Sigen Gateway Home TP 30K Installation Guide



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Release date: 2025-12-26

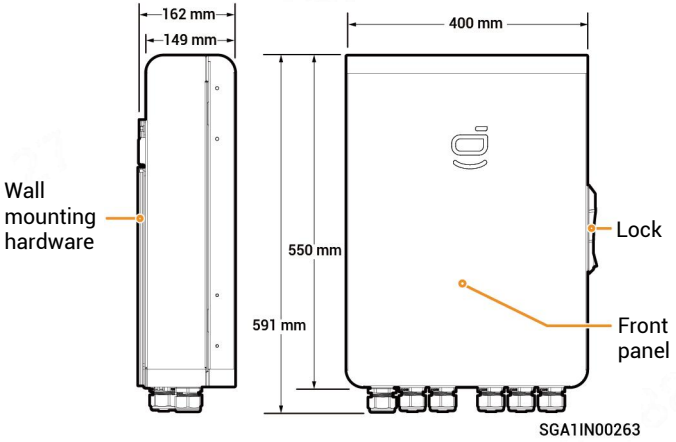


Caution

- **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.**

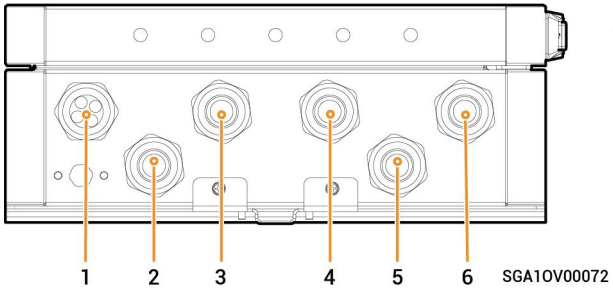
1 Product Description

1.1 Appearance and Dimensions



1.2 Port Description

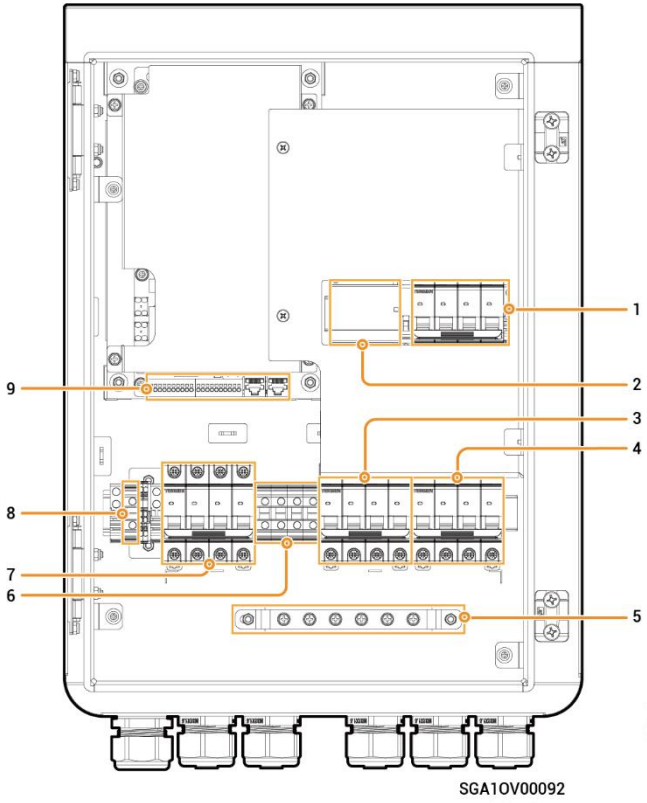
Bottom view



S/N	Name
1	Wire-in port of communication
2	Wire-in port of power grid
3	Wire-in port of non-backup load
4	Wire-in port of inverter
5	Reserved
6	Wire-in port of backup household load

1.3 Introduction to Ports/Components

Interior view



No.	Label	Description
1	QS1	bypass switch
2	KM1	Grid contactor
3	QF2	Miniature circuit breaker (connecting to a three-phase inverter)
4	QF3	Miniature circuit breaker (connecting to a backup household load)
5	⏚	Grounding copper busbar
6	X1	Terminal (connecting to a non-backup load)
7	QF1	Miniature circuit breaker (connecting to the power grid)
8	GND	Terminal (connecting to functional ground cable)
9	–	Communication terminal (connecting to FE, DI, DO communication cable)

Danger

Please check that all switches are turned off at the factory.
Always avoid hot-line work.

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 the user-provided cables to ensure the quantity and specifications are correct; if not, please re-prepare them.**
- **Check if the factory-installed screws are tight. 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

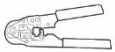

Insulating shoes

Installation Tools


Power drill


Vacuum cleaner


Wire cutter


Network cable pliers


Crimping pliers


Wire stripper


Scissors


Cable ties


Heat shrinkable sleeve

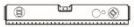

Heat gun


Insulated screwdriver set


Insulated sleeve set

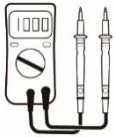
Torque socket wrench


Marker


Level


Tape measure


Utility knife


Multimeter


Rubber mallet

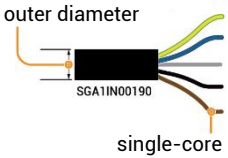

Adjustable torque wrench for external hexagon bolts


Cold terminal crimping pliers

Caution

- **The specifications of the Installer-provided cable must comply with the cable regulations and standards of the country/region standards.**
- **L1, L2, L3, N and PE should be connected to other equipment in sequence without mixing.**
- **The user should use the self-provided cable if the device does not come with a functional grounding cable. For details, please refer to the table below.**

Self-supplied Cables

No.	Cable name		Recommended specification
1	Functional ground cable		Outdoors single-core copper flexible cable Cross-sectional area of core conductor: 6–10 mm²
2	AC cable	Used to connect an inverter	Outdoors five-core copper flexible cable (L1, L2, L3, N, PE), outer diameter: 9–25 mm. • SigenStor EC/Sigen Hybrid (5.0-8.0) TP: Cross-sectional area of single-core conductor: 4 mm²; • SigenStor EC/Sigen Hybrid (10.0-15.0) TP: Cross-sectional area of single-core conductor: 6 mm²; • SigenStor EC/Sigen Hybrid (17.0-20.0) TP: Cross-sectional area of single-core conductor: 10 mm²; • SigenStor EC/Sigen Hybrid (25.0-30.0) TP: Cross-sectional area of single-core conductor: 16 mm²; 
3		Used to connect a backup household load	Outdoor five-core copper flexible copper cable (L1, L2, L3, N, PE) Cross-sectional area of conductor: 16 mm²; Outer diameter: 9 mm to 25 mm.
4		Used to connect to the power grid	
5		Used to connect a non-backup load	
6	RJ45 network cable		RJ45 network cables are EIA/TIA 568B standard network cables Eight-core shielded twisted pair for outdoor use Cross-sectional area of conductor: 0.13 mm² to 0.2 mm²; cable OD: 4 mm to 7.5 mm Single cable length: ≤ 100 m[1]
7	(Optional) DI/DO signal cable		Outdoor two-conductor shielded cable Cross-sectional area of single-core conductor: 0.2–1.5 mm²; Outer diameter: 2–4 mm.

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

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 (Engineering, Procurement, Construction).**

Installation Environment

- Do not install the equipment in a smoky, flammable, or explosive environment.
- 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).
- 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

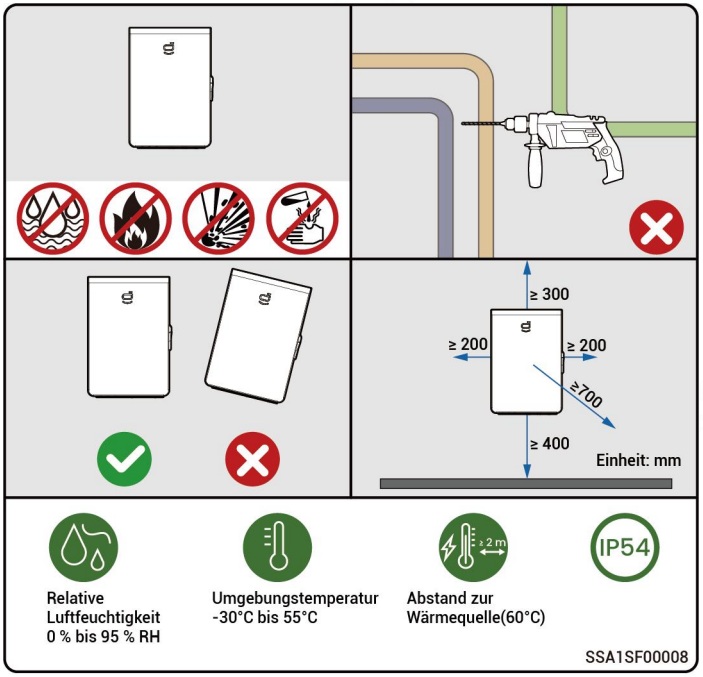
- Do not tilt the equipment or place it upside down. Ensure that the equipment is horizontally installed.
- Do not install the equipment in areas easily accessible to children.
- Do not install the equipment in a place with fire hazards or is prone to moisturizing.
- Keep the equipment away from your daily work and living places.
- Do not install the equipment in a sealed, poorly ventilated location without fire protection measures and difficult access for firefighters.
- The equipment is hot when it is running. 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 running. Otherwise, the equipment will be derated.
- Do not install the equipment in mobile scenarios such as recreational vehicles, cruise ships, and trains.
- You are advised to install the equipment in a location where you can easily access, install, operate, maintain it, and view the indicator status.
- Keep the equipment clear of vehicle passage when installed in a garage to avoid collisions.

Installation Base

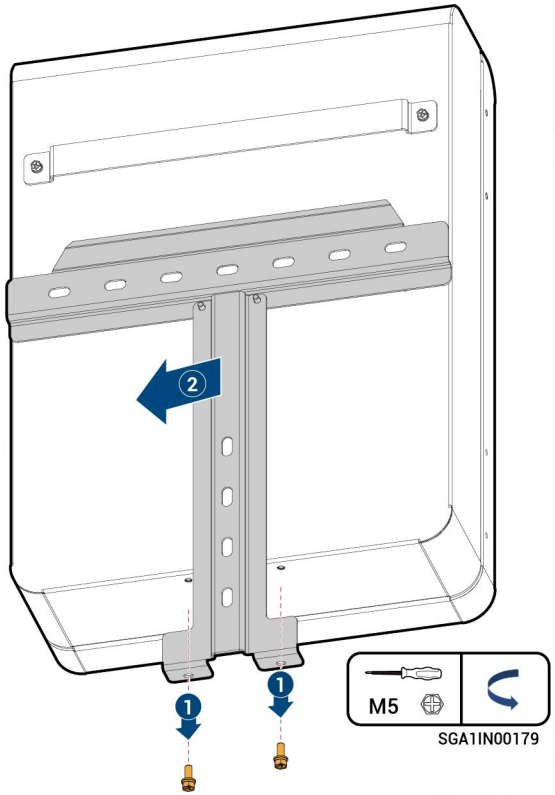
- Do not install the equipment on a flammable base.
- The installation base should meet the load-bearing requirement. Solid brick-concrete structures and concrete walls are recommended.
- The installation base should be flat, and the installation area should meet the installation space requirements.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

Tips

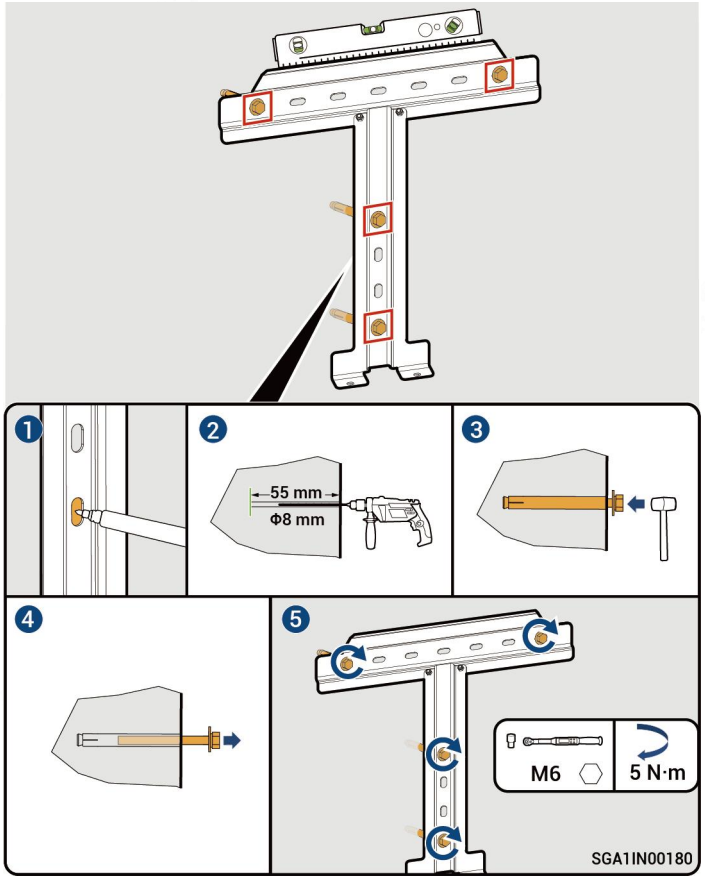
To ensure optimal performance of the gateway, it is suggested that the installation distance between the gateway and surrounding obstacles be planned with reference to the diagram. If the installation site is well-ventilated, the optimal solution may be deployed based on actual conditions.



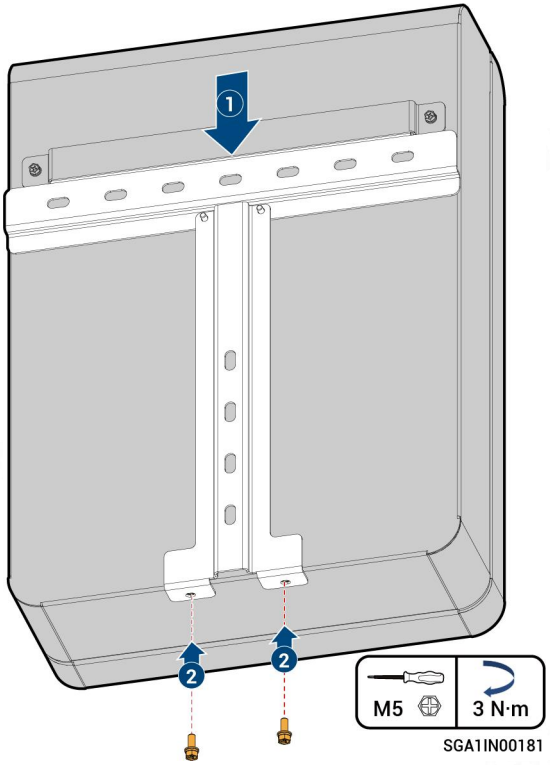
1



2



3



5 Cable Connection

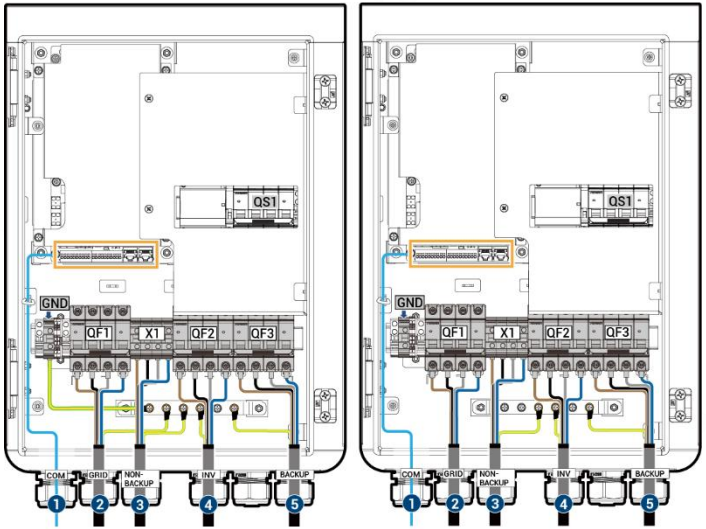
5.1 Recommended Routing

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 and inverter switches.

Solution 1: The device is reliably grounded. (In this case, the GND Terminal needs to be connected to the Grounding copper busbar.)

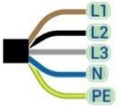
Solution 2: The device is not reliably grounded. (In this case, the GND Terminal must not be connected to the Grounding copper busbar.)



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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.**



AC cable

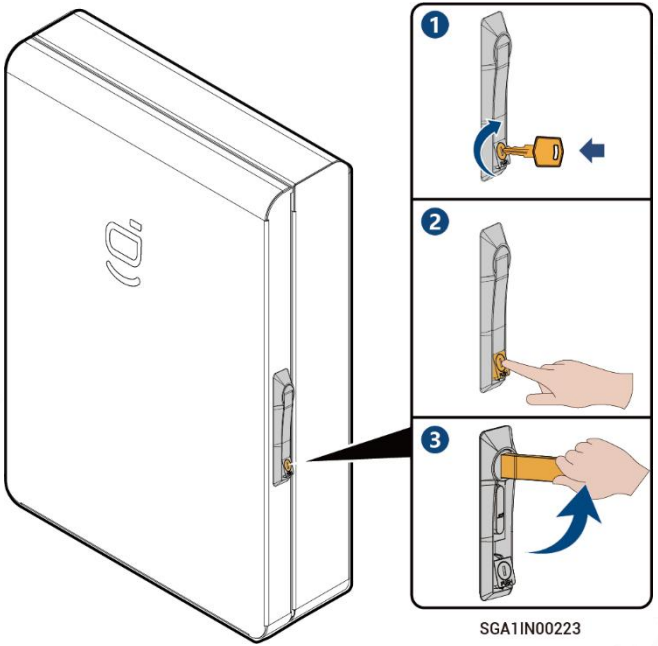
Communication cable (FE and DI, DO)

Functional ground cable

1. Communication cable (COM)
2. Connect to Power grid (GRID)
3. Connect to Non-Backup loads (Non-BACKUP)
4. Connect to Inverter (INV)
5. Connect to Backup household loads (BACKUP)

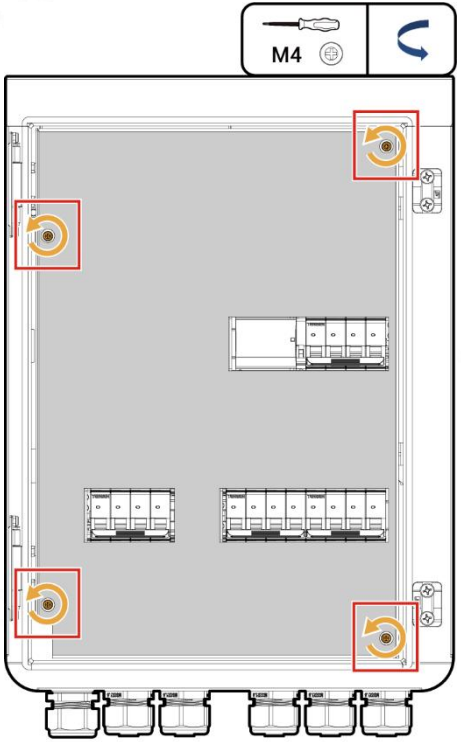
5.2 Opening Equipment Door

1



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2



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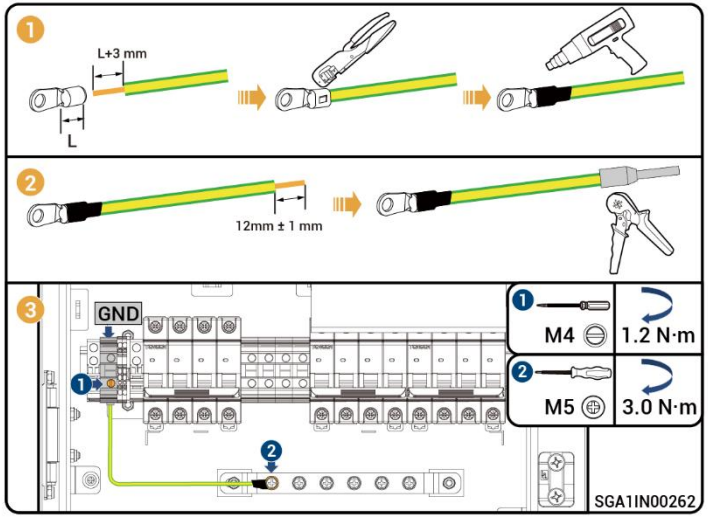
5.3 (Optional) Functional ground cable Connection

Danger

- **If the device is not reliably grounded, do not connect the functional ground cable.**
- **If the device is reliably grounded, the functional ground cable shall be connected.**

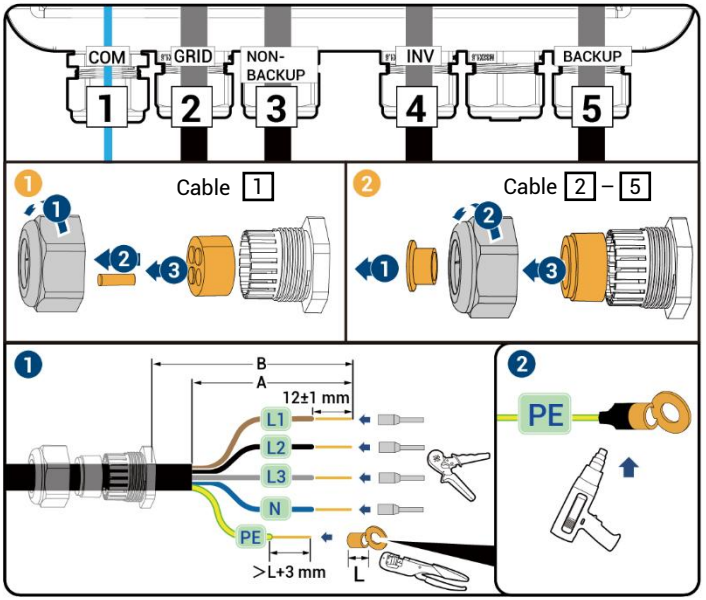
Caution

In off-grid mode, the N wire in the system is short-connected to the functional grounding wire through the relay to create a grounding system. When earth leakage or short circuit occurs in loads, leakage protection and overcurrent protection devices are triggered to prevent these faults.



5.4 Connecting Power Grid/Inverter/Backup Household Load/Non-backup Load

5.4.1 Processing Routing Holes and Cables



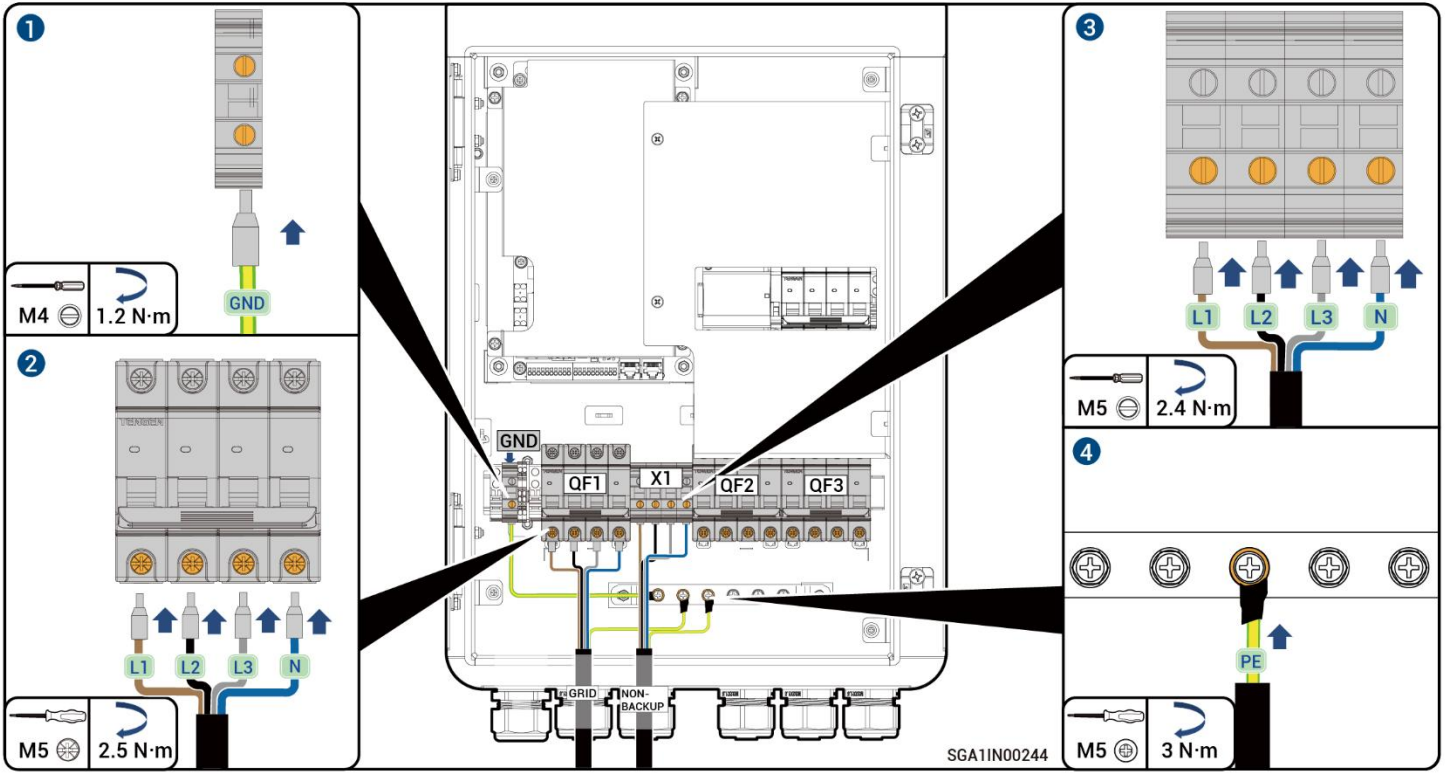
Reserved length (Unit: mm)

Lable	B		L1. L2, L3	N	PE
QF1	≥120	A	≥100	≥100	≥80
QF2	≥140		≥120	≥120	≥60
QF3	≥135		≥115	≥115	≥70
X1	≥120		≥100	≥100	≥70

5.4.2 Connecting Power Grid/Inverter/Backup Household Load/Non-backup Load

Tips

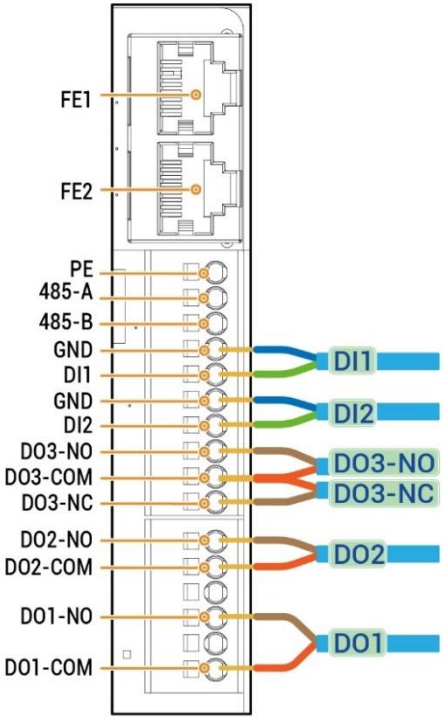
- **The method to connect the power grid/inverter/backup household load is the same. This section takes connecting the power grid as an example.**
- **To ensure that the inverters, loads, and the Gateway are connected to the common ground point, connect the PE cable**
- **The following figure shows a wiring diagram when the device is reliably grounded. Please ignore the redundant wiring steps if the user has already connected the functional grounding cable.**



5.5 Communication port introduction

Tips

- **Identify the cable connection and table content suiting you according to the label appearance.**
- **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.**

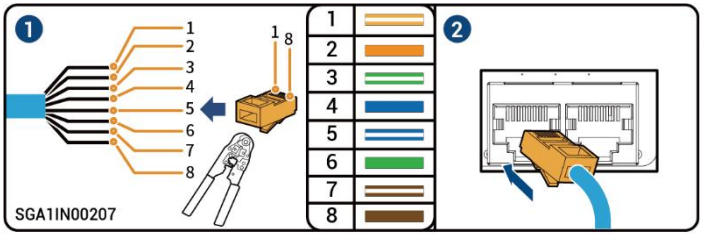


Label	Definition		Description
FE (Network cable interface)	FE1	Fast Ethernet 1	Used to connect an inverter.
	FE2	Fast Ethernet 2	Used to connect an Sigen EV AC Charger, inverter, router and so on.
(Reserved)485 (RS485 interface)	PE	PE signal shielding ground	Used to connect the equipment over RS485.
	485-A	RS485 signal _A+	
	485-B	RS485 signal _B-	
DI1 (Digital input 1)	GND	Signal GND	• Universal digital input interfaces. • DI1 is used to connect the feedback contact of the bypass switch.
	DI1	Digital input 1	
DI2 (Digital input 1)	GND	Signal GND	• DI2 can be used to connect the feedback signal of the external Automatic Transfer Switch (ATS) to identify whether the gateway "grid port" is powered by the grid or the generator. • Low impedance input (short circuit on ATS relay) indicates the power grid. High impedance input (open circuit on the ATS relay) indicates the Generator.
	DI2	Digital input 2	
DO3/GEN (Dry contact 3/Generator startup)	DO3-NO	Digital output 3 - Normal Open	• DO3 interface can be used for controlling generator start in two-wire start mode. • DO3 have a contact capacity of 30 Vd.c./1 A. • NO/COM is normally open contact and NC/COM is normally close contact.
	DO3-COM	Digital output 3 - Common	
	DO3-NC	Digital output 3 - Normal Close	
DO2 (Dry contact 2)	DO2-NO	Digital output 2 - Normal Open	• DO2 is used for the output of the contactor status feedback signal for the Generator. • DO2 have a contact capacity of 30 Vd.c./1 A.
	DO2-COM	Digital output 2 - Common	
DO1 (Dry contact 1)	-	-	• DO1 is used for the output of the contactor status feedback signal for the grid. • DO1 has a contact capacity of 250 Va.c./1 A or 30 Vd.c./1 A.
	DO1-NO	Digital output 1 - Normal Open	
	-	-	
	DO1-COM	Digital output 1 - Common	

5.5.1 Connecting RJ45 Network Cable

Tips

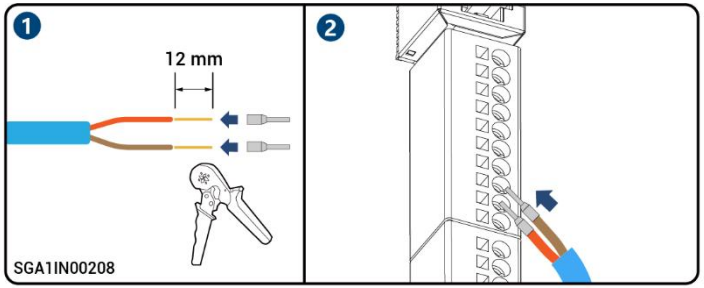
Two network ports, one of which is connected to the inverter, and the other is connected to other devices. (for example, Sigen EV AC Charger, inverter, and router)



5.5.2 Connecting DI/DO Cable

Tips

The method to connect the DI/DO cable is the same. This section takes connecting the DO cable as an example.

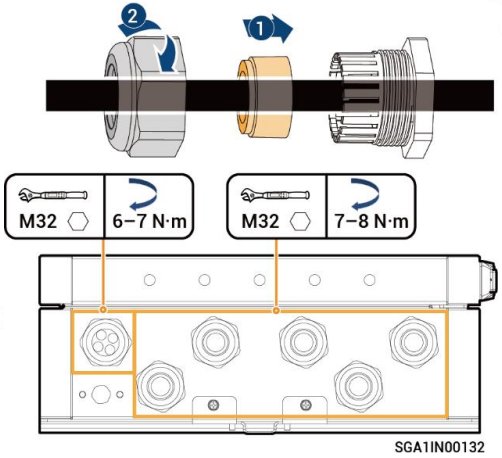


5.6 Post-installation Check

Check the following items against the provided table, tighten each routing hole.

No.	Check Item
1	The equipment is securely installed.
2	All screws or terminal blocks on the device have been installed in place and are not loose.
3	Lock screws or terminals are installed in place without any looseness.
4	Cutouts of cable ties are free of burr or sharp edges.
5	No construction residue inside and outside the equipment.

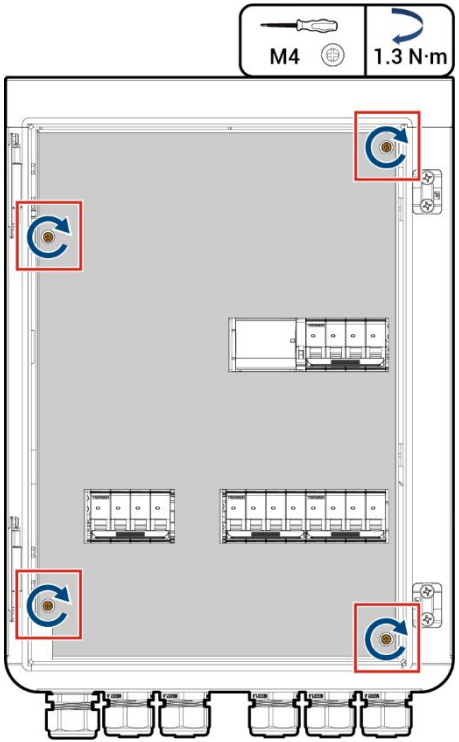
Tighten each routing hole



5.7 Installing Inner panel

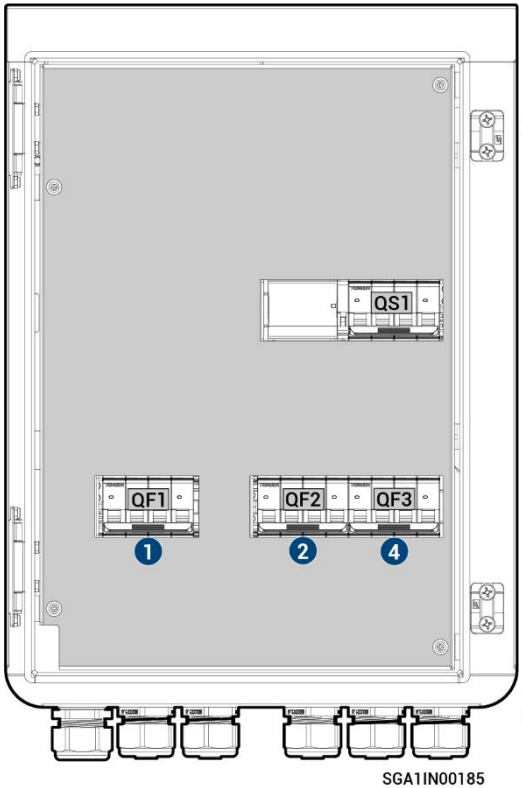
Caution

Measure the voltage of the switch QF1 on the power grid side and check that the measured value is within the locally permissible voltage range. Ensure that the cables are connected properly, then install the protective cover panel..



Tips

- **Turn on the front switch of the equipment.**
- **There is a risk of electric shock when the Gateway is not grounded.**



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Caution

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

1

1. Turn on the miniature circuit breaker QF1 (connecting to the power grid).
2. Turn on the miniature circuit breakers QF2 (connecting to an inverter).
3. Wait until inverter is powered on.
4. Turn on the miniature circuit breaker QF3 (connecting to a backup household load).

2

Finally, close the equipment door.

Danger

The bypass switch QS1 should be kept turned off.

Caution

After each wiring change, please perform a wiring check on the mobile app to ensure proper connection before proceeding with subsequent operations.

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