

SiGen Gateway (C180-9, C300-12) Installation Guide



Version: 02
Release date: 2024-10-30

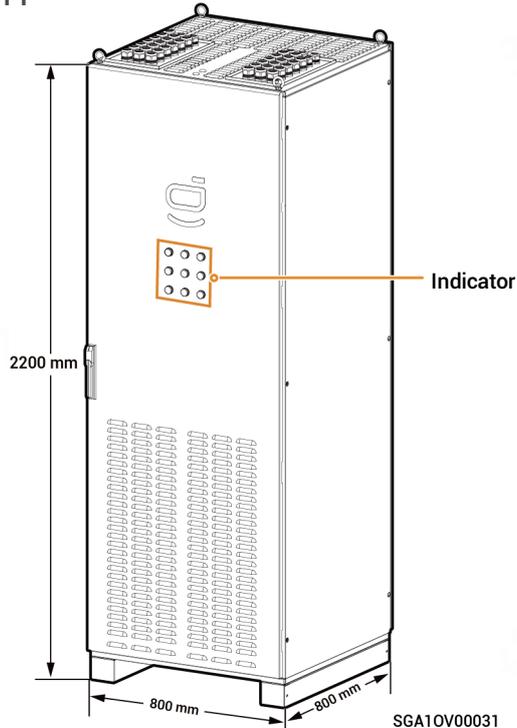


! Caution

- 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 User Manual. Any equipment damage caused by improper operation will not be covered under warranty.

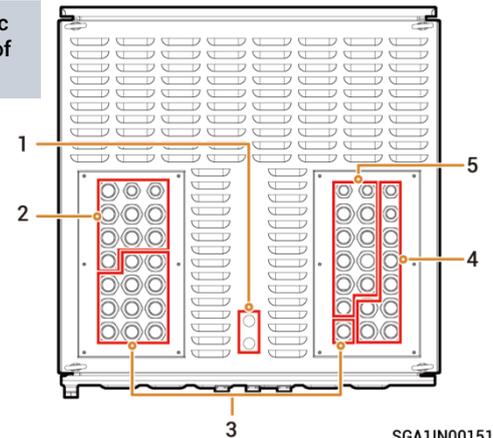
1 Introduction

1.1 Appearance and Dimensions



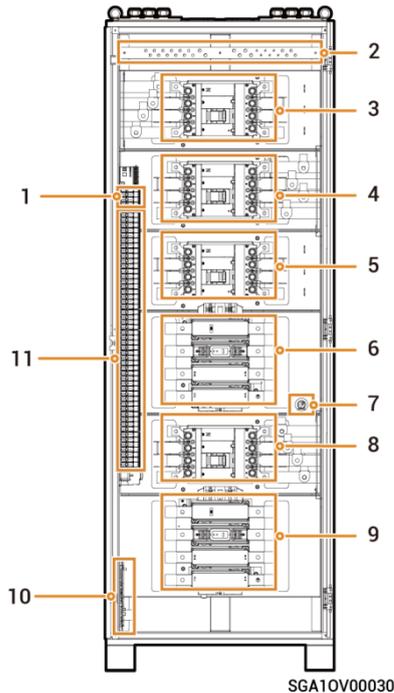
1.2 Port Description

Schematic diagram of top panel



No.	Description
1	Routing hole for signal cable
2	Routing hole for AC cable of the load
3	Routing hole for AC cable of the inverter
4	Routing hole for AC cable of the diesel generator
5	Routing hole for AC cable of the power grid

Schematic diagram
of internal structure



No.	Description
1	Surge arrester switch QF4
2	Grounding busbar (connects to the PE cable)
3	Load switch QF3 (connects to the load)
4	Grid switch QF1 (connects to the power grid)
5	Bypass switch QS1
6	Grid contactor KM1
7	Indicator switch (controls the power supply to the indicator)
8	Diesel generator switch QF2 (connects to the diesel generator)
9	Diesel generator contactor KM2
10	Signal port
11	<ul style="list-style-type: none"> • Sigen Gateway C180-9: Miniature circuit breakers QF5 to QF13 (connect to inverters) • Sigen Gateway C300-12: Miniature circuit breakers QF5 to QF16 (connect to inverters)

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.

Personal Protective Equipment



Safety hat



Goggles



Dust mask



Protective gloves



Insulating gloves



Insulating shoes



Safety vest

Installation Tools



Power drill



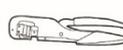
Vacuum cleaner



Wire cutter



Crimp tool



Crimping pliers



Wire stripper



Scissors



Cable ties



Heat shrinkable sleeve



Heat gun



Insulated screwdriver set



Digital open-end torque socket wrench



Marker



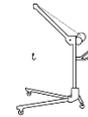
Rubber mallet



Level



Tape measure



Hoist



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



Multimeter

Self-supplied Cables

No.	Cable name		Recommended specification	
			Sigen Gateway C180-9	Sigen Gateway C300-12
1	AC cable	Connects to the power grid (L1/L2/L3/N/PE)	0.6 kV/1 kV cross-linked polyethylene (XPLE) power cable <ul style="list-style-type: none"> • Cable OD: 39 mm • Cross-sectional area of conductor: 95 mm² (L1/L2/L3/N), 50 mm² (PE) 	0.6 kV/1 kV cross-linked polyethylene (XPLE) power cable <ul style="list-style-type: none"> • Cable OD: 42.2 mm • Cross-sectional area of conductor: 150 mm² (L1/L2/L3/N), 70 mm² (PE)
		Connects to the diesel generator (L1/L2/L3/N/PE)		
		Connects to the load (L1/L2/L3/N/PE)		
		Connects to the inverter (L1/L2/L3/N/PE)	0.6 kV/1 kV cross-linked polyethylene (XPLE) power cable <ul style="list-style-type: none"> • Cable OD: 20.6 mm • Cross-sectional area of conductor: 16 mm² 	
2	Network cable		Eight-core shielded twisted pair for outdoor use Cross-sectional area of conductor: 0.13 mm ² to 0.2 mm ² , 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 conductor: 0.2 mm ² to 1.5 mm ² ; 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. FE communication distance: ≤ 100 m.

3 Site Requirements

Tips

- The warranty applies when the equipment has been installed properly for its intended use and in accordance with the operating instructions.
- During installation, the installation location should be selected in accordance with local firefighting, environmental protection regulations, and other relevant laws, as well as local low-voltage power distribution room codes. The specific installation location planning should be subject to the installer or engineering, procurement, and construction (EPC) contracts.

Installation Environment

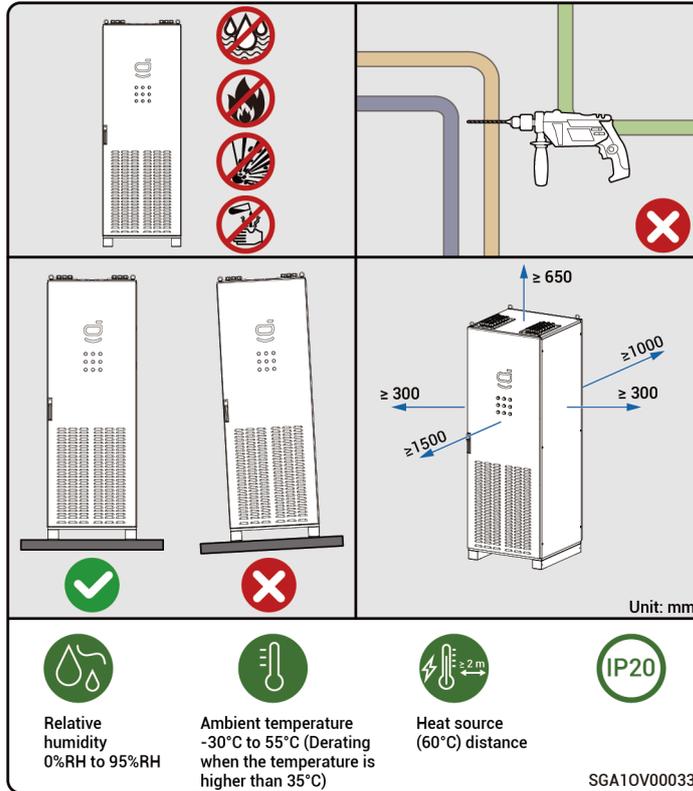
- Do not install the equipment in a smoky, flammable, or explosive environment.
- Do not install the equipment in an environment with conductive metal dust or magnetic dust.
- Do not install the equipment in an environment that is prone to mold and fungi.
- Do not install the equipment in an environment 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 damage 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).

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.

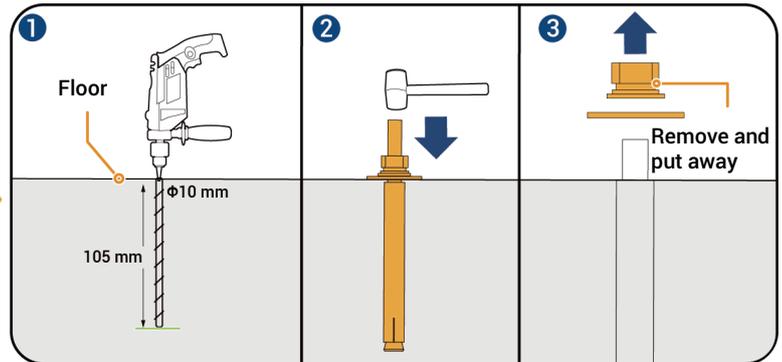
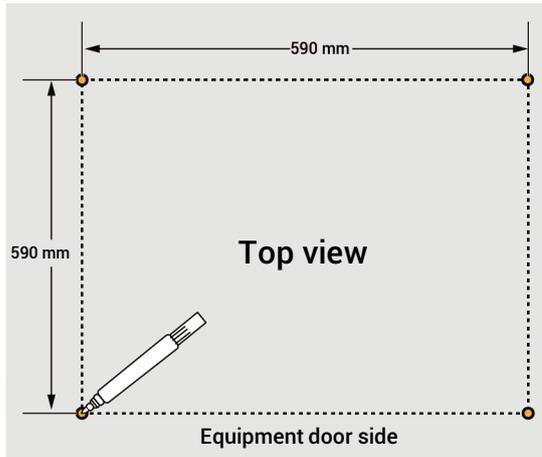
Installation Base

- 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.



4 Installation

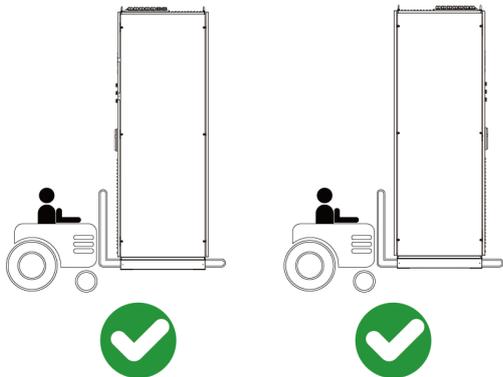
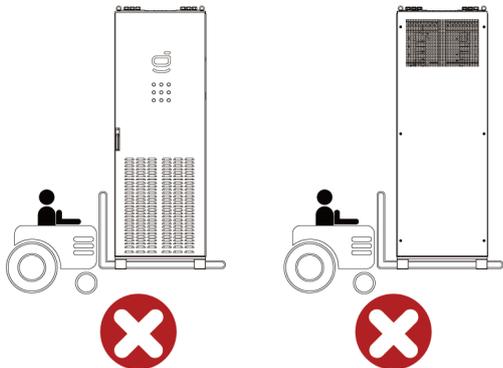
- 1 Determine the mounting point.



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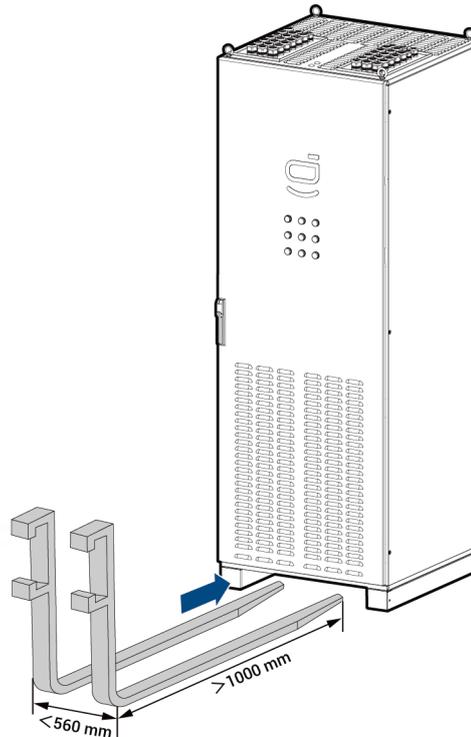
2 Move the equipment to the designated location.

Using a forklift



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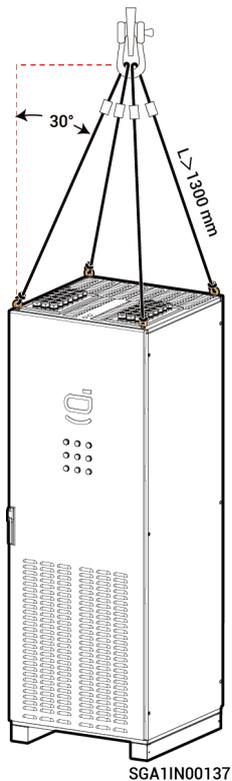
The forklift can carry a load higher than 500 kg.



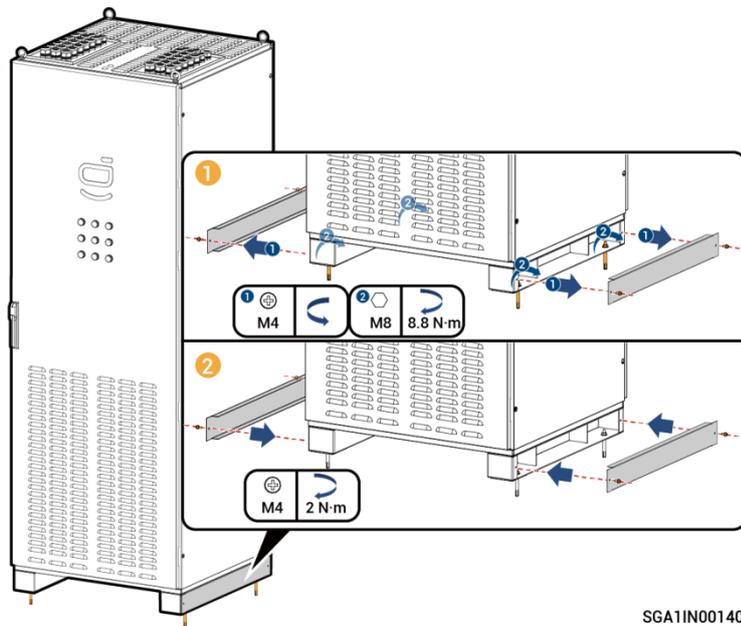
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Using a hoist

The hoist has a lifting capacity of higher than 500 kg.



3 Fix the equipment.



5 Cable Connection

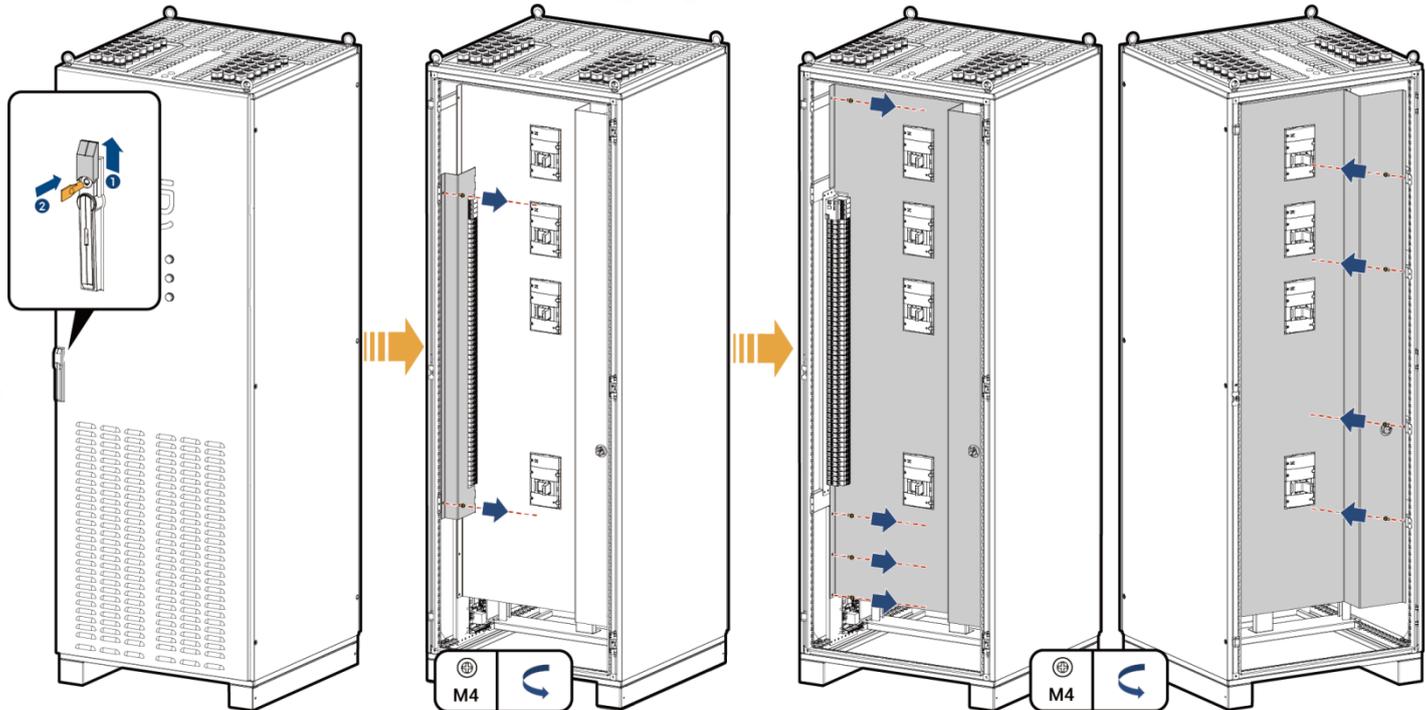
Danger

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 diesel generator power switches.

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.

5.1 Opening the Cabinet Door

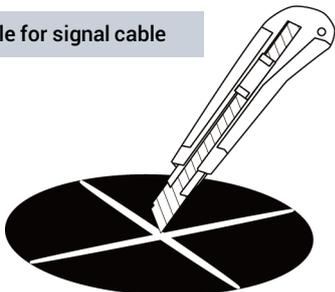


5.2 Requirements for Routing Holes

Caution

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

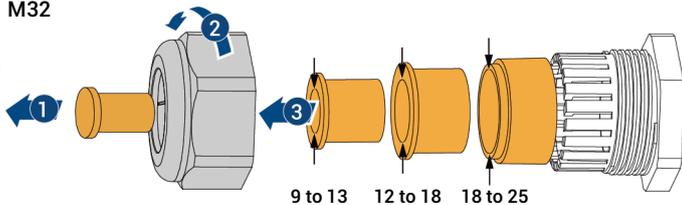
Routing hole for signal cable



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Routing hole for AC cable

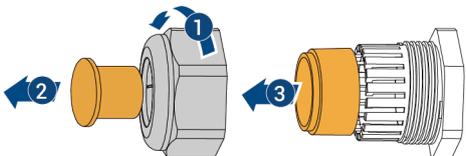
M32



9 to 13 12 to 18 18 to 25

Unit: mm

M25



5.3 Connecting Inverters

1

- Sigen Gateway C180-9: QF5 to QF13
- Sigen Gateway C300-12: QF5 to QF16

Circuit breaker	B (mm)	L1	L2	L3	N	PE
QF5	≥ 822	≥ 822	≥ 804	≥ 786	≥ 768	≥ 200
QF6	≥ 894	≥ 894	≥ 876	≥ 858	≥ 840	
QF7	≥ 966	≥ 966	≥ 948	≥ 930	≥ 912	
QF8	≥ 1038	≥ 1038	≥ 1020	≥ 1002	≥ 984	
QF9	≥ 1110	≥ 1110	≥ 1092	≥ 1074	≥ 1056	
QF10	≥ 1182	≥ 1182	≥ 1164	≥ 1146	≥ 1128	
QF11	≥ 1254	≥ 1254	≥ 1236	≥ 1218	≥ 1200	
QF12	≥ 1326	≥ 1326	≥ 1308	≥ 1290	≥ 1272	
QF13	≥ 1398	≥ 1398	≥ 1380	≥ 1362	≥ 1344	
QF14	≥ 1470	≥ 1470	≥ 1452	≥ 1434	≥ 1416	
QF15	≥ 1542	≥ 1542	≥ 1524	≥ 1506	≥ 1488	
QF16	≥ 1614	≥ 1614	≥ 1596	≥ 1578	≥ 1560	

2

PE

M8
 30 N·m

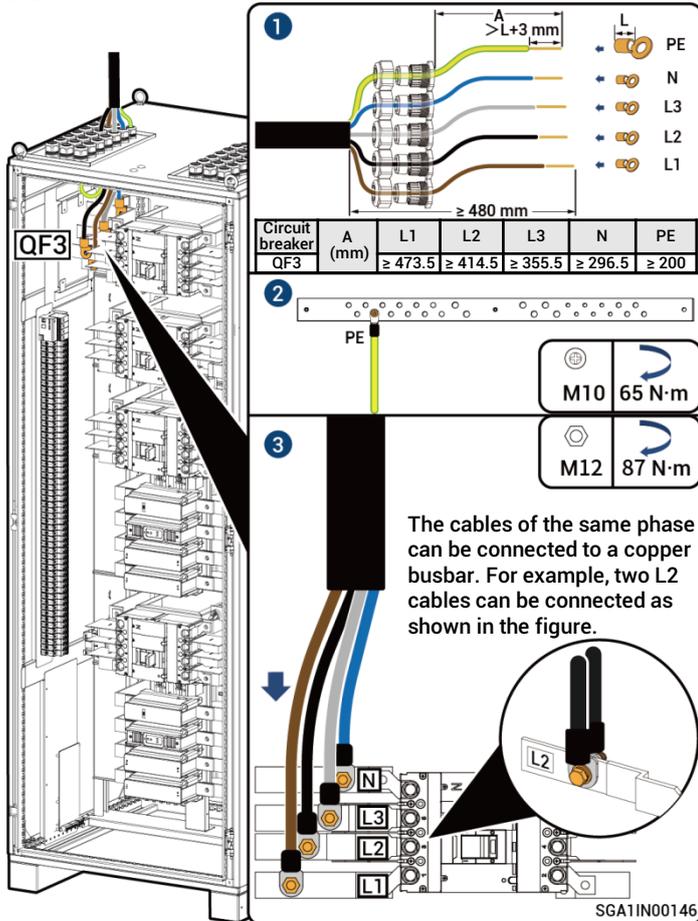
3

N → L3 → L2 → L1

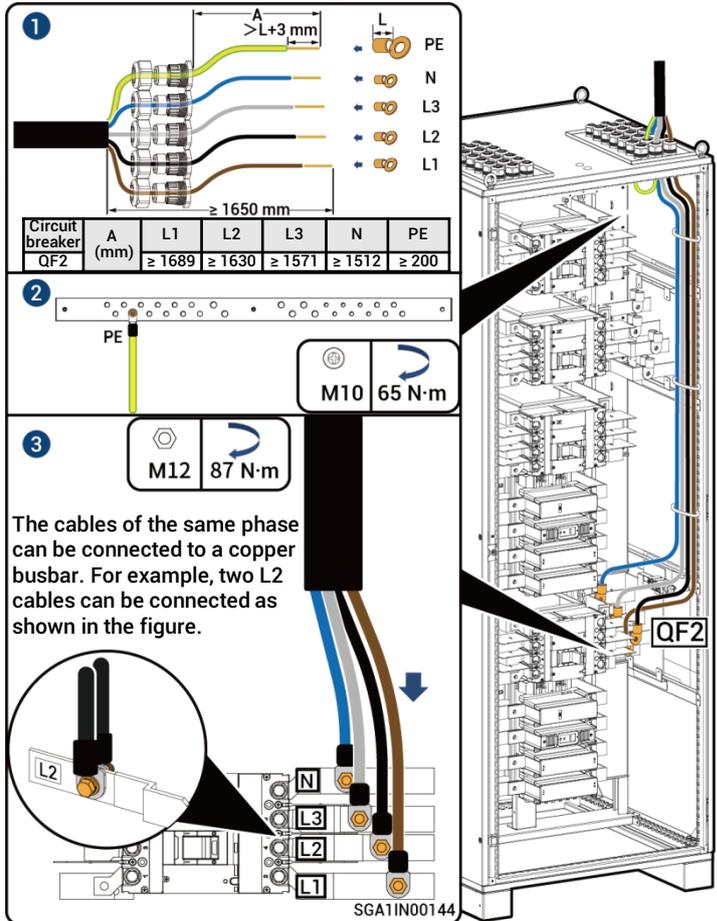
M5
 2 N·m

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5.4 Connecting the Load



5.5 Connecting the Diesel Generator



5.6 Connecting the Power Grid

1

$>L+3\text{ mm}$

PE
N
L3
L2
L1

$\geq 770\text{ mm}$

Circuit breaker	A (mm)	L1	L2	L3	N	PE
QF1	≥ 760.5	≥ 701.5	≥ 642.5	≥ 583.5	≥ 200	

2

PE

M10 65 N·m

3

M12 87 N·m

The cables of the same phase can be connected to a copper busbar. For example, two L2 cables can be connected as shown in the figure.

L2

N
L3
L2
L1

SGA11N00143

5.7 Connecting the Network Cable

1

1 2 3 4 5 6 7 8

1 8

① White orange
② Orange
③ White green
④ Blue
⑤ White blue
⑥ Green
⑦ White brown
⑧ Brown

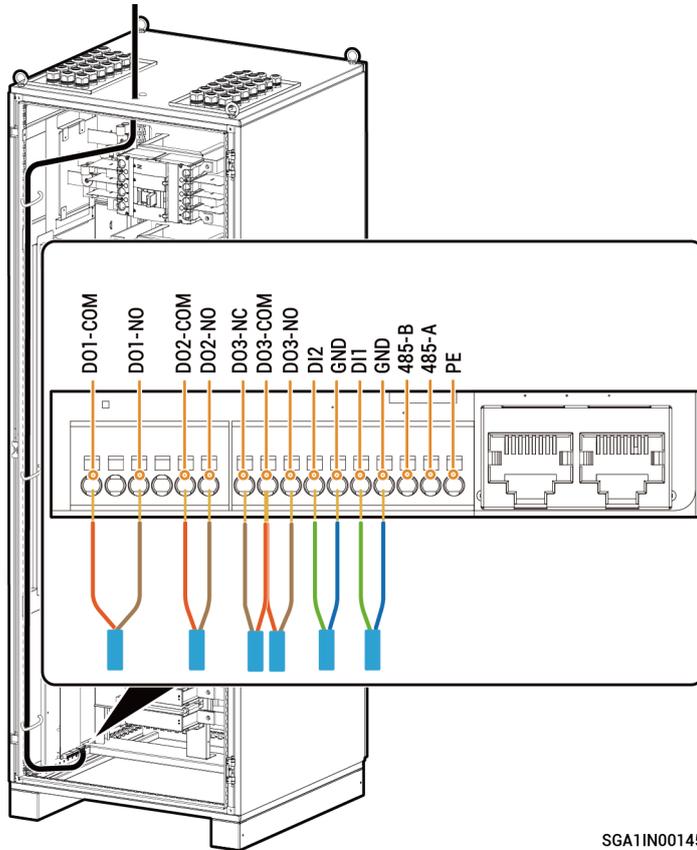
2

1 2 3 4 5 6 7 8

1 8

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5.8 Connecting RS485/DI/DO Signal Cables



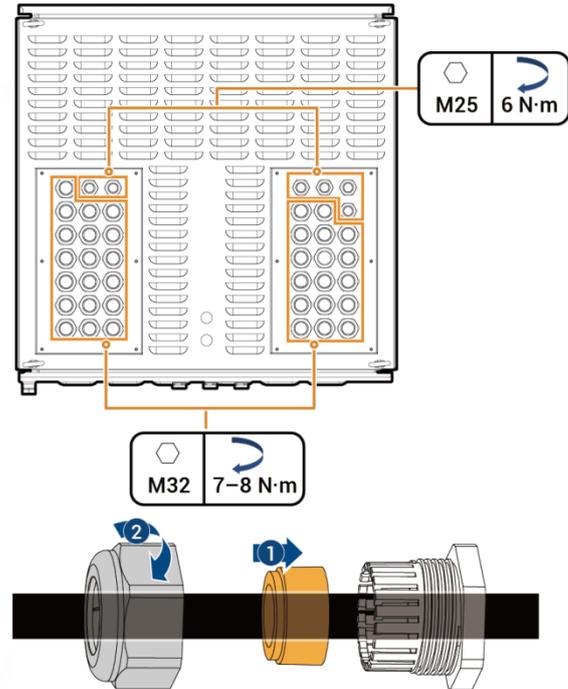
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Interface Description	Definition	Function	Description	
FE (network cable interface)	FE1	Network cable interface 1	Used to connect an inverter.	
	FE2	Network cable interface 2	Used to connect Sigen EV AC Charger, inverters, and routers.	
(Reserved) 485 (RS-485 interface)	PE	Protective earthing	Used to connect the equipment over RS-485.	
	485-A	RS485 signal 2_A+		
	485-B	RS485 signal 2_B-		
DI1 (Digital input signal 1)	GND	Signal GND	<ul style="list-style-type: none"> Universal digital signal input. D1 is used to connect to the feedback contacts of the bypass switch. 	
	DI1	Digital input signal 1		
DI2 (Digital input signal 2)	GND	Signal GND		
	DI2	Input signal 2		
D03 (Dry contact 3)	-	D03-NO	Output signal 3—normally open	<ul style="list-style-type: none"> Universal digital output interface. D01 has a contact capacity of 250 Va.c./1 A or 30 Vd.c./1 A. D02 and D03 have a contact capacity of 30 Vd.c./1 A. NO/COM is a normally open contact and NC/COM is a normally close contact. The D03-NC and D03-COM are used to control generators in 2-wire start mode.
	GEN (Diesel generator)	D03-COM	Output signal 3—common point	
		D03-NC	Output signal 3—normally close	
(Reserved) D02 (Dry contact 2)	-	D02-NO	Output signal 2—normally open	
	-	D02-COM	Output signal 2—common point	
(Reserved) D01 (Dry contact 1)	-	-	-	
	-	D01-NO	Output signal 1—normally open	
	-	-	-	
		D01-COM	Output signal 1—common point	

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 cable, AC cables, and signal cables are properly connected without omission.
3	Lock screws or connector 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.



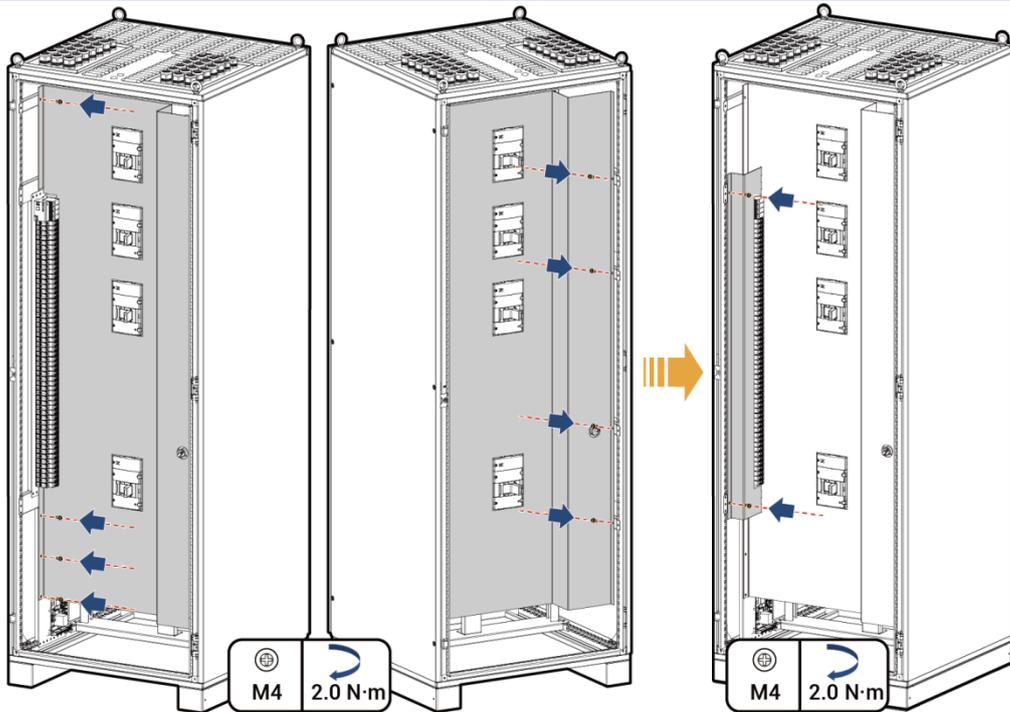
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7 Power-on

Installing the protective cover

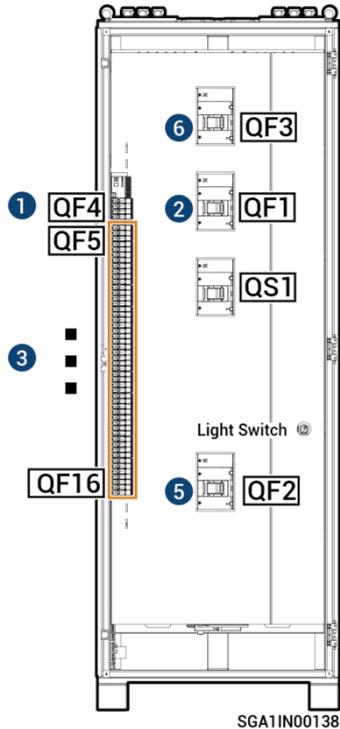
Caution

Measure the voltage of the switch QF1 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.



SGA1IN00133

Steps



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.

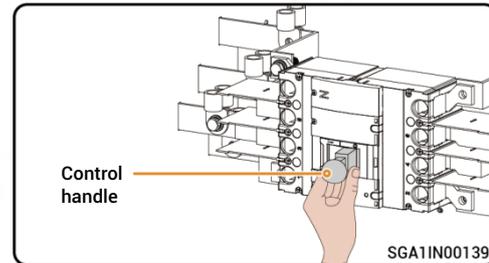
⚠ Caution

Do not turn on the circuit breaker when it is not connected to its corresponding device.

1. Turn on QF4 (surge arrester switch).
2. Turn on QF1 (connects to the power grid).
3. Turn on QF5 to QF13 or QF5 to QF16 (connect to inverters).
 - Sigen Gateway C180-9: QF5 to QF13
 - Sigen Gateway C300-12: QF5 to QF16
4. Power on the inverters. For how to power on an inverter, please refer to the *Installation Guide* of its respective model.
5. Turn on QF2 (connects to the diesel generator).
6. Turn on QF3 (connects to the load).

Tips

You can operate circuit breakers with the control handle.



⚠ Danger

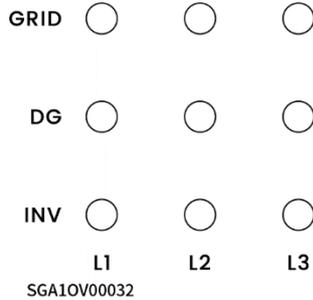
In normal cases, the bypass switch is turned off.

8 Closing the Cabinet Door

Indicators

Tips

Check that the light switch is in the ON position before you observe the indicator status.

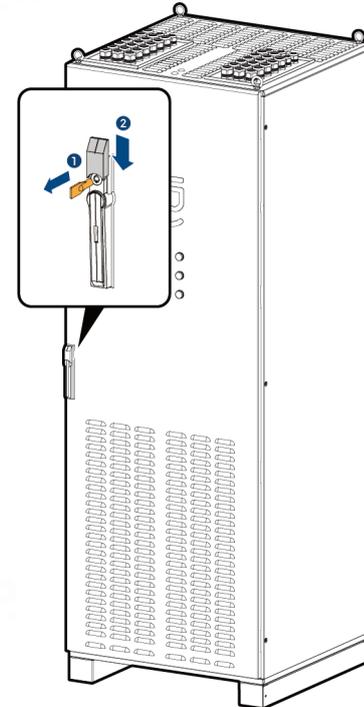


The corresponding indicator lights up when the circuit breaker is powered on.

- GRID: Power grid
- DG: Diesel 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.



SGA1IN00141

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