Sigen Gateway Home SP 12K
Installation Guide

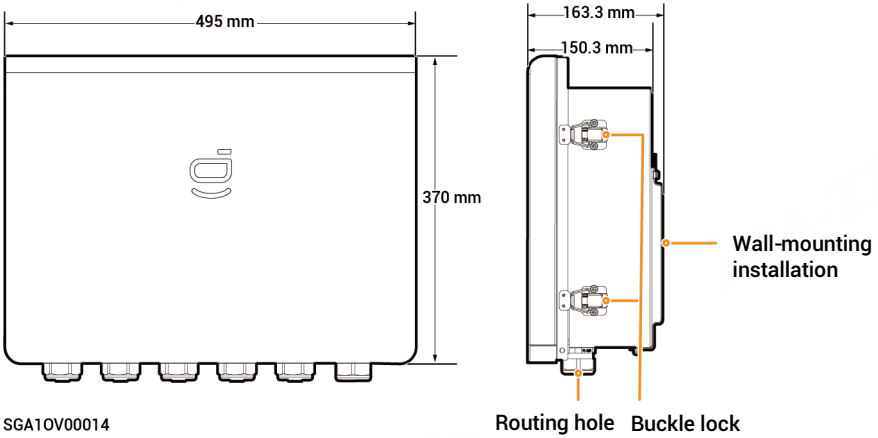
Version: 01
Release date: 2024-09-11

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



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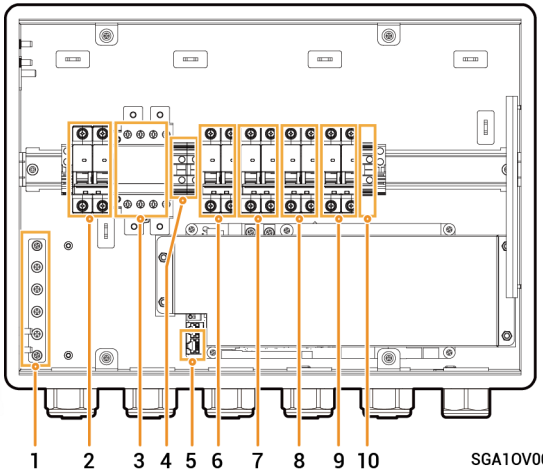
1.2 Introduction to Ports/Components



No.	Label	Description
1	-	Grounding copper busbar
2	QS1	Bypass switch
3	KM1	Grid contactor
4	X1	Terminal (connecting to a non-backup load)
5	-	FE terminal
6	QF1	Miniature circuit breaker (connecting to the power grid)
7	QF2	Miniature circuit breaker (connecting to a single-phase inverter in a power range of 8.0 to 12.0 kW)
8	QF3	Miniature circuit breaker (connecting to a household load)
9	QF4	Miniature circuit breaker (connecting to a single-phase inverter in a power range of 3.0 to 6.0 kW)
10	-	Terminal (connecting to functional ground 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 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

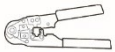

Insulating shoes

Installation Tools


Power drill


Vacuum cleaner


Wire cutter


Crimp tool


Crimping pliers


Wire stripper


Scissors


Cable ties


Heat shrinkable sleeve


Heat gun

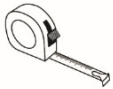

Insulated screwdriver set


Insulated sleeve set

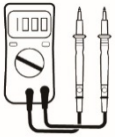
Torque socket wrench


Marker


Level


Tape measure


Utility knife


Multimeter

Caution

The specification of installer-provided cables shall meet the cable laws and standards of the countries/regions.

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; Outer diameter: 5–8 mm
2	AC cable	Used to connect an inverter	Three-core copper core cable for outdoor use (L, N, PE) • Power: 3.0 kW to 6.0 kW, cross-sectional area of conductor: 4 mm² to 6 mm², cable OD: 13 mm to 21 mm • Power: 8.0 to 12.0 kW, cross-sectional area of conductor: 10 mm² to 16 mm², cable OD: 16 mm to 20 mm
3		Used to connect a backup household load	Three-core copper core cable for outdoor use (L, N, PE) Cross-sectional area of conductor: 10 mm² to 16 mm², cable OD: 13 mm to 21 mm
4		Used to connect to the power grid	
5		Used to connect a non-backup load	
6	RJ45 network cable		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]

Note [1]: The cable length should be limited for good communication. Too long cable degrades the communication effect. FE communication distance: ≤ 100 m.

Tips

- The warranty applies when the equipment has been installed properly for its intended use and in accordance with the operating instructions.
- During actual installation, the selection of installation location should also comply with local regulations such as fire safety and environmental protection. The specific installation location planning should be based on the installer or EPC (Engineering, Procurement, Construction).

Installation Environment

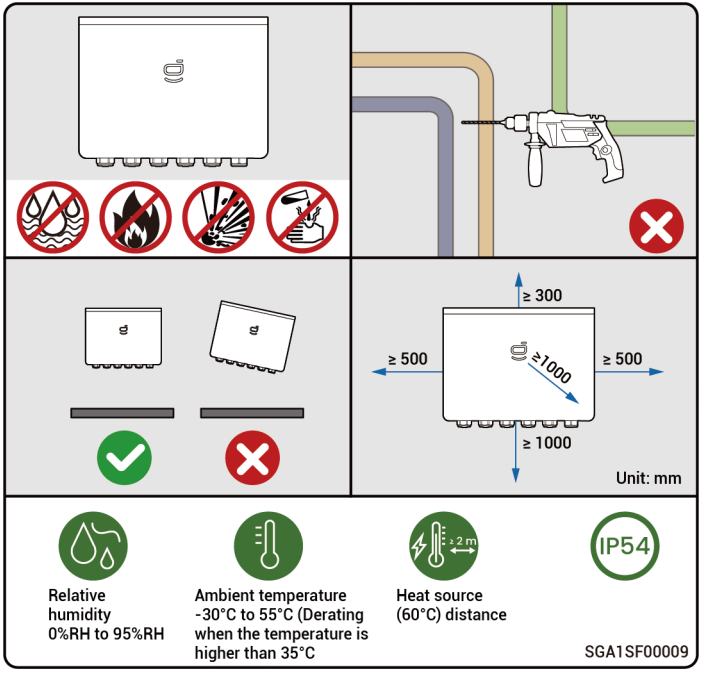
- Do not install the equipment in a smoky, flammable, or explosive environment.
- Avoid exposing the equipment to direct sunlight, rain, standing water, snow, or dust. Install the equipment in a sheltered place. Take preventive measures in operating areas prone to natural disasters such as floods, mudslides, 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).

Installation Location

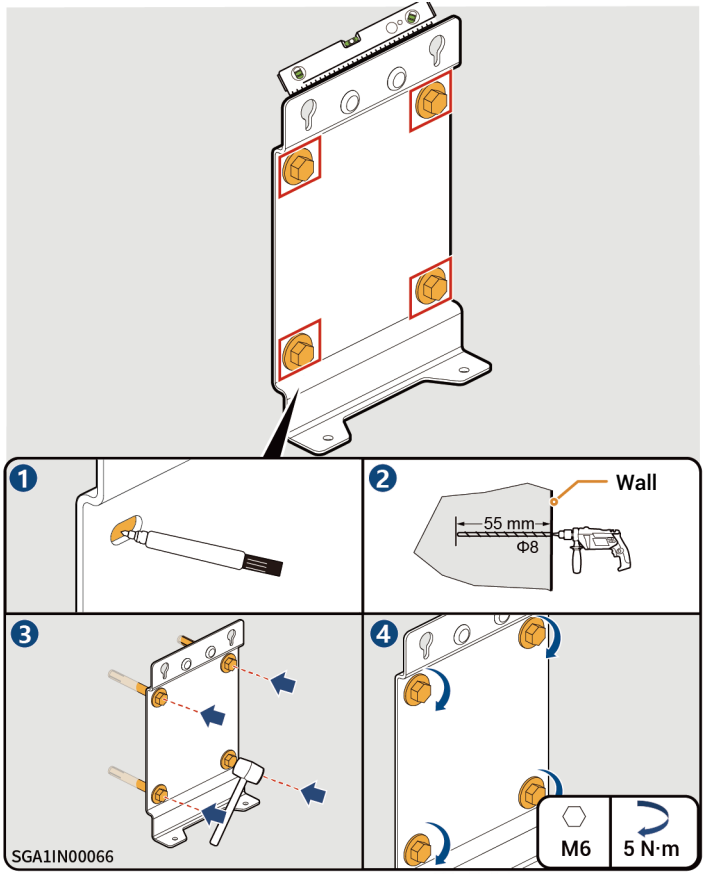
- Do not tilt the equipment or place it upside down. Ensure that the equipment is horizontally installed.
- Do not install the equipment in areas easily accessible to children.
- Do not install the equipment in a place with fire hazards or is prone to moisturizing.
- Keep the equipment away from your 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

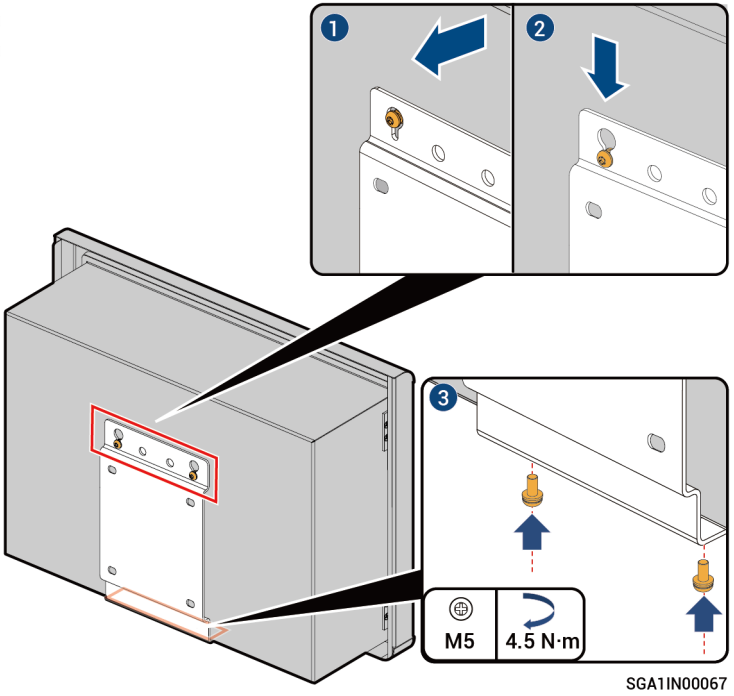
- Do not install the equipment on a flammable base.
- The installation base should meet the load-bearing requirement. Solid brick-concrete structures and concrete walls are recommended.
- The installation base should be flat, and the installation area should meet the installation space requirements.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



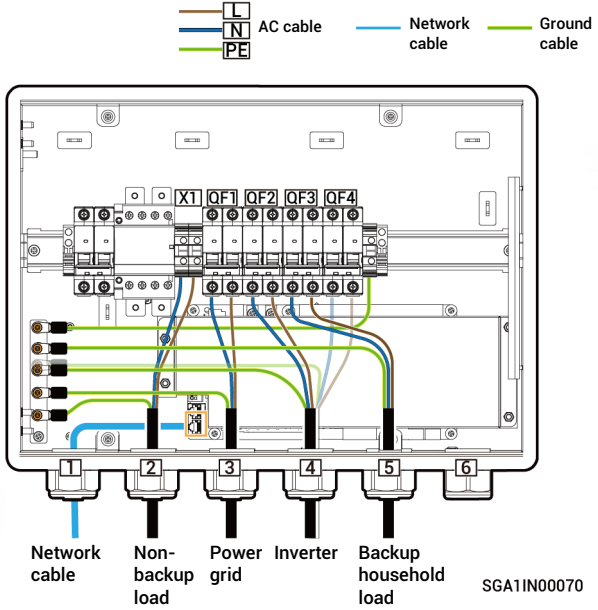
1


1
2
Wall
55 mm
Φ8
3
4
M6
5 N·m
SGA1IN00066

2


1
2
3
M5
4.5 N·m
SGA1IN00067

5.1 Recommended Routing



Tips

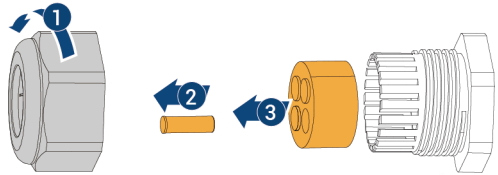
- The device only can connect to one single-phase inverter. Select QF2 (power: 8.0–12.0 kW) or QF4 (power: 3.0–6.0 kW) as needed.
- The routing method shown in the figure is for reference only. Please select a proper routing hole as needed.
- Connect cables according to the corresponding labels to prevent personal injury and equipment damage caused by incorrect cable connection.

Removing routing holes

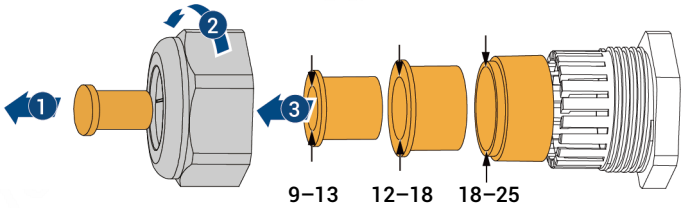
Caution

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

Routing hole 1



Routing holes 2 – 6

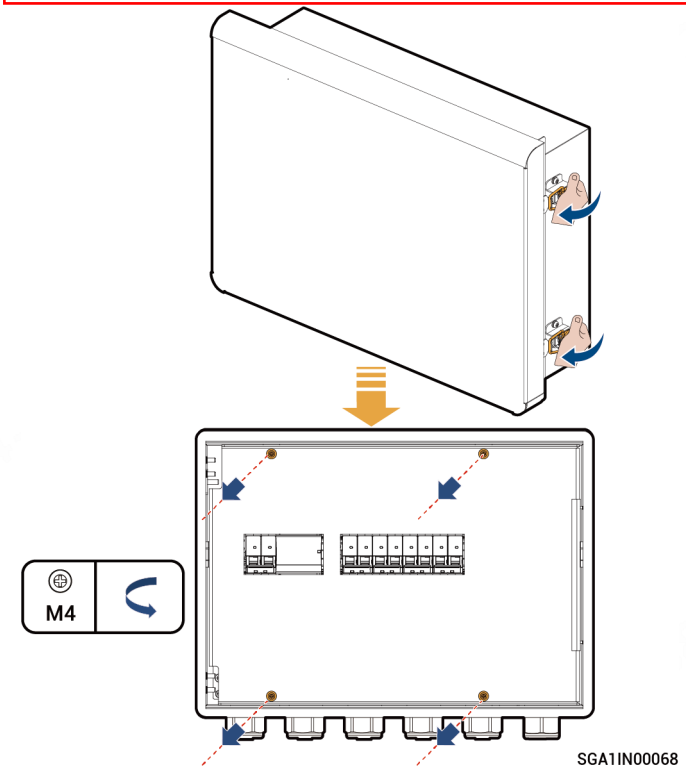


Unit: mm

5.2 Opening Equipment Door

Danger

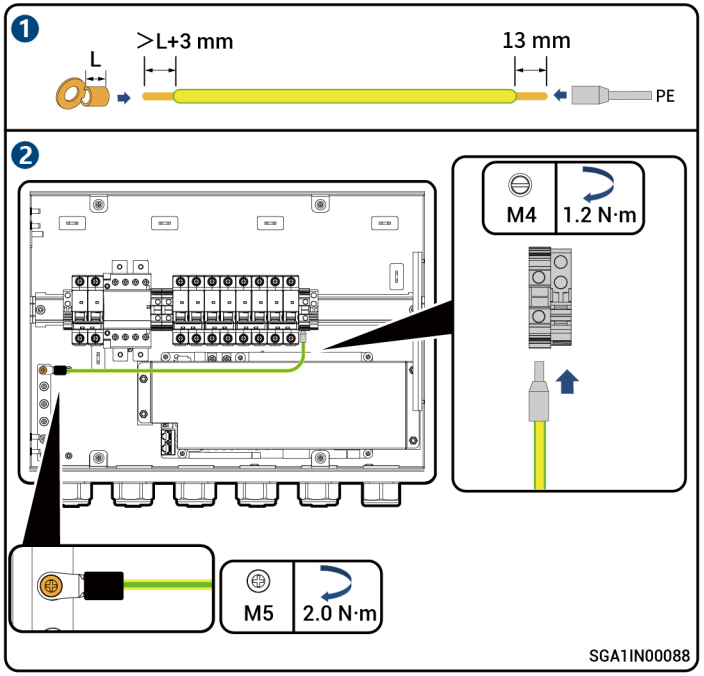
Do not perform operations on the equipment with power on. Before operation, please make sure all power supplies to the equipment have been disconnected, including but not limited to the grid side and inverter power switches.



5.3 Functional ground cable

Tips

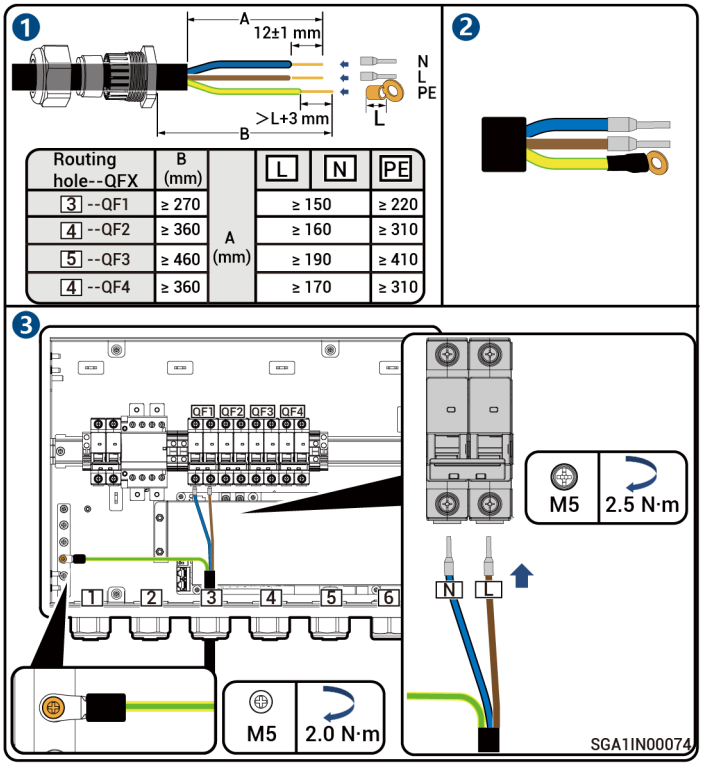
In off-grid mode, the N wire in the system is short-connected to the functional grounding wire through the relay to create a grounding system. When earth leakage or short circuit occurs in loads, leakage protection and overcurrent protection devices are triggered to prevent these faults.



5.4 Connecting Power Grid/Inverter/Backup Household Load

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.

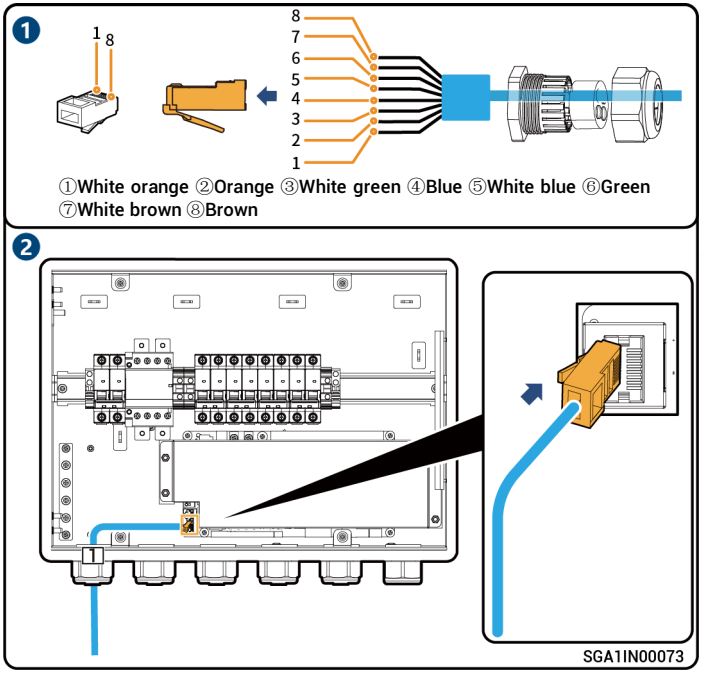


Routing hole--QFX	B (mm)	A (mm)	L	N	PE
3 --QF1	≥ 270		≥ 150		≥ 220
4 --QF2	≥ 360		≥ 160		≥ 310
5 --QF3	≥ 460		≥ 190		≥ 410
4 --QF4	≥ 360		≥ 170		≥ 310

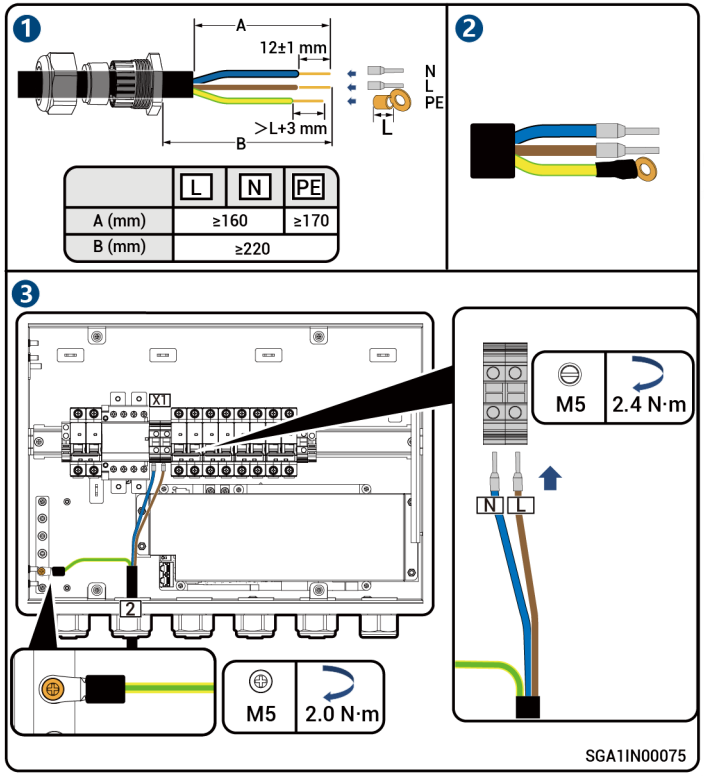
5.5 Connecting RJ45 Network Cable

Tips

The RJ45 network cable is an EIA/TIA 568B standard network cable.



5.6 Connecting Non-backup Load

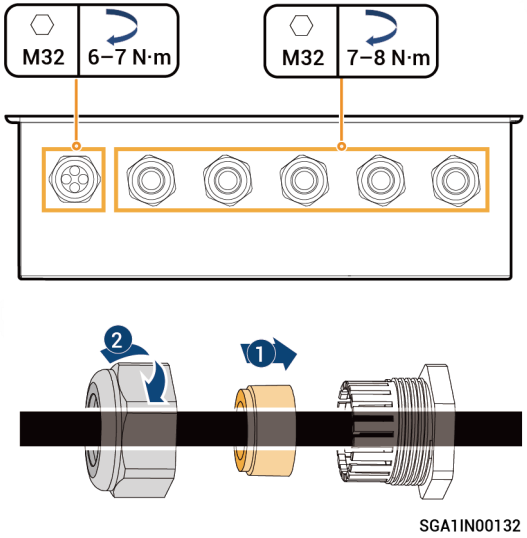


	L	N	PE
A (mm)	≥160		≥170
B (mm)	≥220		

5.7 Installing Inner Panel

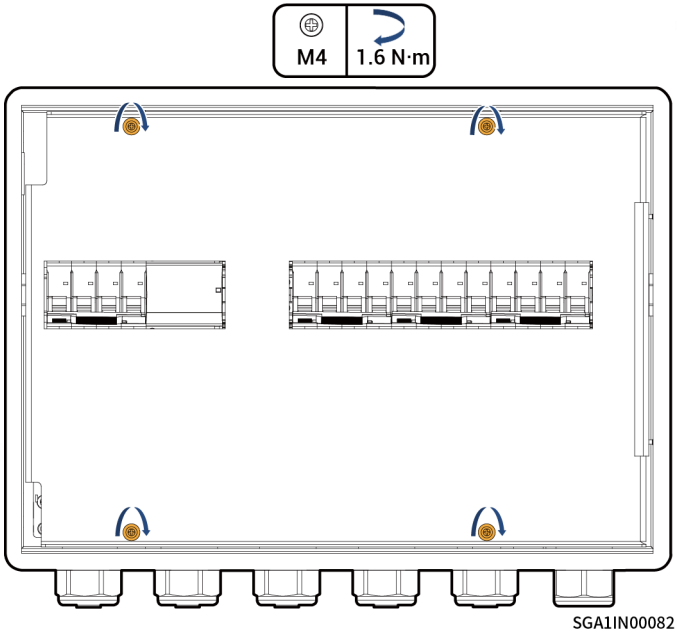
Check the following items against the provided table, tighten routing holes, and install the Inner Panel.

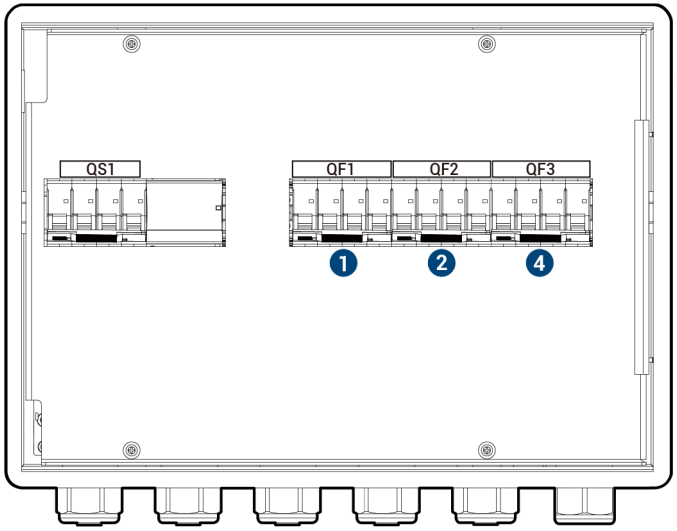
No.	Check Item
1	The equipment is securely installed.
2	Grounding cable, AC cables, and signal cables are properly connected without omission.
3	Lock screws or connector are installed in place without any looseness.
4	Cutouts of cable ties are free of burr or sharp edges.
5	No construction residue inside and outside the equipment.



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.





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Tips

- Turn on the upstream AC switch.
- There is a risk of electric shock when the Gateway is not grounded.

1

Caution

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

1. Turn on the miniature circuit breaker QF1 (connecting to the power grid).
2. Turn on the miniature circuit breakers QF2 or QF4 (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.

Sigenergy Technology Co., Ltd.

Website	LinkedIn	YouTube

www.sigenergy.com