

Sigen Energy Gateway C&I Series

User Manual

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Revision History

Version	Date	Description
03	2025.04.22	Added 2.2.2 Sigen Gateway C60-2 Updated 2.2.3 Sigen Gateway (C120-6, TPLV C70-6) Updated 2.2.4 Sigen Gateway (C180-9, C300-12) Updated Chapter 3 Location Requirements Updated Chapter 6 System Maintenance
02	2024.09.27	Added 1.5 Safety Tips for Working at Heights Added 2.2.1 Sigen Gateway TPLV C30-2 Added 2.2.4 Sigen Gateway C300-12 Updated 2.3 Label Description Updated 2.4 Supported Power Supply Methods for the Power Grid Added 2.5 Introduction to system wiring Updated 6.1 Power Off
01	2024.08.20	Initial release

Preface

Overview

This document mainly describes the product introduction, networking, and system maintenance of the Sigen Energy Gateway for the C&I series (hereinafter referred to as the Gateway).

Intended Audience

This document is intended for:

- Professionally trained and qualified installers.
- Technical support engineers.

Definitions of Signs

The following signs may be used in the document to indicate safety precautions or key information. Before installation and operation of the equipment, familiarize yourself with signs and their definitions.

Sign	Definition
 Danger	Danger. Indicates an imminently hazardous situation which, if not avoided, will result in death or serious personal injury.
 Warning	Warning. Indicates a potentially hazardous situation which, if not avoided, will result in serious personal injury or property damage.
 Caution	Caution. Indicates a potentially hazardous situation which, if not avoided, will result in property damage.
Tips	Indicates important or key information and provides operation tips.

Chapter 1 Safety Precautions

1.1 General Requirements

Before installing, operating, and maintaining the equipment, familiarize yourself with this user manual. Strictly follow the instructions in the manual and adhere to all safety precautions indicated on the equipment and within the manual.

The "Danger," "Warning," and "Caution" statements described in this manual are only supplementary precautions to all safety notices.

The Company shall not be held liable for equipment damage or property loss resulting from violation of safety operation requirements or safety standards of design, production, and use of equipment, including but not limited to the following:

- The installation environment does not comply with relevant international, national, or regional standards.
- Failure to comply with local laws and regulations during the transportation, installation, operation, and maintenance of the equipment.
- The installation area does not meet the requirements of the equipment.
- Cables, tools, and other materials used do not comply with relevant international, national, or regional standards.
- Damage caused by storage conditions that do not meet the requirements of the equipment.
- Failure to operate according to the instructions and precautions in the manual.
- Failure to follow the prescribed sequence of steps for installation, operation, and maintenance in the manual, unauthorized changes to the installation sequence, unauthorized modification, additions, or changes to equipment, etc.
- Failure to handle the equipment with care or violent installation may result in equipment damage and liquid leakage and pose a risk of fire or explosion hazards.

- Failure to follow the operational requirements indicated on warning labels on the equipment or tools.
- Negligence, improper operation, or deliberate damage.
- Damage caused during transportation by you or a third party you commission.
- Damage caused by the change of the scenarios for which the equipment is intended on the customer or a third party company side.
- Equipment damage caused by failure to use the accessories supplied with the packing box or purchase and use accessories of the same specification on the customer or a third-party company side.
- Equipment damage caused by unauthorized disassembly or replacement of the equipment or modification of software code, or other improper operations.
- Equipment damage caused by force majeure (such as war, earthquake, fire, storms, lightning, floods, and debris flow).
- Damage caused by the failure of the natural environment or external power parameters to meet the standard requirements for the normal operation of the equipment. For example, the actual operating temperature of the equipment is too high or too low.
- The equipment is stolen.
- The equipment is damaged after the warranty period expires.

1.2 Personnel Requirements

- Professionals or well-trained personnel must be assigned to install, operate, and maintain the equipment. During operations, irrelevant personnel are prohibited from approaching the work area.
 - Professionals: Personnel who are familiar with the composition and working principle of the system or equipment, have participated in training or operated the equipment, and are familiar with the factors that may lead to risks during the installation, operation, and maintenance of the equipment and risk levels.
 - Well-trained personnel: Personnel who have participated in relevant technical and safety training, have relevant experience, can identify operational risks, and can take relevant corrective measures to reduce the impact of risks.
- For special operations, such as climbing and electrical operations on high-voltage equipment, the operator must be certified for special operations as required by the local country/region.
- Only authorized professionals can replace the equipment or components (including software), remove safety devices, or repair the equipment.

1.3 Handling and Transportation Requirements

- Wear personal protective equipment such as protective gloves and safety shoes while handling the equipment.
- Select an appropriate handling method according to the equipment weight.
- When handling the equipment, always follow the package orientation marking. Do not turn the equipment upside down or tip it over.
- The tilt angle of the equipment with packaging must be less than or equal to 15°. After the equipment is unpacked, its tilt angle must be less than or equal to 10°. Take into account the heights of persons assigned to handle the equipment to ensure that the equipment is handled stably.
- Lift or move the equipment slowly to avoid personal injury.
- When using a forklift, position the forks so that the center of gravity of the equipment is aligned and secure the equipment as needed. Designate a person to keep an eye on the handling. Do not stand under the forks.
- Place the equipment according to the stack requirement indicated on the packaging.
- Ensure the equipment is placed on a flat and stable surface and do not tilt or place the equipment upside down.
- Transport the equipment with proper protective measures to avoid exposure to rain or water.

1.4 Storage Requirements

- The storage location must comply with local laws and regulations.
- Do not store the equipment without packaging.
- Do not expose the equipment to direct sunlight, humidity, condensation, dirt, rain, or a flammable, explosive, or corrosive environment.
- Regularly check the equipment (recommended once every three months) during the storage period. Take measures to prevent pests and rodents in the storage area. Replace the packaging immediately if the packaging is damaged by pests or rodents.
- Store the equipment according to the storage requirements indicated on the packaging.
- Regularly record the temperature, humidity, and other conditions of the storage environment during the storage period.
 - Storage temperature: -40°C to 70°C, with a recommended range of 20°C to 30°C.
 - Relative humidity: 0% RH to 95% RH.
- Follow the First-in First-out (FIFO) principle for shipment.
- If your equipment has been stored for more than 2 years, please go through professional inspection and testing before putting it into operation.

1.5 Safety Tips for Working at Heights

- Comply with the local regulations on working at heights.
- Operators engaged in working at heights shall behave in strict accordance with the safety regulations on working at heights, and the Company shall not be liable for accidents caused by the violation of the safety regulations on working at heights.
- Carrying out work at more than 2 meters above the ground is considered as work at heights.
- Do not work at heights in one of the following conditions: steel pipe not drying up and other conditions that may cause danger.
- Before working at heights, carefully check the climbing tools and safety appliances, such as safety hats, safety belts, ladders, platforms, scaffolds, and lifting equipment, and take immediate improvement measures or refuse to work at heights if any requirements are not met.
- Mark out a hazardous area on the work-at-height scene and set an eye-catching sign indicating that unauthorized personnel are prohibited from entering.
- Set guardrails and signs at the edges and holes in the work-at-height area to prevent accidental falls.
- It is strictly forbidden to stack scaffolds, platforms, or other things on the ground below the work-at-height area. Personnel on the ground should be strictly prohibited from staying or passing through directly below the work-at-height area.
- Try to avoid working on the upper and lower platforms at the same time. If this cannot be avoided, a special catch platform should be set, or other protective measures should be taken between the upper and lower platforms. It is strictly forbidden to stack tools, materials, and other things on the upper platform.
- Take protection measures, wear a safety hat and a safety belt or a waist rope, tie it to a solid and rigid structural member. It is strictly forbidden to

hang it on an unstable moving object or metal with sharp corners to prevent accidental falls due to hook slip.

- Carry the operating apparatuses and tools well and prevent them from falling and injuring others.
- Workers at heights are strictly forbidden from throwing objects from heights to the ground nor from the ground to heights. Rigid ropes, hoists, aerial lifts, or cranes should be used to transport objects.
- Horseplay is strictly forbidden while working at heights, and resting in the work-at-height area is prohibited.
- After work at heights, climbing tools, safety appliances, personal protective equipment, and other things shall be cleaned up or taken away from the scene, and the scene shall be restored to its original state.

1.6 Operation Requirements

Danger

High Voltage and Hazards:

- Do not perform operations on the equipment with power on (including but not limited to installation, wiring, replacement). 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. Operation with power on may lead to fire, electric shock, arcing, or explosion, resulting in personal injury or property loss.
- Do not power on the equipment before the installation or professional evaluation is complete.
- Do not operate the equipment in bad weather conditions, including but not limited to lightning, rain, snow, or typhoon.
- Do not expose the equipment to high temperatures or heat sources for an extended period of time, such as sunlight, ignition sources, or heaters.
- Do not clean or soak the equipment with water, alcohol, oil, or other liquids to avoid leakage current and electrical shock.
- Do not impact, drag, or step on the equipment. In case of accidental impact, stop using the equipment immediately and contact your sales representative. The equipment shall be subject to inspection and evaluation by professionals before being put into operation again.
- Before operating the equipment, check whether the equipment is damaged. For any abnormality, such as appearance deformation or odor, contact your sales representative instead of disassembling the equipment without authorization.
- If you find that the equipment works abnormally or that the equipment may cause personal injury, such as appearance deformation, odor, or arcing, stop your operation immediately, report the fact to the person in charge, and take effective measures.
- Wear personal protective equipment such as insulating gloves, insulating

shoes, and safety hats while operating the equipment. Do not wear conductive accessories such as metal bracelets, rings, or necklaces.

- Use insulated tools when installing or wiring.
- Equipment that must be grounded is permanently connected to the PGND. Connect the PGND in the first step before connecting cables, and when replacing an equipment, remove the PGND in the last step.
- Do not touch terminals with bare hands or conductors or damp objects. Measure the voltage of the contact before touching a terminal to avoid the risk of electric shock.
- Prevent foreign objects from falling into the equipment while operating the equipment. Otherwise, the equipment may be short-circuited or damaged, or power supply to loads may be derated or power failure may occur, or this may even result in personal injury.
- Before powering off the 10 kV or higher medium-voltage equipment, it is recommended to turn off the inverter and switch off the low-voltage equipment first.
- Touch up paint scratches on the surface of the equipment.

Warning

- Do not disable any protective devices, including but not limited to protective covers and surge arresters.
- Do not touch the hot surface in the heat dissipation area when the equipment is operating.
- Do not cover the heat dissipation area, and maintain a 300 mm to 600 mm channel for heat dissipation to prevent high temperatures from causing a fire when the equipment is operating.

Caution

- You must obtain a license for power utilities in the country or region where the equipment is located before the equipment can be connected to the grid.
- Do not use damaged or unqualified cables or tools. Before operating the equipment, ensure that all cables and tools comply with the requirements, and keep records. Upon completion of operation, make an inventory and recovery the cables and tools in full to prevent them from being left in the equipment to avoid safety hazards.
- Comply with the power station safety regulations of the country or region where the equipment is located when operating the equipment, including but not limited to operation tickets and work tickets.
- Carbon dioxide fire extinguishers or ABC dry powder fire extinguishers are recommended.
- Keep irrelevant personnel away from the operation site. Please install a temporary fence or set a warning line around the operation site, and attach "No Entry for Irrelevant Personnel" and other signs.
- Do not cover or damage the warning label or nameplate on the equipment. Replace the warning label or nameplate if it is damaged or cannot be clearly recognized due to long-term use.
- Before operating or maintaining the equipment, check whether there is water, snow, or other debris on the top of the equipment. Clean it up when necessary.

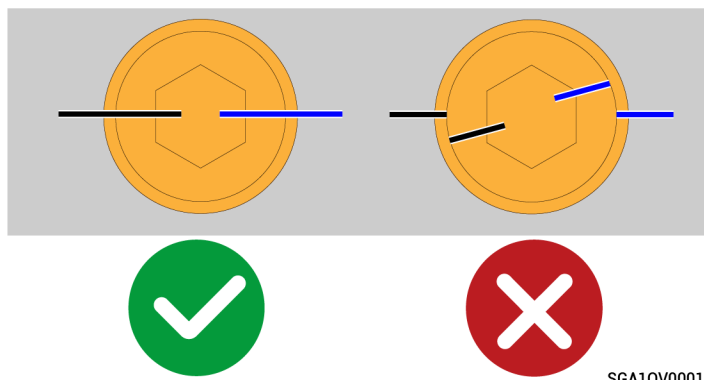
Do not use the equipment in the following situations:

- When connected to public infrastructure systems, such as traffic lights or security systems.
- When connected to emergency medical equipment.
- When connected to elevators and other control devices.
- Any other critical systems.

1.6.1 Equipment Installation

Warning

- 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.



- Get well prepared for the bearing load when handling the equipment to prevent it from falling and causing injury.

Ladder Safety

- Do not use ladders if you are not well-trained or instructed.
- Do not use unqualified ladders, including but not limited to damaged, broken, deformed, or temporary ladders.
- Do not use a ladder that does not meet the load-bearing requirements.
- Use wooden or fiberglass ladders when you climb up for electrical operations.
- A straight ladder must be set at a gradient of 60° to 70°.
- Do not throw objects from heights when operating on a ladder.
- We recommend that you designate a person to monitor when operating on a ladder.
- Lock the door when using a ladder at the entrance of the passageway.

Drilling Safety

- Do not drill holes on the equipment.

- Wear safety goggles and protective gloves when drilling holes.
- Do not place the equipment near drilling positions to prevent debris from falling into the equipment.
- Clean up any debris promptly after drilling.

1.6.2 Cable Connections

Danger

- Before connecting cables, ensure that the equipment is not damaged. Otherwise, electric shock or fire hazard may occur.
 - Before connecting or removing cables, ensure that the upstream and downstream switches of the equipment and the switches on the equipment are turned off.
-
- Do not intertwine cables or route cables across each other. It is recommended that cables be bundled by category.
 - Do not route cables through the air inlet and air outlet of the equipment.
 - Do not use cables with damaged insulation. No sharp edges or burrs are allowed in cable holes. Replace cables with insufficient length. Do not extend cables using welding or similar methods.
 - The ground impedance of the equipment should meet national and regional standards.
 - Verify the cable selection by referring to IEC-60364-5-52 or local laws and regulations if there are changes in cabling methods or environmental conditions such as temperature and humidity.
 - Keep cables at least 100 mm away from the heat source to prevent cable aging at high temperatures.
 - The lower the ambient temperature is, the more brittle the cable plastic sheath becomes. To prevent sheath cracking during installation, install cables at temperatures above 0°C and handle them with caution when transporting. If cables have been stored in an environment below 0°C for an extended period of time, move cables to an environment above 0°C for at least 24 hours before using again.
 - Before installing cables, ensure that cables are properly labeled, insulated, and identified. Connect cables correctly and completely according to the labels and installation instructions.

- For underground cabling, fix cables with cable trays and clips. Before backfilling, reserve a proper cable length to ensure that cables are tightly fitted against the ground in the backfilling area. Otherwise, terminals may be deformed, damaged, or loosened due to stress on cables.

1.6.3 Equipment Maintenance and Replacement

- Before maintaining or replacing the equipment, power off and wait for the delay time as instructed on the label on the equipment before operation.
- When maintaining the power equipment or power distribution equipment at the downstream direction of the power supply equipment, turn off the output switch of the power supply equipment.
- When maintaining the power distribution equipment or power equipment at the downstream direction of the power supply equipment, turn off the output switch of the power supply equipment. To maintain a load, disconnect the load from the power switch.
- During equipment maintenance, attach labels, for example, "Do Not Turn On", on the upstream and downstream switches or circuit breakers and set warning signs to prevent accidental reconnection. Power up and put the equipment back into operation only after trouble is eliminated, or replacement is complete.
- Damaged cables, if any, should be replaced by professionals.

Chapter 2 Product Introduction

2.1 Product Features

Functions

The product can be used in industrial and commercial PV storage and pure storage applications for data collection and monitoring, switchover between off-grid and backup power, diesel generator control, and energy management. The product must be used in conjunction with our battery packs and inverters.

- The Gateway provides backup power for the whole house or part of the loads. In the event of a grid power outage, the inverter seamlessly switches to the off-grid mode, and this switchover is insensible to backup loads.
- The Gateway can be connected to a diesel generator for an extended period of power supply in off-grid mode, and PV storage and diesel generator mode can be switched seamlessly.

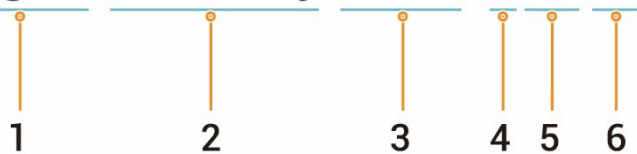
Model description

This document covers the following product models:

S/N	models
1	Sigen Gateway TPLV C30-2
2	Sigen Gateway C60-2
3	Sigen Gateway TPLV C70-6
4	Sigen Gateway C120-6
5	Sigen Gateway C180-9
6	Sigen Gateway C300-12
7	Sigen Gateway C600
8	Sigen Gateway C1200

Figure 2-1 Model description(example)

Sigen Gateway TPLV C30-2



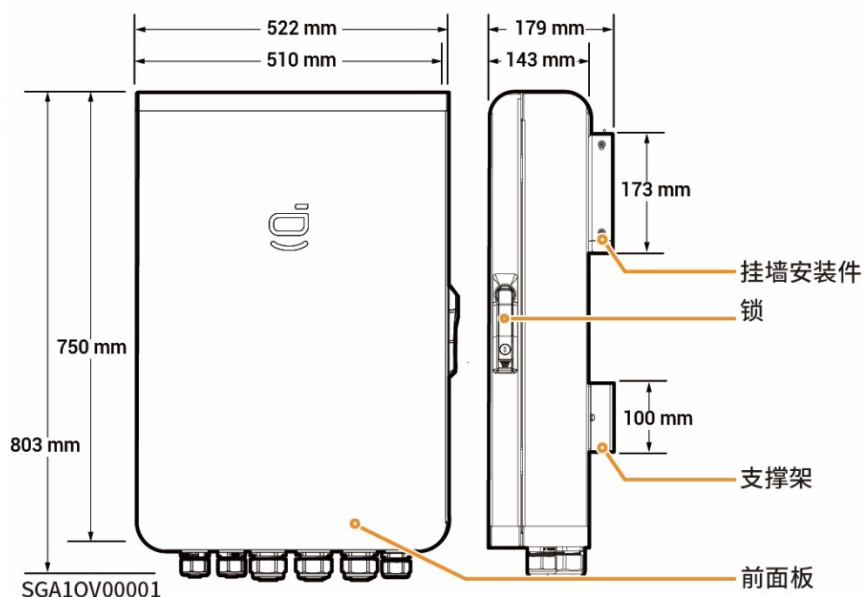
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No.	Definition	Description
1	Brand	Sigen
2	Product series	Gateway
3	Grid type	TPLV: Three-phase Low Voltage
4	Application scenario	C: industrial and commercial scenario
5	Maximum power on grid side	● 30: 30 kW ● 120: 120 kW ● 300: 300 kW ● 600: 600 kW ● 1200: 1200 kW
6	Number of supported inverters	● 2: 2 units ● 6: 6 units ● 9: 9 units ● 12: 12 units

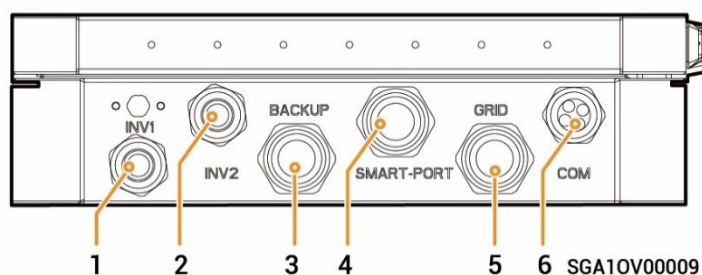
2.2 Product Appearance

2.2.1 Sigen Gateway TPLV C30-2

Dimensions

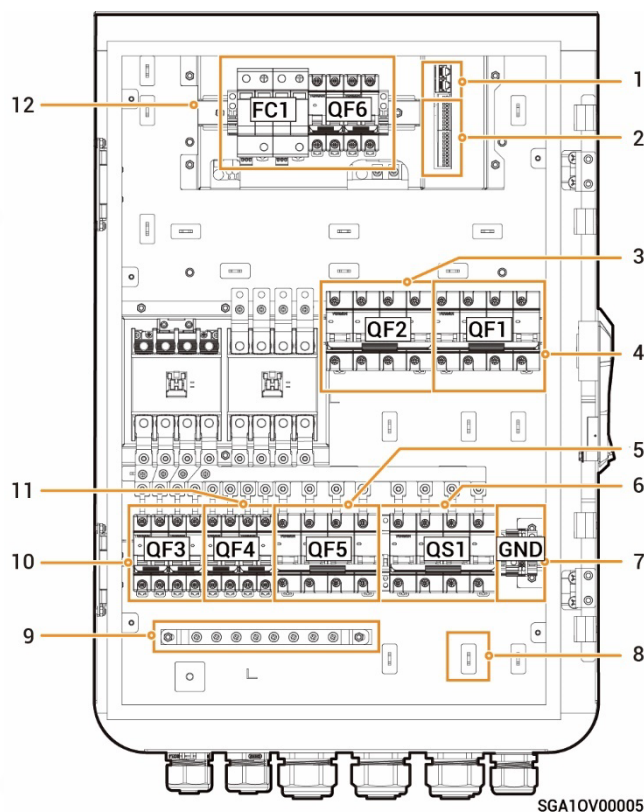


Bottom View



No.	Marking	Name
1	INV1	Wire-in port of inverter 1
2	INV2	Wire-in port of inverter 2
3	BACKUP	Wire-in port of backup loads
4	SMART-PORT	Wire-in port for smart loads/diesel generator
5	GRID	Wire-in port of power grid
6	COM	Wire-in port of communication

Interior View

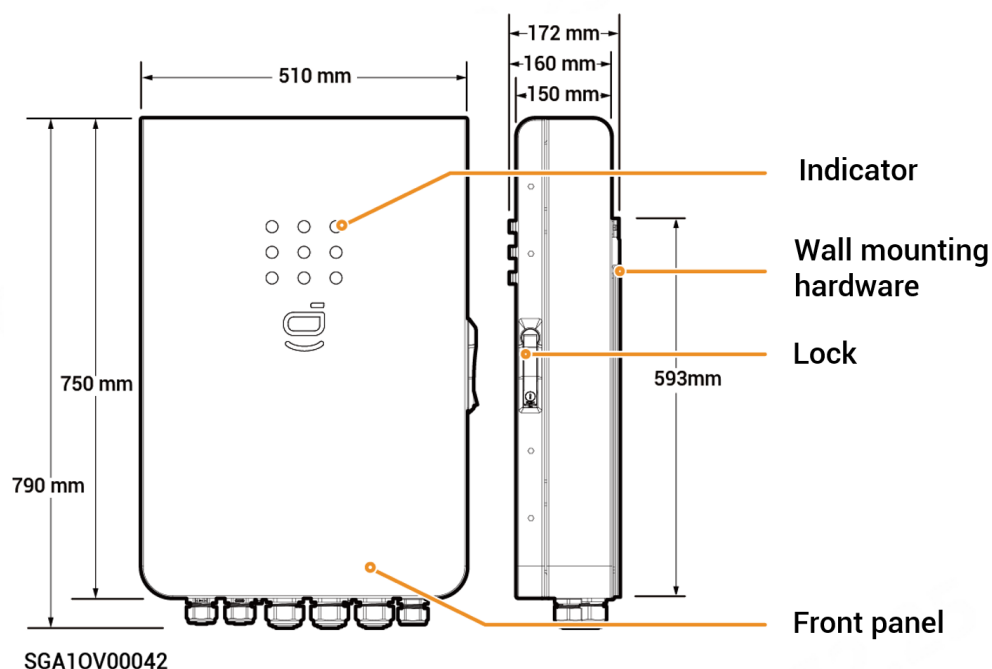


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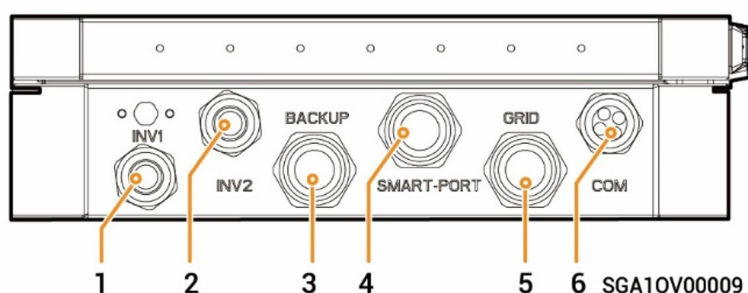
No.	Label	Name
1	-	FE interfaces
2	-	RS485, DI, and DO interfaces
3	QF2	Miniature circuit breaker (Diesel generator)
4	QF1	Miniature circuit breaker (Power grid)
5	QF5	Miniature circuit breaker (backup loads)
6	QS1	Bypass switch
7	GND	GND
8	-	Cable clamp
9	-	Earthing bar
10	QF3	Miniature circuit breaker (Inverters 1)
11	QF4	Miniature circuit breaker (Inverters 2)
12	FC1+QF6	Miniature circuit breaker + Surge protection device

2.2.2 Sigen Gateway C60-2

Dimensions

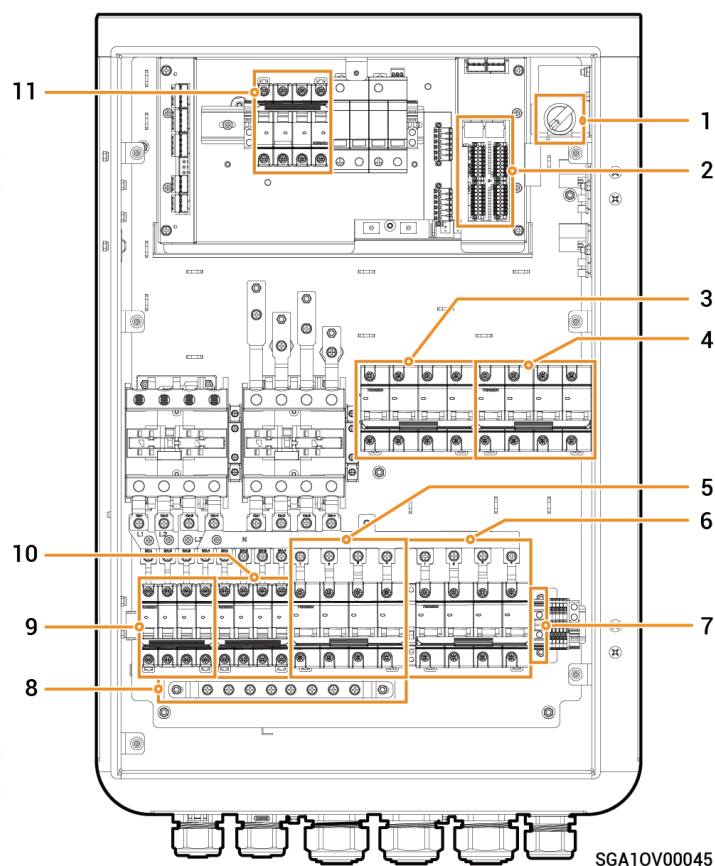


Bottom View



No.	Marking	Name
1	Wire-in port of inverter 1	INV1
2	Wire-in port of inverter 2	INV2
3	Wire-in port of backup household loads	BACKUP
4	Wire-in port of smart loads/generator	SMART-PORT
5	Wire-in port of power grid	GRID
6	Wire-in port of communication	COM

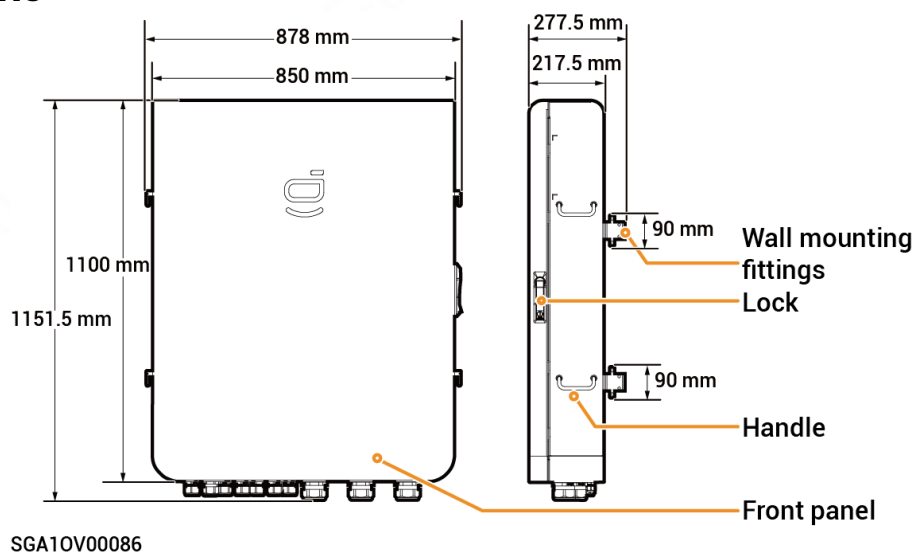
Interior View



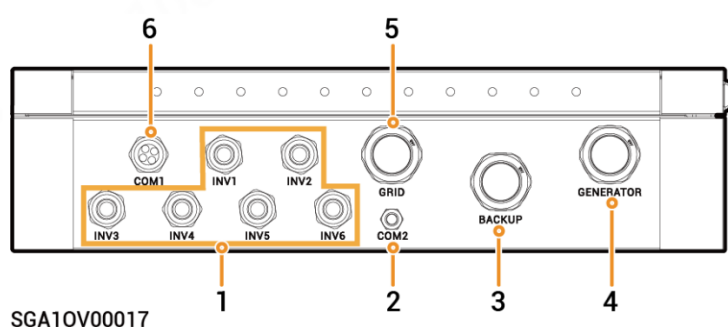
No.	Label	Name
1	Q1	LED switch
2	—	Communication terminal (connecting to FE, DI, DI communication cable)
3	QF2	Miniature circuit breaker (connecting to Smart loads/Generator)
4	QF1	Miniature circuit breaker (connecting to Power grid)
5	QF5	Miniature circuit breaker (connecting to Backup household loads)
6	QS1	Bypass switch
7	GND	GND terminal
8	PE	Grounding copper busbar
9	QF3	Miniature circuit breaker (connecting to Inverters 1)
10	QF4	Miniature circuit breaker (connecting to Inverters 2)
11	QF6	Surge protection device

2.2.3 Sigen Gateway (C120-6, TPLV C70-6)

Dimensions

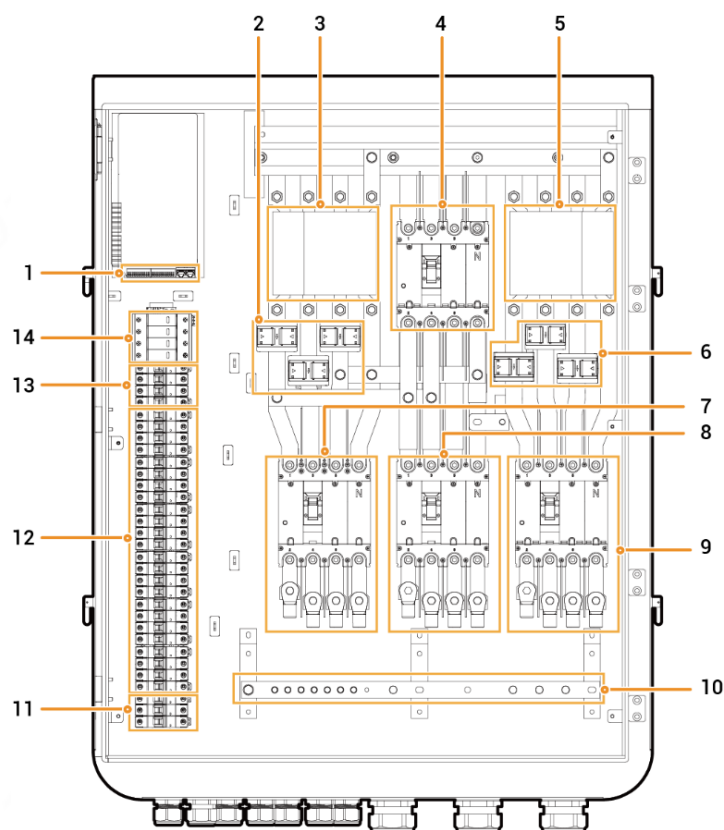


Bottom View



No.	Marking	Name
1	INV1 to INV6	Inverter routing hole
2	COM2	(Reserved) routing hole for communication cable
3	BACKUP	Routing hole for backup loads
4	GENERATOR	Routing hole for diesel generator
5	GRID	Routing hole for power grid
6	COM1	Routing hole for FE, DI, and DO communication cables

Interior View



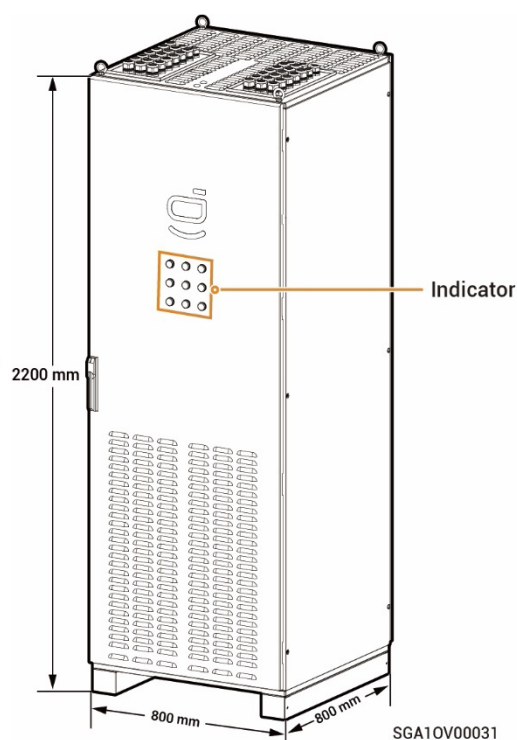
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No.	Label	Name
1	-	FE, DI, and DO interfaces
2	-	Grid current transformer
3	KM1	Grid contactor KM1
4	QS1	Bypass switch QS1
5	KM2	Diesel generator contactor KM2
6	-	Diesel generator current transformer
7	QF1	Molded case circuit breaker QF1 (connecting to the power grid)
8	QF3	Molded case circuit breaker QF3 (connecting to the backup load)
9	QF2	Molded case circuit breaker QF2 (connecting to the diesel generator)
10	-	Grounding copper busbar
11	QF11	(Reserved) molded case circuit breaker QF11
12	QF5~QF10	Molded case circuit breakers QF5 to QF10 (connecting to

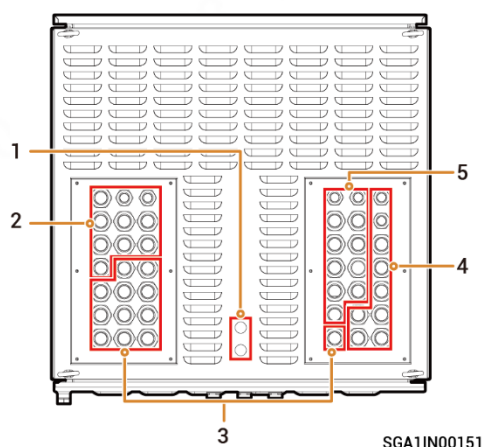
No.	Label	Name
		inverters)
13	QF4	Surge protective device switch QF4
14	FC1	Surge protective device FC1

2.2.4 Sigen Gateway (C180-9, C300-12)

Dimensions



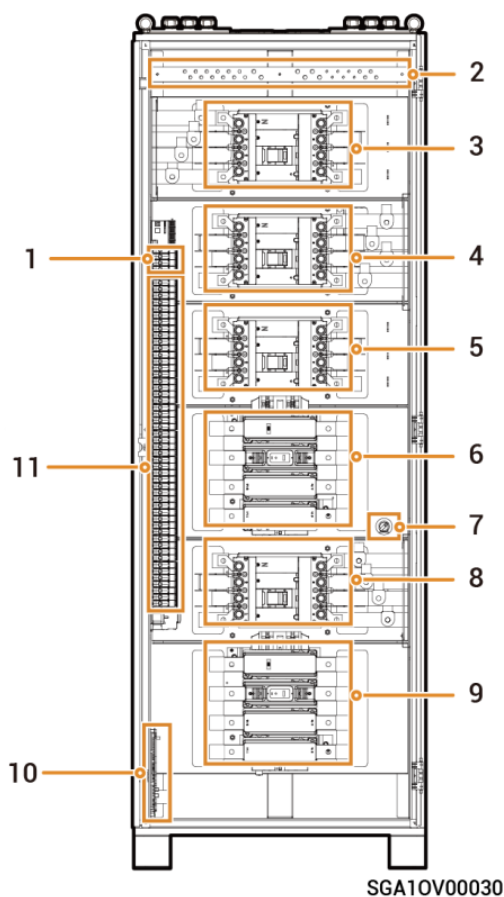
Bottom View



No.	Name
1	Routing hole for signal cable

2	Routing hole for AC cable of the load
3 13	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
6	Routing hole for signal cable

Interior View

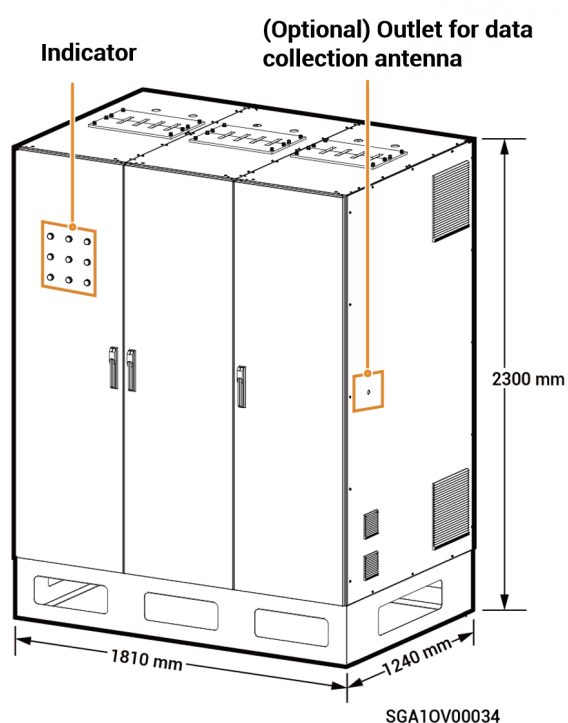


No.	Label	Name
1	QF4	Surge arrester switch
2	-	Grounding busbar (connects to the PE cable)
3	QF3	Load switch (connects to the load)
4	QF1	Grid switch (connects to the power grid)
5	QS1	Bypass switch
6	KM1	Grid contactor
7	-	Indicator switch (controls the power supply to the

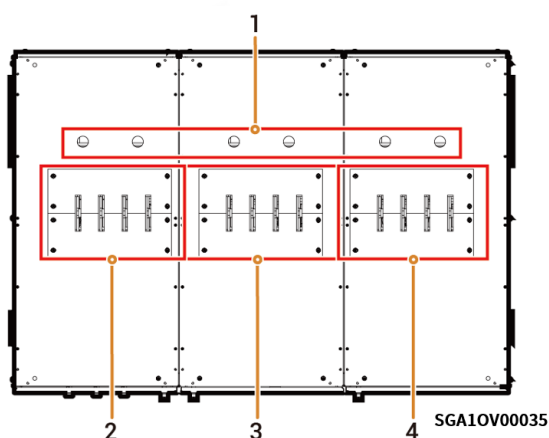
		indicator)
8	QF2	Diesel generator switch (connects to the diesel generator)
9	KM2	Diesel generator contactor
10	-	Signal port
11	QF5 to QF16	Miniature circuit breakers (connect to inverters)

2.2.5 Sigen Gateway (C600, C1200)

Dimensions

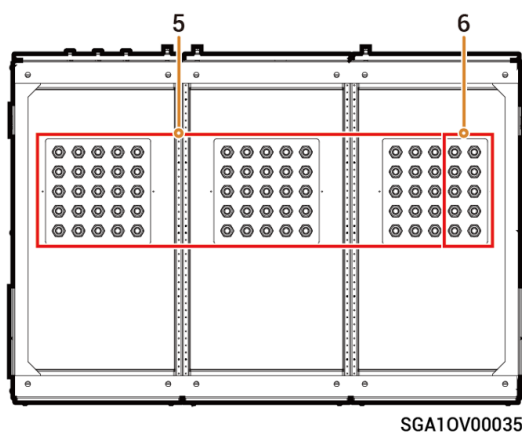


Top view



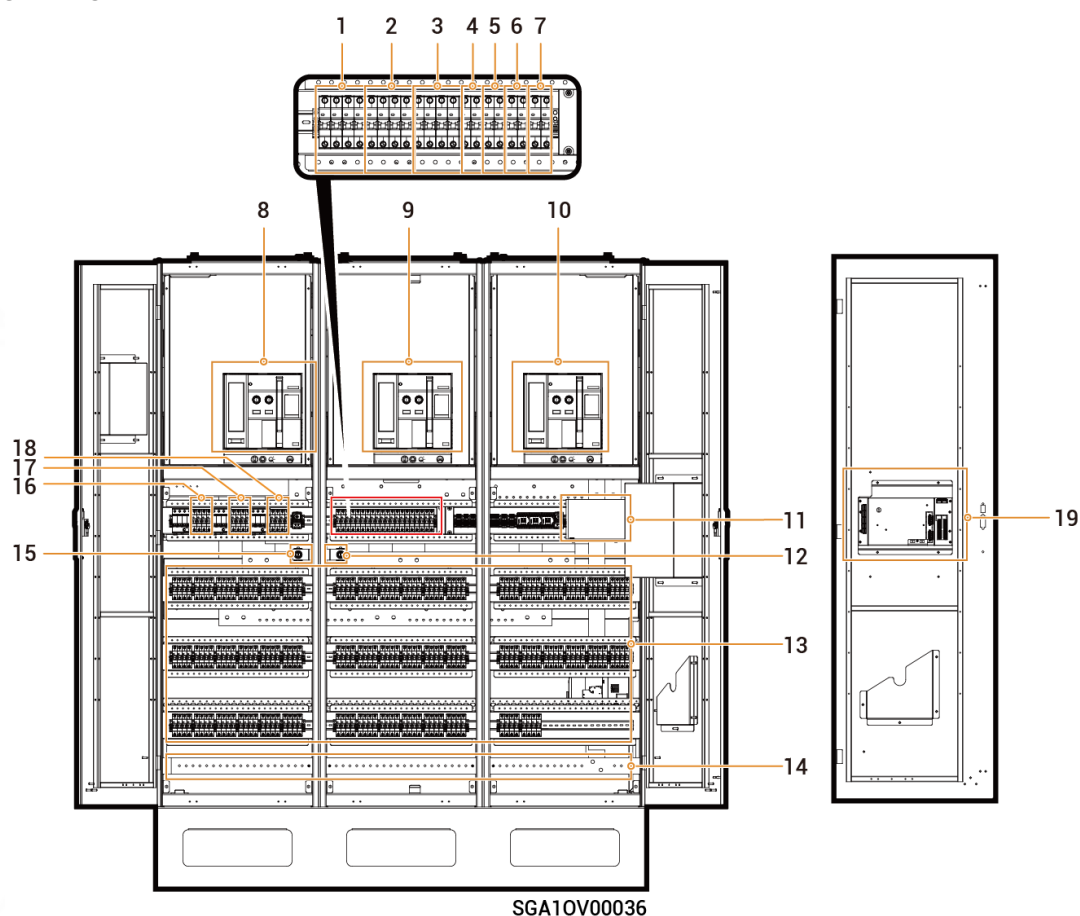
No.	Name
1	Routing hole for PE cable
2	Copper busbar entry (grid AC cable)
3	Copper busbar entry (smart loads/generator AC cable)
4	Copper busbar entry (load AC cable)

Bottom View



No.	Name
5	Routing hole for AC cable of the inverter
6	Routing hole for signal cable

Interior View



No.	Label	Name
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 ^[1] /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)

No.	Label	Name
7	1QF10	Secondary control switch (connected to a fan and a UPS)
8	QA1	Frame circuit breaker ^[2] (connected to the power grid)
9	QA2	Frame circuit breaker (connected to smart loads/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 to 2QF50	Air circuit breaker (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]:

- 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.

Note [2]:

- The setting value of circuit breaker must be adjusted on site according to the actual situation. For more information about the setting value, see "1.2MW-GW-ACB Tripper Setting Value" supplied with the packing box, and for the operation method, see the Instruction Manual for Circuit Breaker supplied with the packing box.

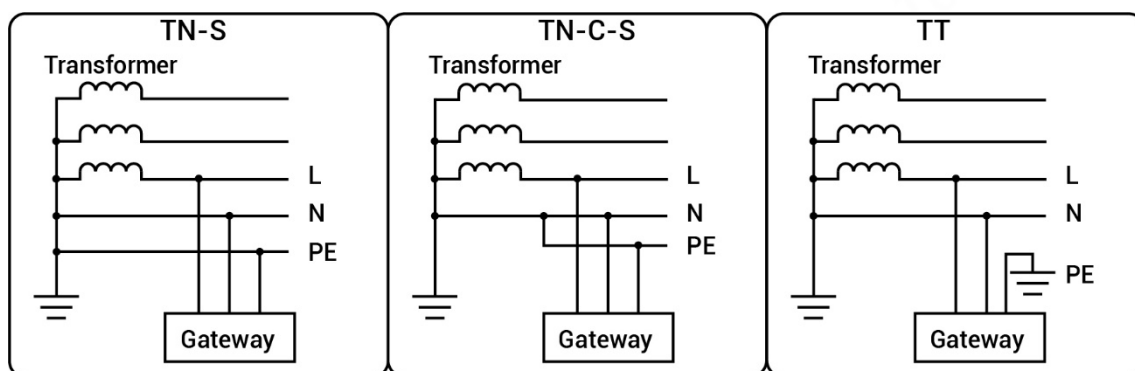
2.3 Label Description

Symbol	Definition
	Warning! Danger! High Voltage High voltage may exist on the cover of the equipment. Please take protective measures before operating the equipment.
	After the equipment is powered off, internal components discharge in a delay time. Wait for the duration according to the delay time on the label until the equipment is fully discharged.
	Warning! Danger! Hot The surface of the equipment is hot when the equipment is operating. Do not touch it to avoid burns.
	Operate the equipment by referring to the User Manual.
	GND symbol

2.4 Supported Power Supply Methods for the Power Grid

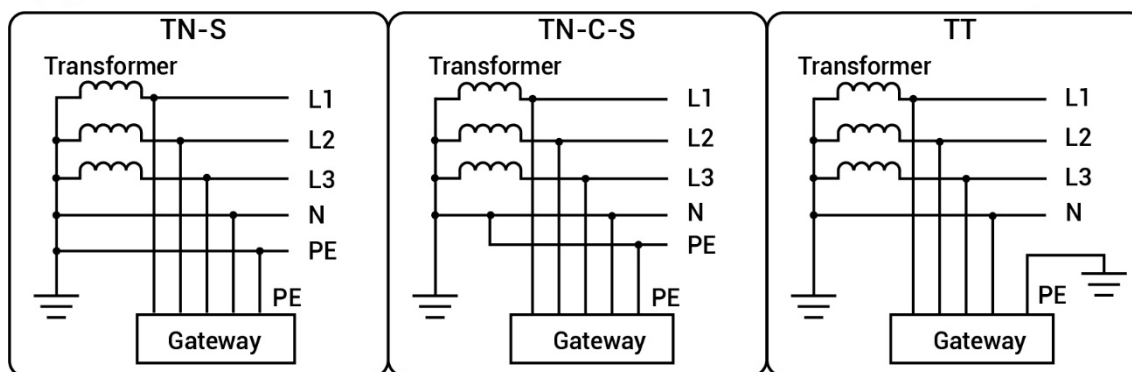
- The grid supply methods supported include TN-S, TN-C-S, and TT.
- When TT is used as the power supply technique for the power grid, the voltage between N and PE is required to be $< 30\text{ V}$.

Gateway Single-phase Series Products:



SVA10V00011

Gateway three-phase series products:



SVA10V00010

2.5 Introduction to system wiring

- The product can be used in industrial and commercial energy storage systems. An industrial and commercial energy storage system consists of PV panels, inverters, battery packs, main control switches, loads, and power grid.
- An industrial and commercial energy storage system is mainly intended to store direct current generated by the PV panels in the battery packs and can also convert the electric energy in the PV panels and battery packs into alternating current to power loads or be fed into the power grid.

Tips

- Under backup power networking, the duration of off-grid operation of the backup power load is related to the power supply capacity of the PV storage system. If there is an abnormality in the power supply of the PV storage system during off-grid operation (including but not limited to abnormal PV power generation, insufficient battery power, and abnormal power supplies to the Generator), the backup power load will still be unable to operate.
- The networking diagram takes two inverters as an example. The number of inverters that can be connected depends on the Gateway specification. For more information, see Table 2-1.

Table 2-1

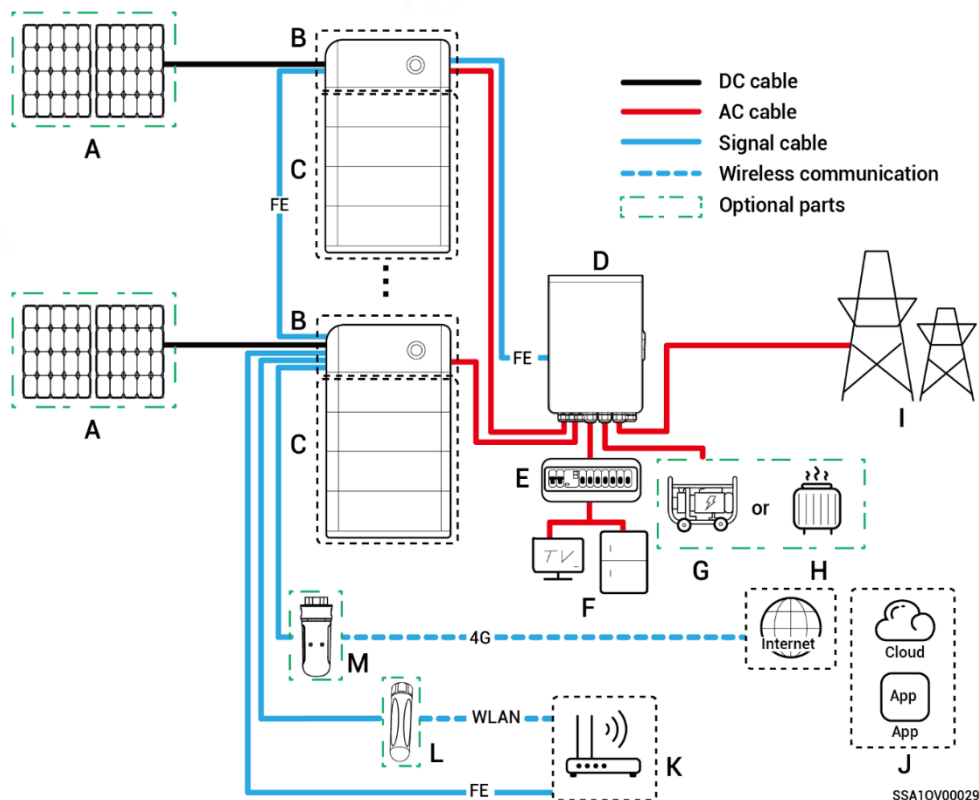
S/N	Model	Number of Inverters that can be connected
1	Sigen Gateway TPLV C30-2	2 units
2	Sigen Gateway C60-2	2 units
3	Sigen Gateway TPLV C70-6	6 units
4	Sigen Gateway C120-6	6 units
5	Sigen Gateway C180-9	9 units

Whole home backup system wiring diagram

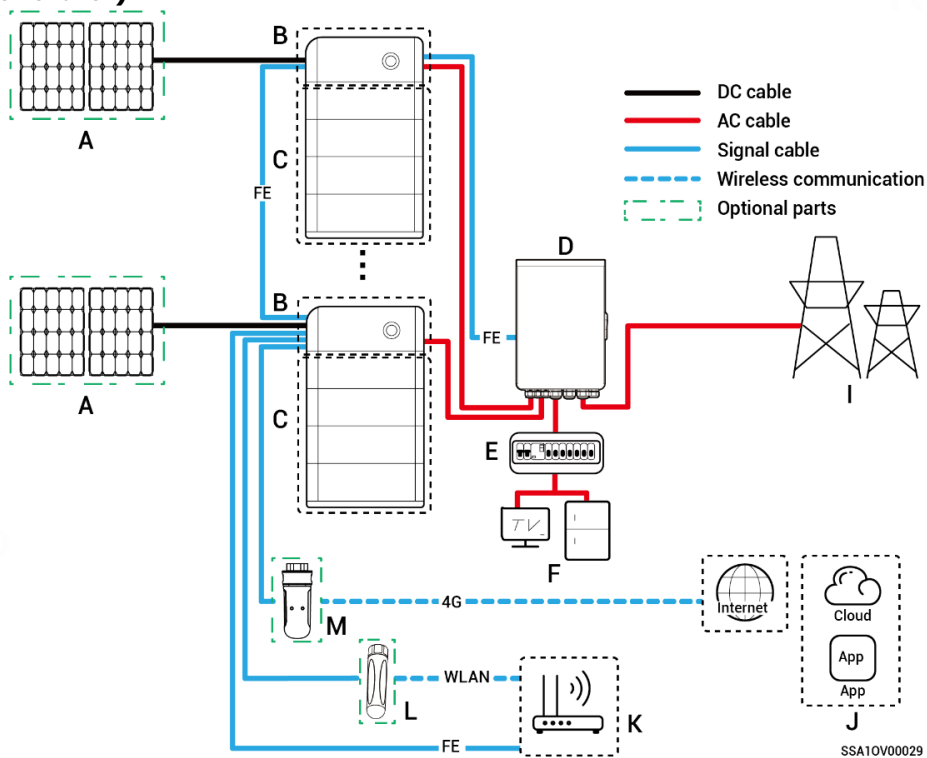
 DC cable
 AC cable
 Signal cable
 Wireless communication
 Optional parts



Multiple inverters (Gateway has the circuit breaker for connecting smart load/diesel generator)



Multiple inverters (Gateway does not have the circuit breaker connected to the smart load/diesel generator)



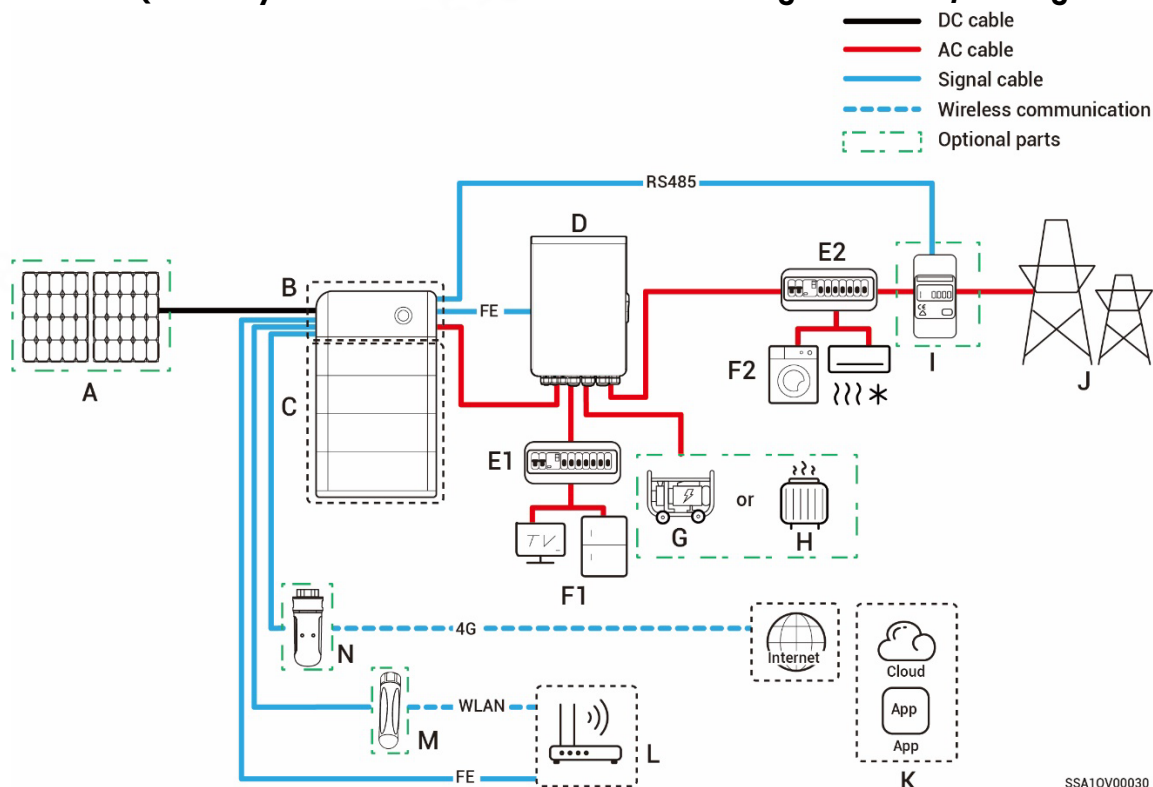
- A.** PV panel **B.** SigenStor EC/ Sigen Hybrid
C. SigenStor BAT **D.** Gateway **E.** Backup Distribution panel
F. Backup Household loads **G.** Diesel generator **H.** Smart loads
I. Power grid **J.** mySigen **K.** Router **L.** Antenna **M.** CommMod

Tips

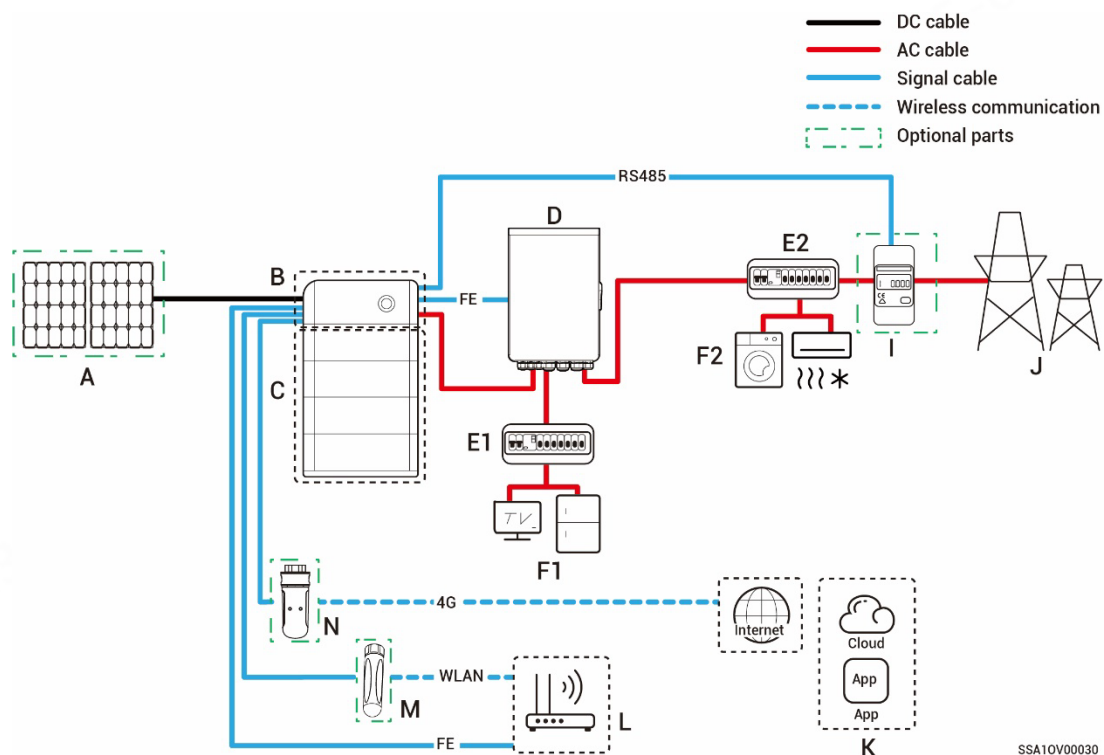
- If F (backup household load) experiences leakage, it may pose a risk of electric shock. In order to avoid this hazard, a residual current device (RCD) must be installed between the D (Gateway) and the F (backup household load).
- As a backup energy source for long-term off-grid applications, the diesel generator can work in tandem with the Gateway to provide a smooth transition between PV, storage and diesel generation.
- 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, pool heaters, clothes dryers, etc.), which can be cut off when the energy storage system has low power. Other low-power equipment are connected as household loads (lights, routers, etc.)
- It is recommended to use Fast Ethernet and WLAN for communication with inverters. When free 4G traffic of CommMod runs out, users must replace an SIM card.

Partial home backup system wiring diagram

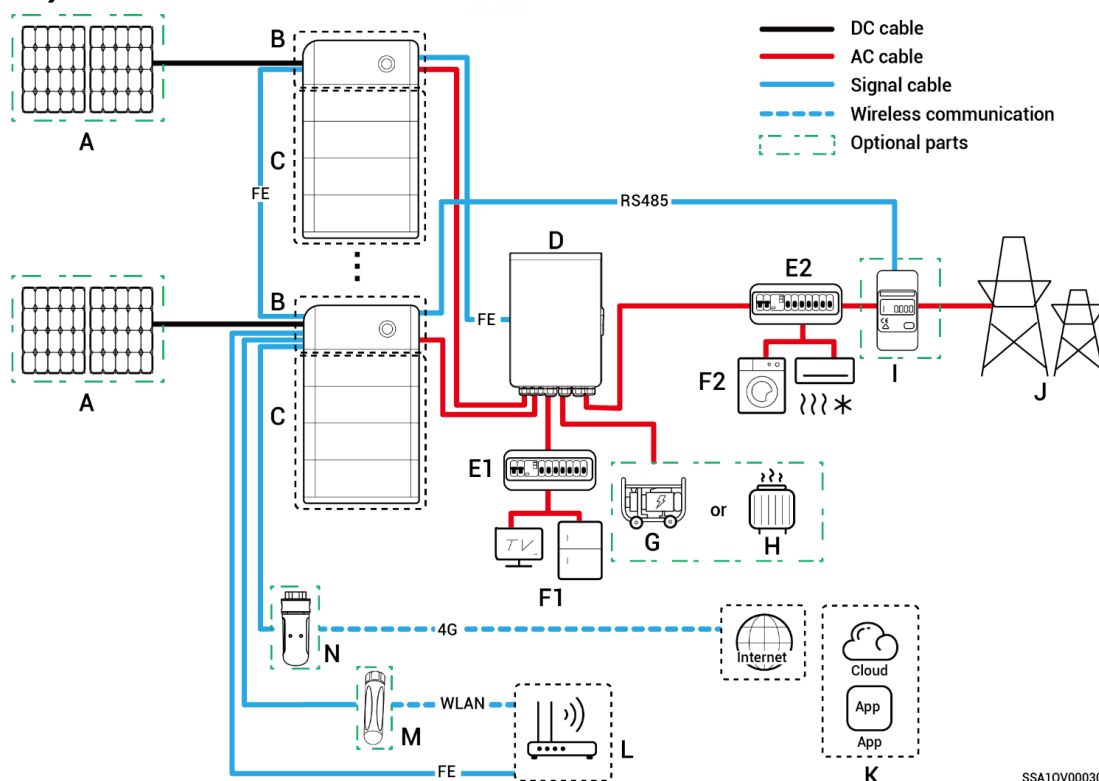
Single inverter (Gateway has the circuit breaker for connecting smart load/diesel generator)



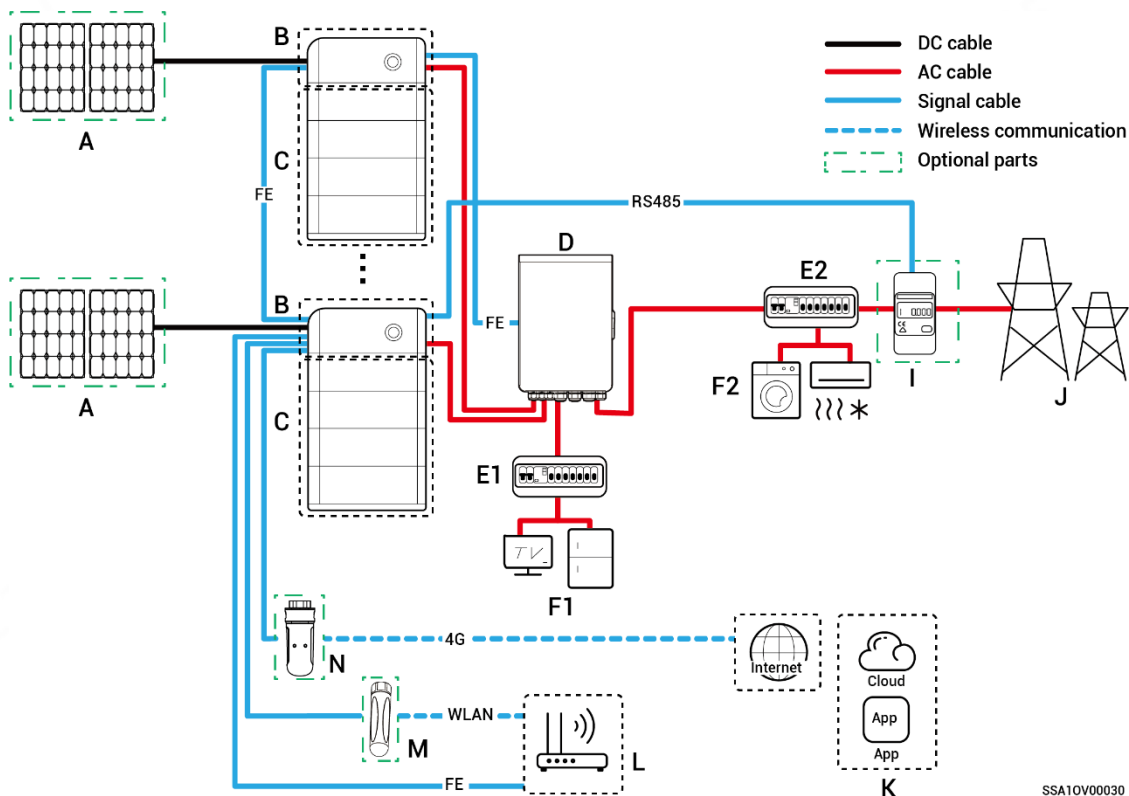
Single inverter (Gateway does not have the circuit breaker connected to the smart load/diesel generator)



Multiple inverters (Gateway has the circuit breaker for connecting smart load/diesel generator)



Multiple inverters (Gateway does not have the circuit breaker connected to the smart load/diesel generator)



- | | | |
|--|--------------------------------------|--|
| A. PV panel | B. SigenStor EC/ Sigen Hybrid | |
| C. SigenStor BAT | D. Gateway | E1. Backup Distribution panel |
| E2. Non-Backup Distribution panel | | F1. Backup Household loads |
| F2. Non-Backup Household loads | | G. Diesel Generator |
| H. Smart loads | I. Power sensor | J. Power grid K. mySigen |
| L. Router | M. Antenna | N. CommMod |

Tips

- If E2 (non-backup distribution panel) features leakage protection, it is recommended that the rated residual operating current be greater than or equal to the number of inverters $\times$ 100 mA.
- If F1 (backup household load) experiences leakage, it may pose a risk of electric shock. In order to avoid this hazard, a residual current device (RCD) must be installed between the D (Gateway) and the F1 (backup household load).
- As a backup energy source for long-term off-grid applications, the diesel generator can work in tandem with the Gateway to provide a smooth transition between PV, storage and diesel power generation.
- 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, pool heaters, clothes dryers, etc.), which can be cut off when the energy storage system has low power. Other low-power equipment are connected as household loads (lights, routers, etc.)
- Power sensor has the function of data acquisition for grid connection points enables zero-power grid connection. For partial home backup system wiring, Power sensor does not need to be configured. For partial backup power and zero-power grid connection control system wiring, Power sensor is configured.
- It is recommended to use Fast Ethernet and WLAN for communication with inverters. When free 4G traffic of CommMod runs out, users must replace an SIM card.

Chapter 3 Location Requirements

Tips

- **Before installing the equipment, please be sure to carefully read the following installation requirements. The company will not be liable for any functional abnormalities or damages arising from the operation of the equipment if the installation requirements are not followed, even in cases leading to personal safety incidents.**
- **During actual installation, the selection of installation location should comply with local firefighting, environmental protection regulations, and other relevant laws. The specific installation location planning should be subject to the installer or engineering, procurement, and construction (EPC) contracts.**

Installation Environment Requirements

- 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.
- Avoid exposing the equipment to direct sunlight, rain, standing water, snow, or dust. Install the equipment in a sheltered place. Take preventive measures in operating areas prone to natural disasters such as floods, mudslides, earthquakes, and typhoons.
- 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 Requirements

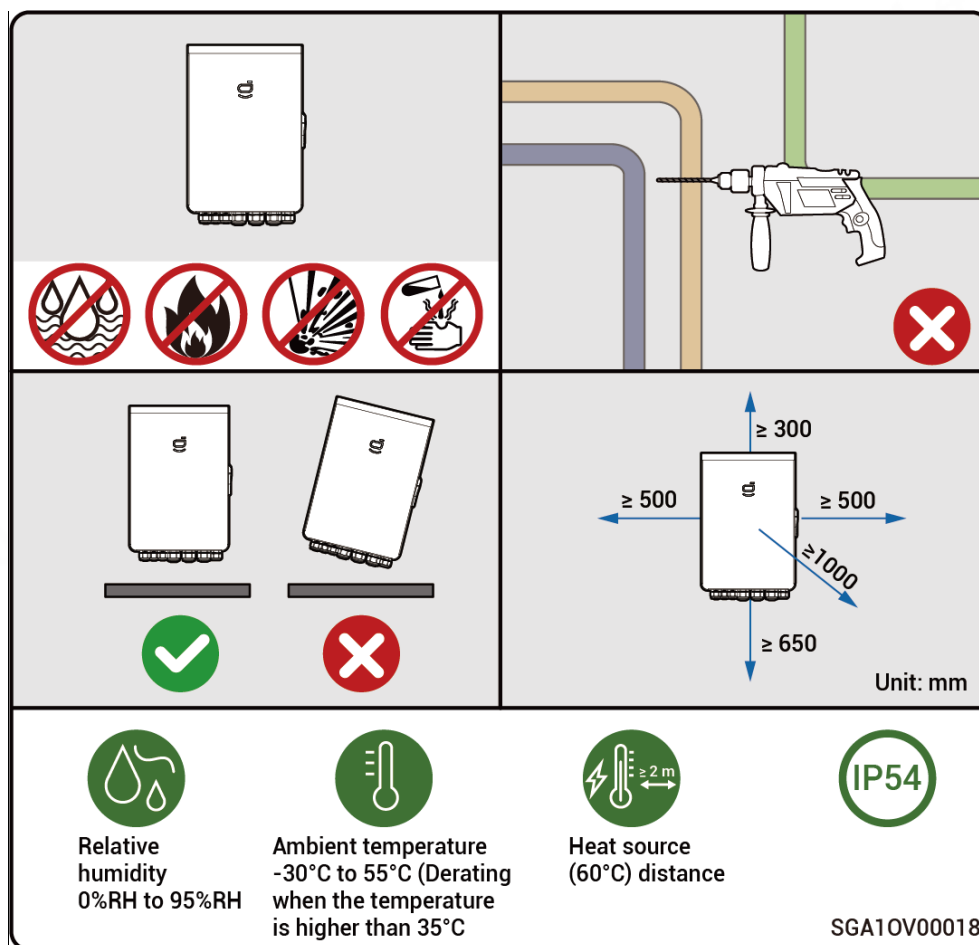
- Do not tilt the equipment or place it upside down. Ensure that the equipment is horizontally installed.
- Do not install the equipment in a place with fire hazards or is prone to moisturizing.
- Do not install the equipment in a sealed, poorly ventilated location without fire protection measures and 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 Requirements

- 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.

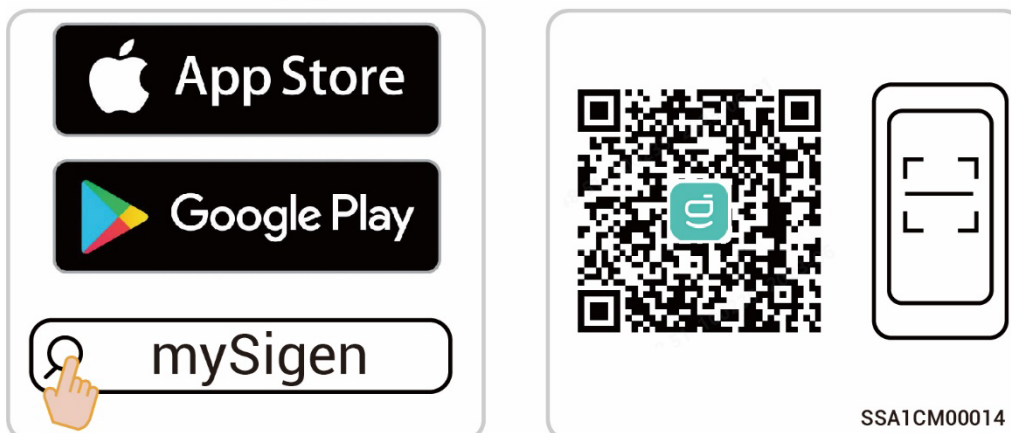


Chapter 4 Equipment Installation and Connection

- Equipment installation and connection must only be completed by the installer certified by the Company. For more information on the installation procedure, please refer to the Installation Guide of the respective Gateway mode.
- Parts and accessories supplied with the packing box are the property of the purchaser and must be kept safe.

Chapter 5 Searching for App

You can download the App using the following methods. For more information, refer to the App User Manual.



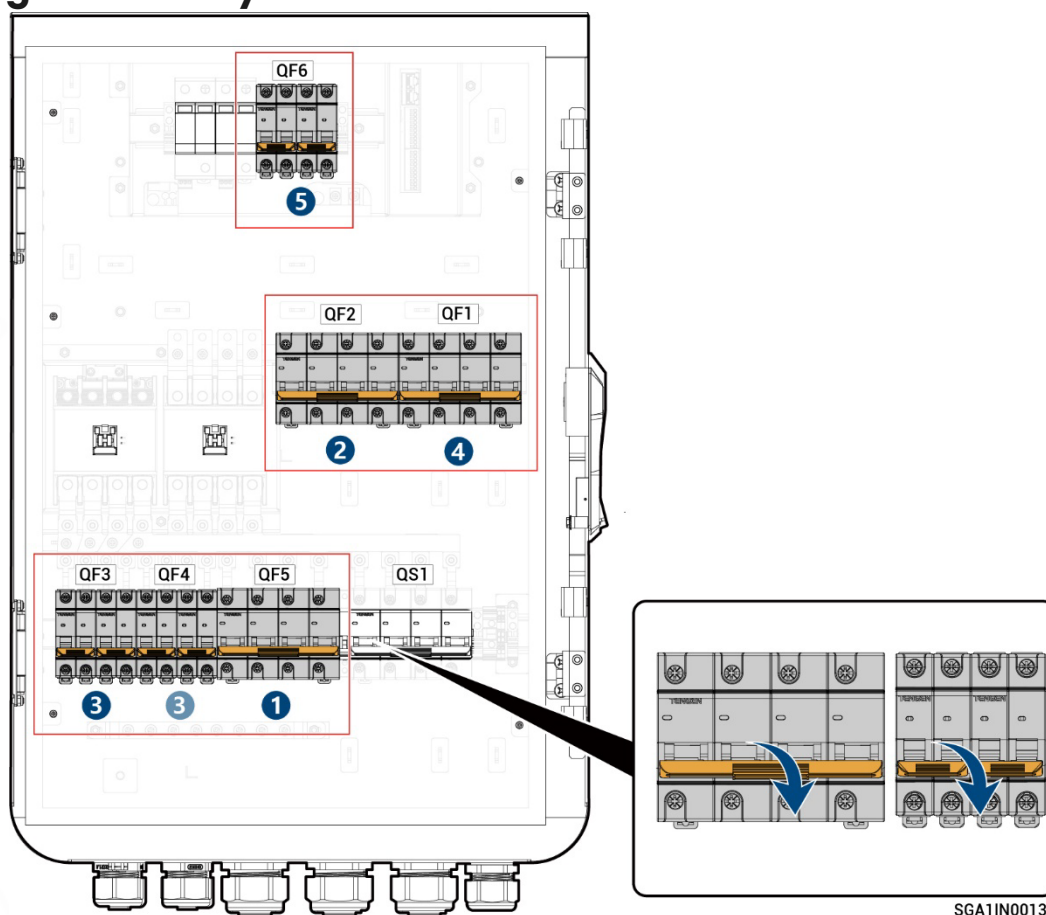
Chapter 6 System Maintenance

6.1 Power Off

Warning

- When the equipment is faulty, disconnect all circuit breakers in the equipment immediately, and check and remove the fault before turning it on again.
- Do not operate circuit breakers that are not connected to corresponding equipment when the equipment is powered off. Keep these circuit breakers disconnected.

6.1.1 Sigen Gateway TPLV C30-2



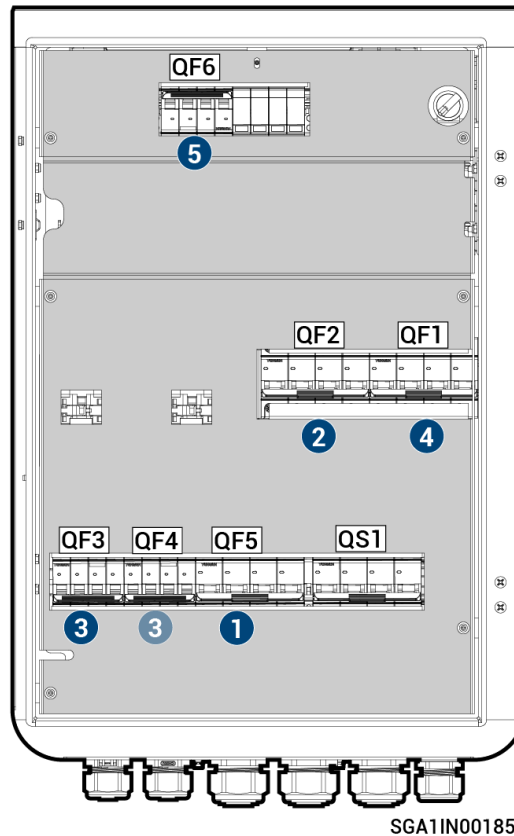
SGA1IN00131

Warning

The Gateway should be disconnected in the following order:

1. Turn off the molded case circuit breaker QF5 (connecting to a backup load).
2. Turn off the molded case circuit breaker QF2 (connecting to a diesel generator/Smart Load).
3. After shutting down the inverter, turn off the molded case circuit breakers QF3 or QF4 (connecting to an inverter).
4. Turn off the molded case circuit breaker QF1 (connecting to the power grid).
5. Turn off the surge protective device switch QF6.

6.1.2 Sigen Gateway C60-2

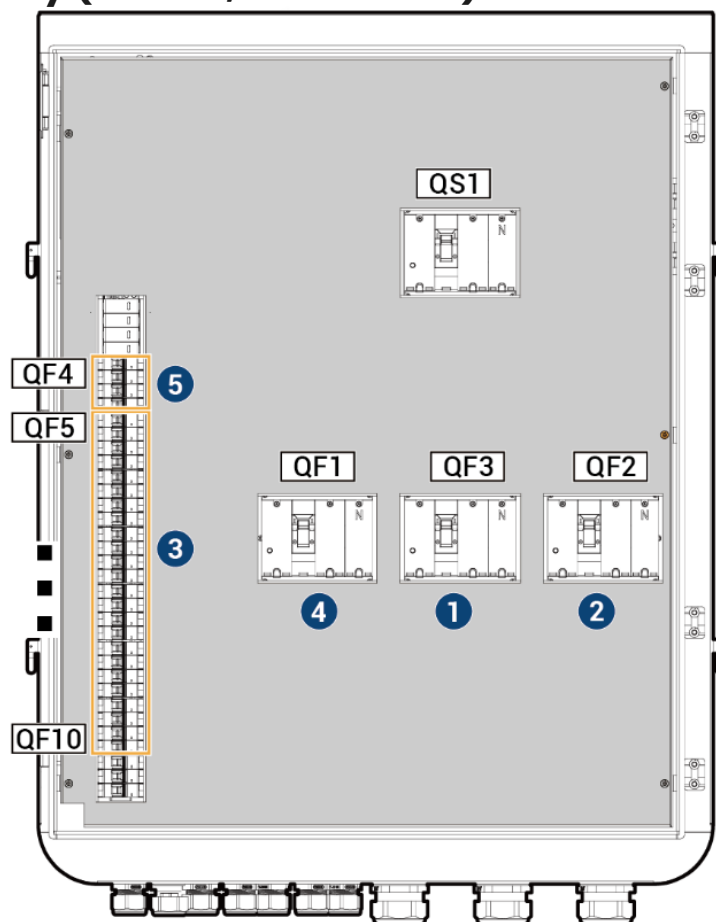


Warning

The Gateway should be disconnected in the following order:

- 1.** Turn off the miniature circuit breaker QF5 (connecting to Backup household loads).
- 2.** Turn off the miniature circuit breaker QF2 (connecting to Smart loads/Generator).
- 3.** After shutting down the inverter on the phone, turn off the miniature circuit breaker QF3, QF4 (connecting to an inverter).
- 4.** Turn off the miniature circuit breaker QF1 (connecting to the Power grid).
- 5.** Turn off the miniature circuit breaker (connecting to the Surge Protection Device) QF6.

6.1.3 Sigen Gateway (C120-6, TPLV C70-6)



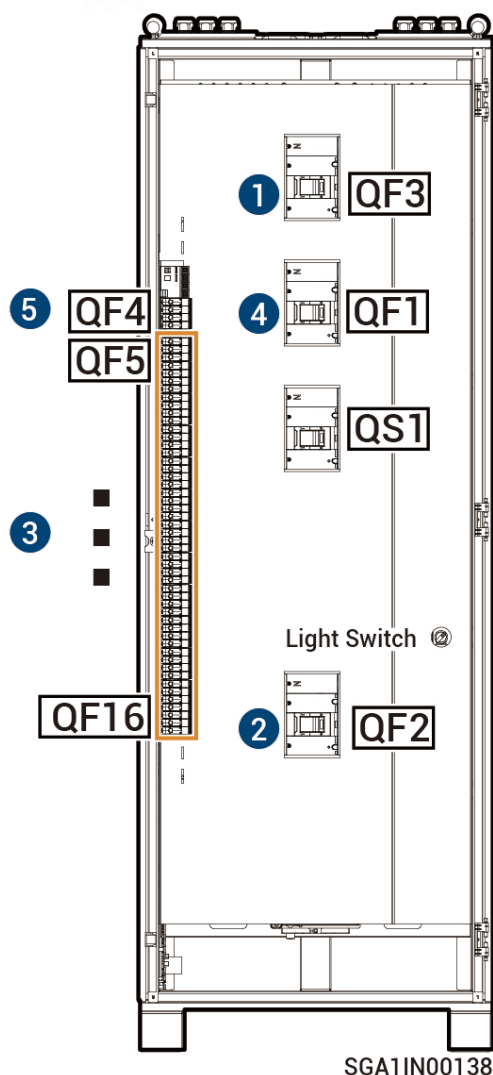
SGA1IN00122

Warning

The Gateway should be disconnected in the following order:

1. Turn off the molded case circuit breaker QF3 (connecting to a backup load).
2. Turn off the molded case circuit breaker QF2 (connecting to a diesel generator/Smart Load).
3. After shutting down the inverter, turn off the molded case circuit breakers QF5–QF10 (connecting to an inverter).
4. Turn off the molded case circuit breaker QF1 (connecting to the power grid).
5. Turn off the surge protective device switch QF4.

6.1.4 Sigen Gateway (C180-9, C300-12)

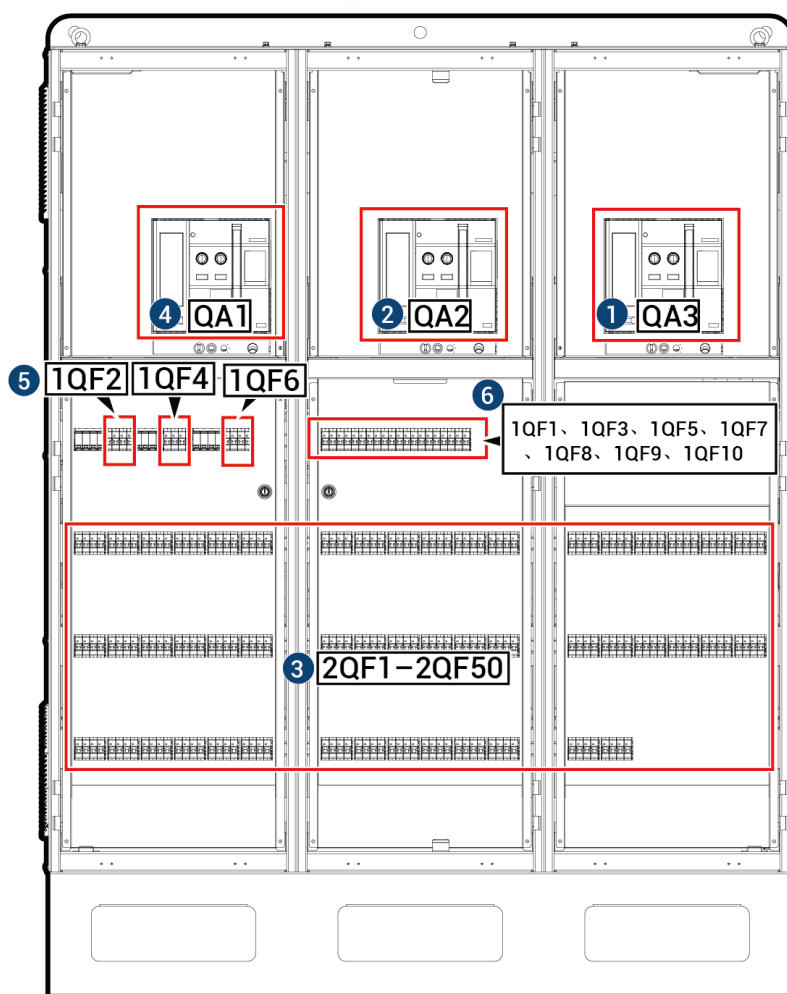


Warning

The Gateway should be disconnected in the following order:

- 1.** Turn off the molded case circuit breaker QF3 (connecting to a backup load).
- 2.** Turn off the molded case circuit breaker QF2 (connecting to a diesel generator/Smart Load).
- 3.** After shutting down the inverter, turn off the molded case circuit breakers QF5–QF10 (connecting to an inverter).
- 4.** Turn off the molded case circuit breaker (connecting to the power grid) QF1.
- 5.** Turn off the surge protective device switch QF4.

6.1.5 Sigen Gateway (C600, C1200)



SGA11N00169

Warning

The Gateway should be disconnected in the following order:

1. Turn off the frame circuit breaker QA3 (connecting to a backup load).
2. Turn off the frame circuit breaker QA2 (connecting to a diesel generator/Smart Load).
3. After shutting down the inverter on the phone, turn off the frame circuit breakers 2QF1-2QF50 (connecting to inverters).
4. Turn off the frame circuit breaker (connecting to the power grid) QA1.
5. Turn off the surge protective device switch 1QF2, 1QF4 and 1QF6.
6. Turn off the PCB board secondary control switch 1QF1, 1QF3, 1QF5, turn off the secondary control switch of frame circuit breaker 1QF7, 1QF8, 1QF9, 1QF10.

6.2 Routine Maintenance

To ensure the long-term operation of the equipment, you are advised to perform routine maintenance according to this section.

Inspection Items	Inspection Method	Power Off or Not	Maintenance Interval
System cleaning	Check the device regularly for shielding and dirt. If so, clean it up. Do not use tools that may cause electric shock or insulation damage, such as wire brushes and during the cleaning process.	Yes	Once every 3 months
System operating state	● Check whether the equipment appearance is damaged or deformed. ● Check for noise when the equipment is operating. ● Check whether the equipment parameters are correctly set when the equipment is operating.	No	Once every 6 months
Electrical connection	● Check whether cable terminals are tightly connected. ● Check whether cable sheath is damaged. ● Check whether scratches exist on the surface where the cable contacts the metal.	Yes	Check once every 6 months after creating new systems and once every 6 to 12 months thereafter.

	● Check whether unused routing holes are sealed.		
Grounding reliability	Check whether the ground cable is properly and reliably connected.	No	Check once every 6 months after creating new systems and once every 6 to 12 months thereafter.

6.3 Common Fault Troubleshooting

Fault	Cause Analysis	Corrective Action
The inverter repeatedly shuts down/restarts in off-grid mode	● The backup load is greater than the rated power of the inverter. ● The bypass switch is turned on by mistake.	● Turn off some power equipment to ensure the load is not greater than the rated power of the inverter. ● Turn off the bypass switch. ● If the problem persists, please contact our technical support.

6.4 Operations on Bypass Switch

Tips

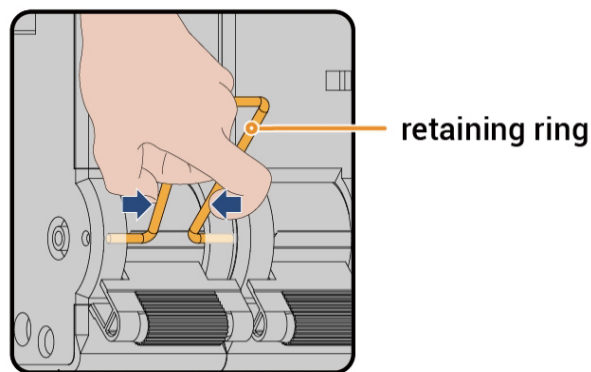
In normal cases, the bypass switch is turned off. Do not operate the bypass switch. In this case, the Gateway can automatically switch between on-grid and off-grid.

6.4.1 Bypass switch closing procedure

Tips

When abnormal operation of the Gateway's grid contactor prevents power supply to the load, close the bypass switch to directly power the load from the grid.

1. Check that the grid normally supplies power.
2. Power off by referring to 6.1 Power Off.
3. Refer to the delay time as instructed on the label on the equipment and wait for the specified time. Once the time has elapsed, remove the retaining ring from the bypass switch and turn on the bypass switch.



SGA1IN00153

Warning

- There is residual current and the equipment is hot immediately after the equipment is powered off. Operating the equipment immediately upon power off may lead to electric shock or burns.
- High voltage exists in the equipment. Wear insulating gloves when turning on the switch.

Caution

After turning on the bypass switch, do not turn on the miniature circuit breaker connected to the inverter and Generator on Gateway. Otherwise, the power grid port will be charged, resulting in the risk of electric shock.

4. Turn on the miniature circuit breaker connected to the SPD.
5. Turn on the miniature circuit breaker connected to the power grid.
6. Turn on the miniature circuit breaker connected to backup household loads.
7. Close the equipment door.

6.4.2 Bypass switch opening procedure

Tips

If accidental bypass switch closure occurs, open the bypass switch and then power up both the inverter and backup power cabinet.

1. Troubleshoot and repair the fault.
2. Open the bypass switch.
3. Refer to the maintenance guide for the specific inverter model to complete the inverter power-up procedure.
4. Refer to the installation guide for the specific Gateway model to complete the power-up procedure.

6.5 Emergency Measures

Fire Emergency Measures

Danger

- Shut down the equipment or cut off the mains switch if it is safe to do so.
- If the fire is small, use a carbon dioxide or ABC dry powder fire extinguisher to extinguish the fire.
- If the fire is spreading, evacuate from the building or equipment area immediately and call the fire department. Do not go back inside the building.
- Do not expose firefighters to high-voltage components during firefighting. Otherwise, the risk of electric shock may exist.
- Do not use the equipment after extinguishing the fire. Please contact your installer.

Flood Emergency Measures

Danger

- Shut down the equipment or cut off the mains switch if it is safe to do so.
- Do not use the equipment after the floodwaters recede. Please contact your installer.

Chapter 7 Appendix

7.1 Technical Parameters

For more information on the parameters of the equipment, please refer to their respective data sheets.