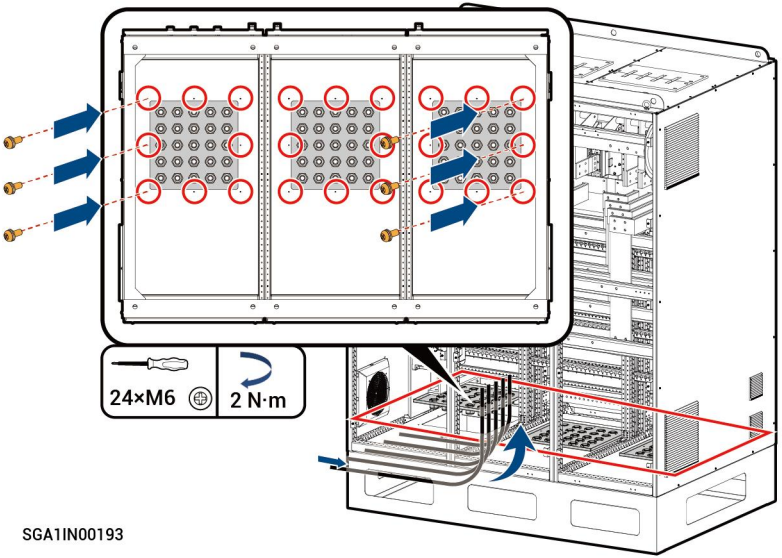
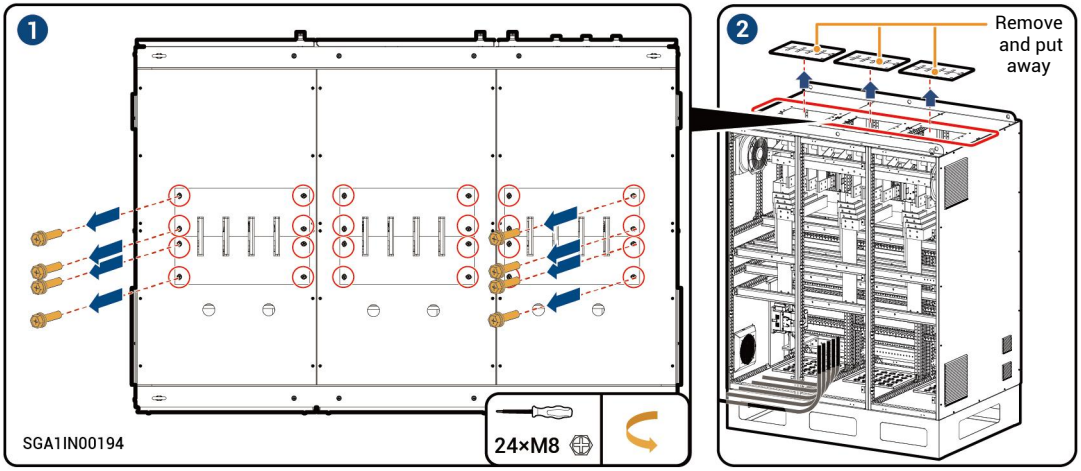
5.5 Bottom plate installation



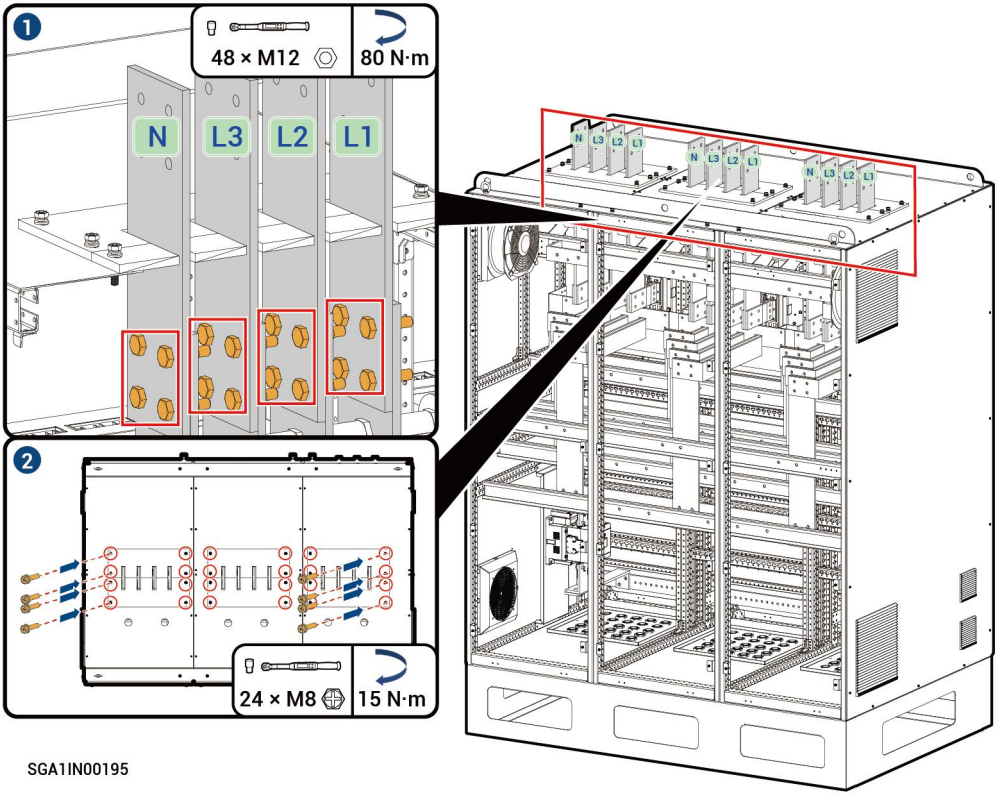
5.6 (Optional) Installing Copper Busbar

> **Caution**
>
> **If copper busbar connection is used, please perform this step. If copper busbar connection is not used, please skip this step.**

1 **Remove the copper busbar positioning cover on the top of the gateway**

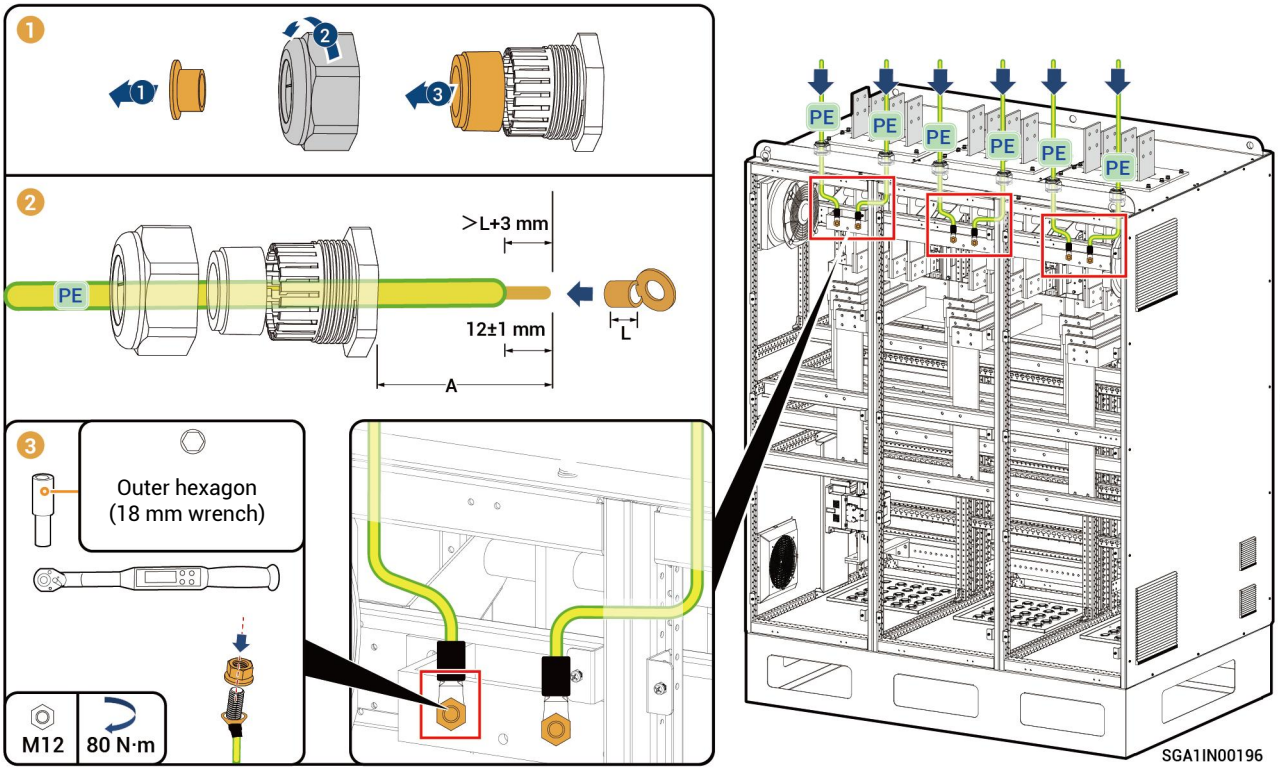


2 Fix the copper busbar and its positioning cover

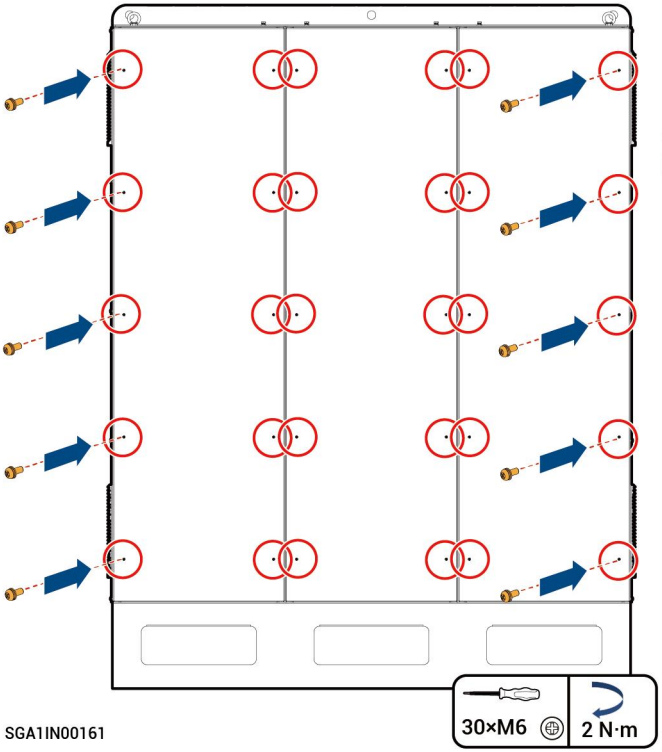


SGA1IN00195

5.7 Gateway top PE cable connection



5.8 Baseplate installation

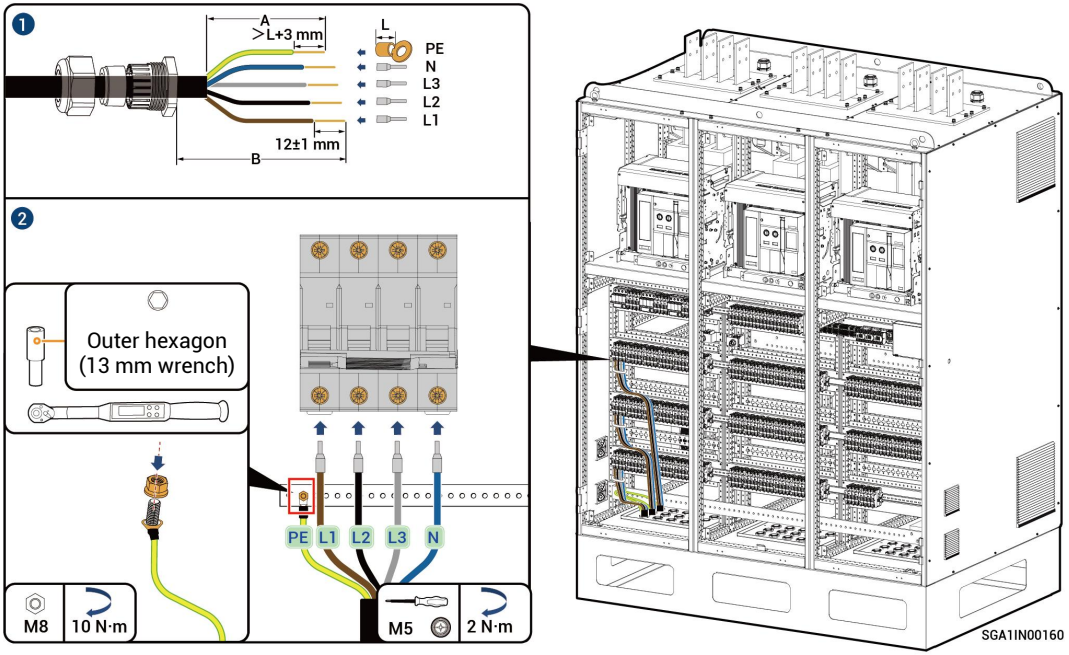


5.9 Connecting Inverter AC cable

Tips

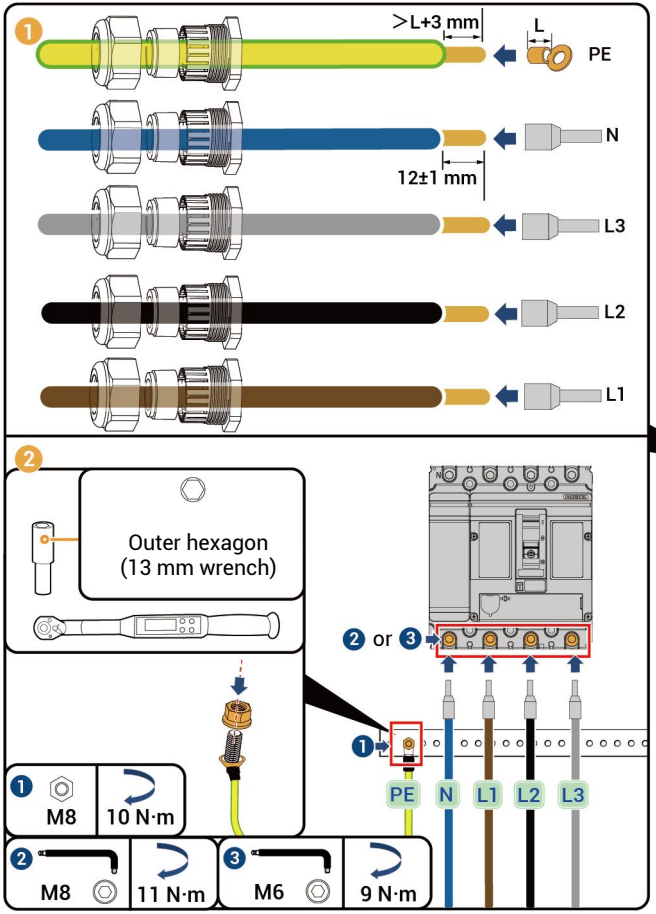
Please make sure that the reserved length of the inverter AC cable in the cabinet meets the following table before performing the AC cable wiring.

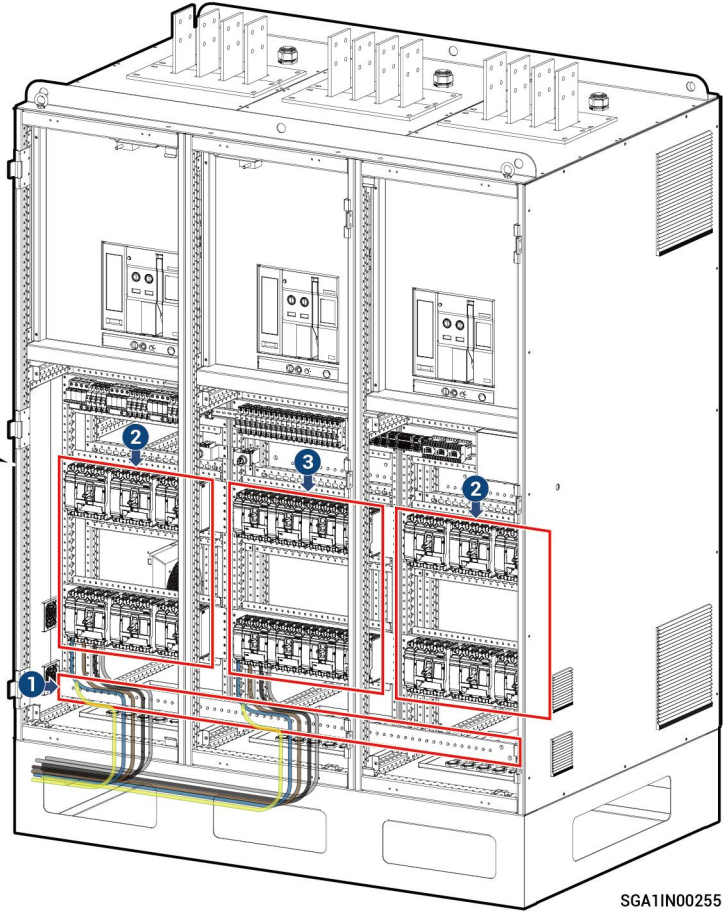
C1200



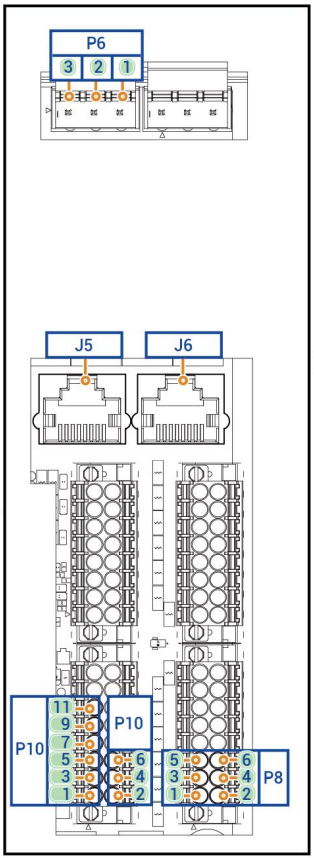
Breaker(C1200)	B (mm)	A (mm)	L1	L2	L3	N	PE
2QF1 to 2QF18	980		860	860	860	860	300
2QF19 to 2QF36	800		680	680	680	680	300
2QF37 to 2QF50	750		500	500	500	500	300

C1200-B


1
>L+3 mm
L
PE
N
12±1 mm
L3
L2
L1
2
Outer hexagon
(13 mm wrench)
2 or 3
1
PE
N
L1
L2
L3
1
M8
10 N·m
2
M8
11 N·m
3
M6
9 N·m


2
3
2
1
SGA1IN00255

5.10 Communication port introduction

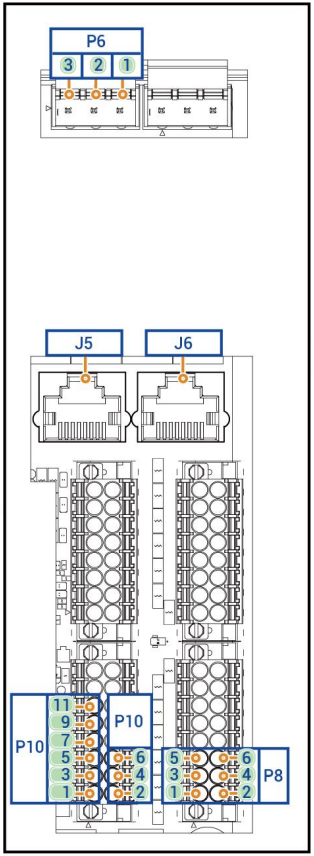


SGA1OV00043

Tips

- **For the Generator that starts when the dry contacts are open, connect the dry contacts to DO3-NO and DO3-COM.**
- **For the Generator that starts when the dry contacts are closed, connect the dry contacts to DO3-NC and DO3-COM.**

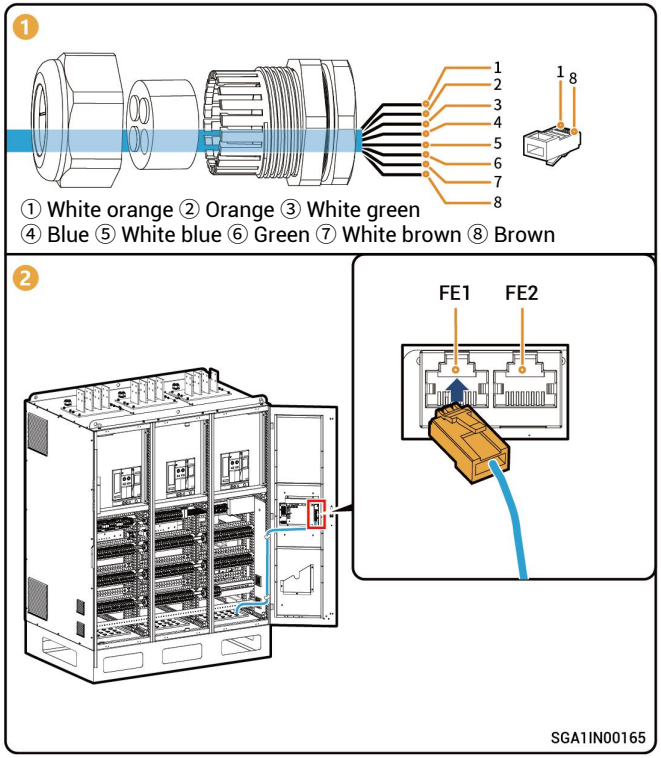
Interface Description	Position	S/N	Definition	Function	Description
(Reserved) 485 (RS-485 interface)	P6	3	485_A	RS-485 signal_A+	Used to connect devices for RS-485 communication.
		2	485_B	RS-485 signal_B-	
		1	PE	PE signal-shield ground	
FE (network cable interface)	J5	-	FE1	Fast Ethernet 1	Used to connect an inverter.
	J6	-	FE2	Fast Ethernet 2	Used to connect the Sigen EV AC charger, inverter, router, etc.
DO3	P10	11	DO3-NO	Digital output 3 - Normal Open	• DO3 is used to control the smart load/generator, and the control mode is 2-wire start. • NO/COM is normally open contact and NC/COM is normally close contact.
		9	DO3-COM	Digital output 3 - Common	
		7	DO3-NC	Digital output 3 - Normal Close	
DO2		6	DO2-NO	Digital output 2 - Normal Open	• DO2 is used for smart load/contactor status feedback signal output. • NO/COM is normally open contact and NC/COM is normally close contact.
		4	DO2-COM	Digital output 2 - Common	
		2	DO3-NC	Digital output 2 - Normal Close	
DO1		5	DO1-NO	Digital output 1 - Normal Open	• DO1 is used for the output of the contactor status feedback signal for the grid. • NO/COM is normally open contact and NC/COM is normally close contact.
		3	DO1-COM	Digital output 1 - Common	
		1	DO1-NC	Digital output 1 - Normal Close	



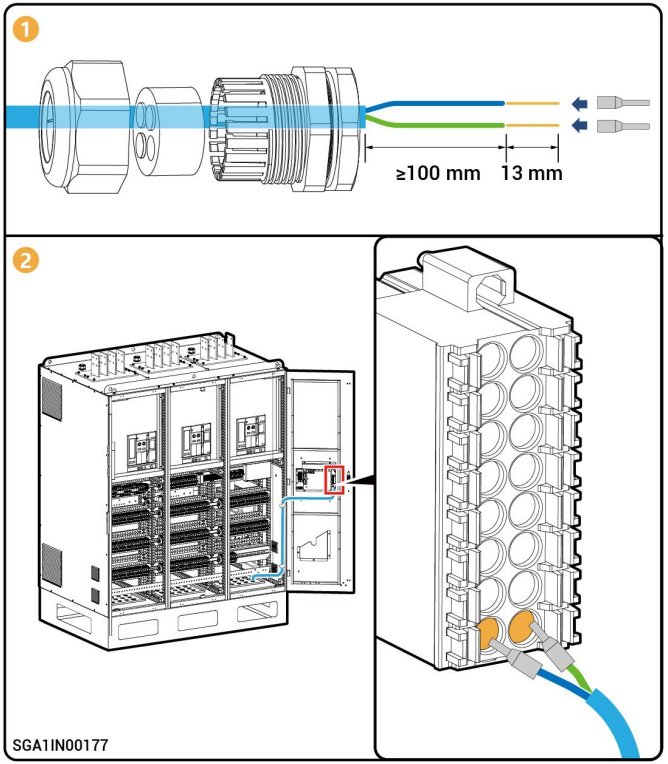
SGA1OV00043

Interface Description	Position	S/N	Definition	Function	Description
DI3 (Digital input signal 3)	P8	5	DI3_+	Digital input 3	• DI3 can be used to connect the feedback signal of an external automatic transfer switch (ATS) to identify whether the "smart loads port" of the Gateway is powered by the power grid or a diesel generator. • Low impedance input (the feedback signal of the ATS is short-circuited) indicates that the port is powered by the power grid. High impedance input (the feedback signal of the ATS is open circuit) indicates that the port is powered by a diesel generator.
		6	DI3_GND	Signal GND	
DI2 (Digital input signal 2)		3	DI2_+	Digital input 2	• DI2 can be used to connect a feedback signal of an external automatic transfer switch (ATS) to identify whether the "grid port" of the Gateway is powered by the power grid or a diesel generator. • Low impedance input (the feedback signal of the ATS is short-circuited) indicates that the port is powered by the power grid. High impedance input (the feedback signal of the ATS is open circuit) indicates that the port is powered by a diesel generator.
		4	DI2_GND	Signal GND	
DI1 (Digital input signal 1)		1	DI1_+	Digital input 1	Open circuit indicates that the emergency stop takes effect.
		2	DI1_GND	Signal GND	

5.10.1 Connecting the Network Cable



5.10.2 Connecting the DI, DO Signal Cable



5.11 ACB tripper device parameter value setting

Tips

To avoid accidents, please contact our company if you need to change the ACB tripper device parameter value.

0.6 MW-GW-ACB tripper device parameter value setting(C600/C600-B)

ACB	Label	Parameter value
GRID QA1 1000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	off
	tr	1
	tsd	.2
	tg	off
Generator QA2 1000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	off
	tr	1
	tsd	.2
	tg	off
LOAD QA3 1000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	.6
	tr	1
	tsd	.3
	tg	.1

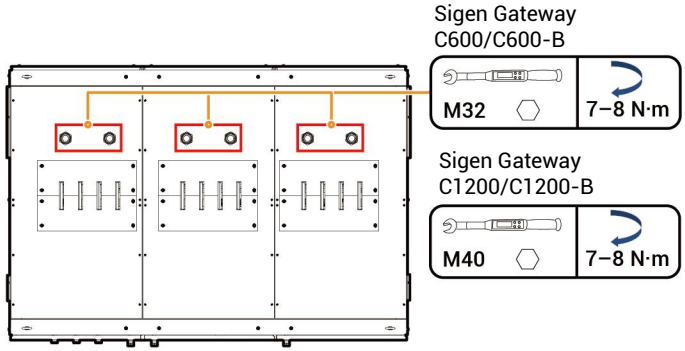
1.2 MW-GW-ACB tripper device parameter value setting(C1200/C1200-B)

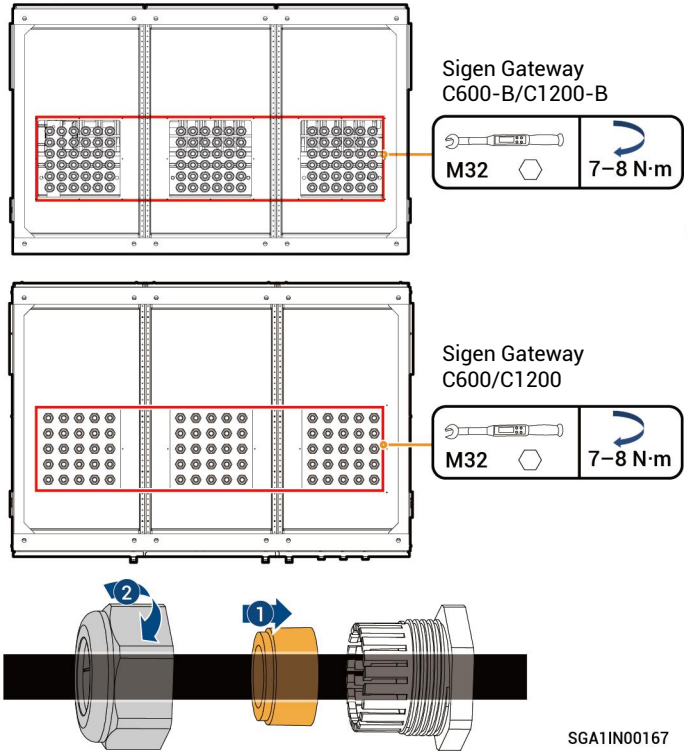
ACB	Label	Parameter value
GRID QA1 2000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	off
	tr	1
	tsd	.2
	tg	off
Generator QA2 2000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	off
	tr	1
	tsd	.2
	tg	off
LOAD QA3 2000A ACB	Iu	1
	Ir	1
	Isd	5
	Ii	12
	Ig	.6
	tr	1
	tsd	.3
	tg	.1

6 Inspections After Installation

Check the following items against the provided table and tighten routing holes.

No.	Check Item
1	The equipment is securely installed.
2	Grounding cables, AC cables, and signal cables are properly connected without omission.
3	Lock screws or connectors are installed in place without any looseness.
4	Cutouts of cable ties are free of burr or sharp edges.
5	Unused ports are protected with water-proof covers or plugs.
6	No construction residue inside and outside the equipment.

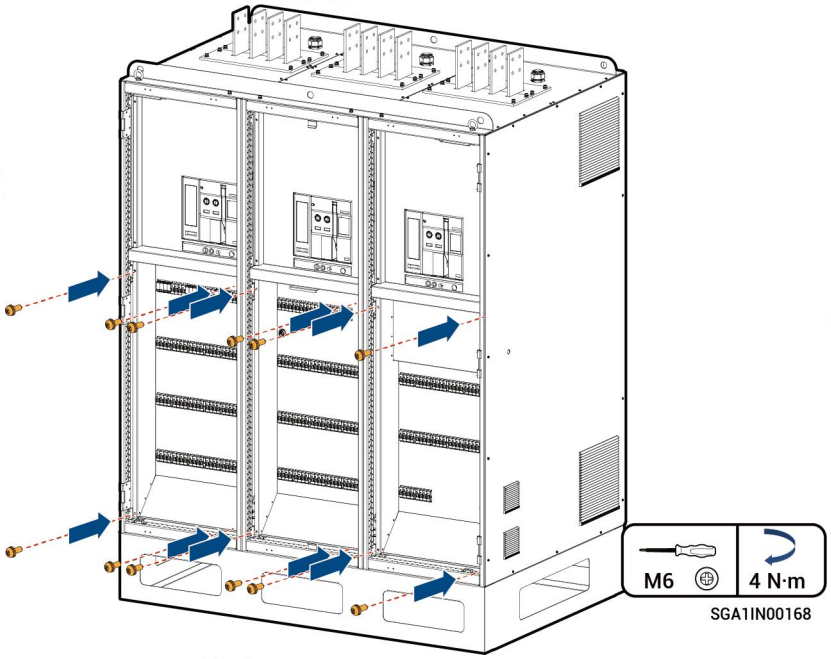




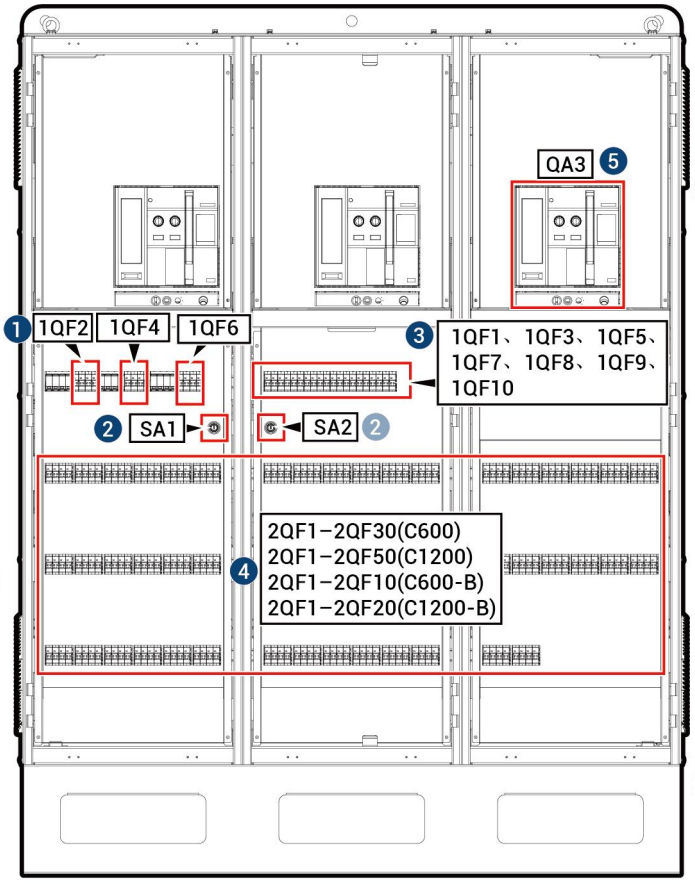
Installing the protective cover

Caution

Measure the voltage of the switch QA1 on the power grid side and check that the measured value is within the allowable range. Ensure that the cable is connected properly and install inner panel.



Steps



SGA1IN00169

Danger

Normally, the bypass switch should be in the off position.

Tips

- **Turn on the upstream AC switch.**
- **There is a risk of electric shock when the Gateway is not grounded.**
- **If the surge protective device is not turned on, the failure of the surge protective device can damage loads and Gateway.**

Caution

- **Do not turn on the circuit breaker when it is not connected to its corresponding device.**
- **Ensure that the wiring sequence of cables from the inverter side to the inverter molded case switch is correct.**
- **Ensure that the wiring sequence of input cables on the grid side and the generator side is correct.**
- **Check before powering on:**

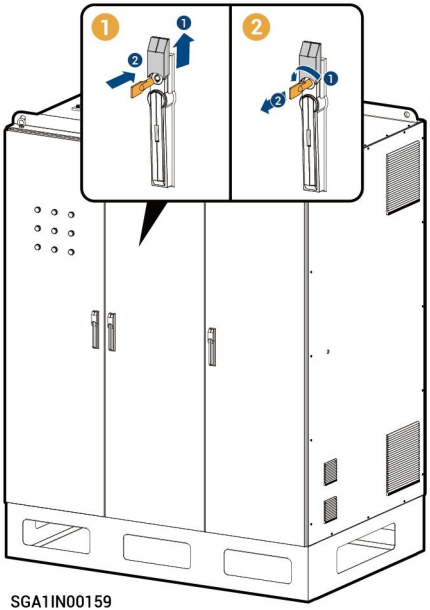
1. **Measure the voltage between phases A, B, and C and the N phase of the secondary control switches 1QF1, 1QF3, and 1QF5 on the PCB board. The recommended voltage should be less than or equal to 290V.**
2. **Measure the voltage value at the upper end of the secondary control switches 1QF7, 1QF8, 1QF9, and 1QF10 of the frame circuit breaker. The recommended voltage should be less than or equal to 290V.**

1. Close 1QF2, 1QF4, and 1QF6 (surge arrester switches)
2. Ensure that SA1 and SA2 (bypass transfer switches) are rotated to the Disable state on the right side
3. Close 1QF1, 1QF3, 1QF5, 1QF7, 1QF8, 1QF9, and 1QF10
4. Close breaker (connected to the inverter)
   - C600 : Close 2QF1~2QF30 (miniature circuit breaker)
   - C1200 : Close 2QF1~2QF50 (miniature circuit breaker)
   - C600-B : Close 2QF1~2QF10 (molded case circuit breaker)
   - C1200-B: Close 2QF1~2QF20 (molded case circuit breaker)
5. Close QA3
6. Close the cabinet door, refer to the next page

Closing the Cabinet Door

Tips

The remote/auto turn-on function of QA1 and QA2 becomes unavailable when the cabinet door is opened.

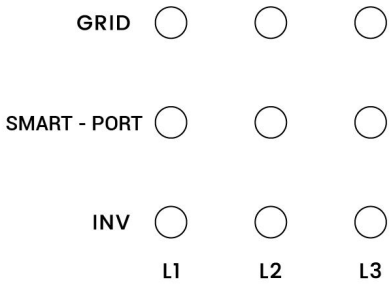


SGA1IN00159

Indicators

Tips

Turn on 1QF1, 1QF3, and 1QF5 and check the status of the indicators.



SGA1OV00032

The corresponding indicator lights up when the circuit breaker is powered on.

- GRID: power grid
- SMART-PORT: smart loads/generator
- INV: Inverter

Tips

The INV indicator lights up if the inverter is turned off and the load is powered from the grid or a diesel generator.

Sigenergy Technology Co., Ltd.

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