Sigen Gateway HomeMax SP Installation Guide

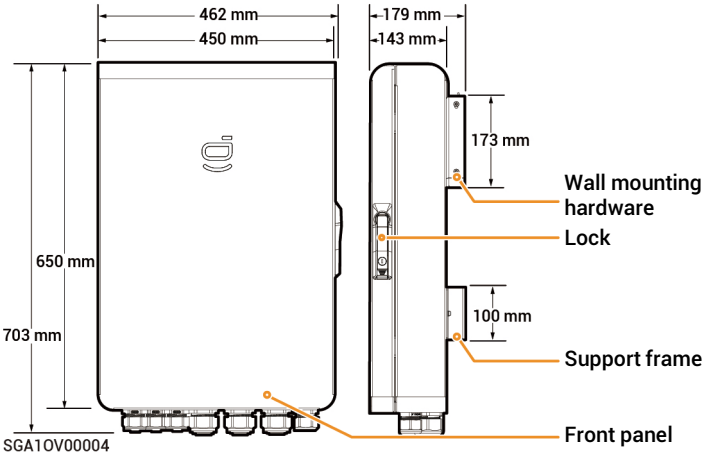
Version: 03
Release date: 2024-08-23

Caution

- Trained or experienced electrical personnel are required to operate the equipment.
- Operators should be familiar with national/regional laws, regulations and standards, the structure and working principle of relevant systems.
- Please read carefully the operating requirements and precautions in this document and Important Notice before operating. Failure to do so may result in damage to the equipment that is not covered by the warranty.

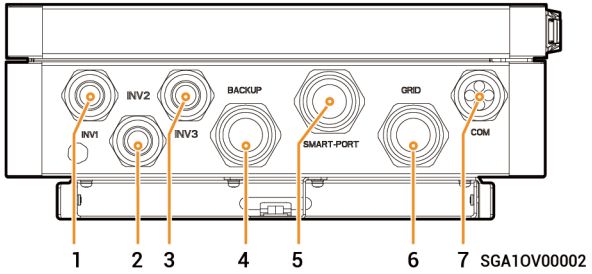
1 Product Description

1.1 Appearance and Dimensions



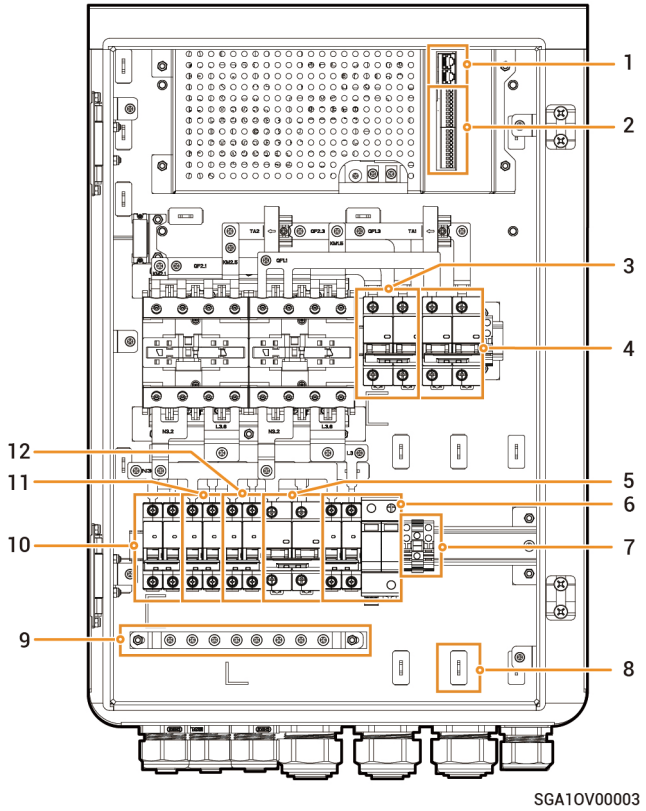
1.2 Port Description

Bottom view



S/N	Name	Marking
1	Wire-in port of inverter 1	INV1
2	Wire-in port of inverter 2	INV2
3	Wire-in port of inverter 3	INV3
4	Wire-in port of backup household loads	BACKUP
5	Wire-in port for smart loads/diesel generator	SMART-PORT
6	Wire-in port of power grid	GRID
7	Wire-in port of communication	COM

Interior view



SGA1OV00003

S/N	Label	Description
1	-	FE interfaces
2	-	RS485, DI, and DO interfaces
3	QF2	Miniature circuit breaker (Smart loads[1]/Diesel generator)
4	QF1	Miniature circuit breaker (Power grid)
5	QF6	Miniature circuit breaker (Backup household loads)
6	QF7	Miniature circuit breaker + Surge protection device
7	GND	GND
8	-	Cable clamp
9	-	Earthing bar
10	QF3	Miniature circuit breaker (Inverters 1)
11	QF4	Miniature circuit breaker (Inverters 2)
12	QF5	Miniature circuit breaker (Inverters 3)

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, pool heaters, clothes dryers, immersion heaters, 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.)

Danger

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

2 Pre-installation Check

- 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 personal protective equipment and installation tools to ensure that they are complete; If not, please make them up.
- Check and ensure the completeness of personal protective equipment and installation tools; replenish if necessary.

Protective equipment


Safety hat


Safety glasses

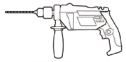

Dust mask


Protective gloves

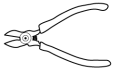

Insulating gloves

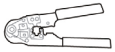

Insulating shoes

Installation tool


Power drill


Vacuum cleaner


Wire cutter


Crimp tool


Crimping pliers

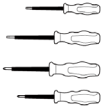

Wire stripper

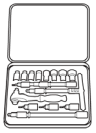

Scissors


Cable tie


Heat shrinkable sleeve


Heat gun

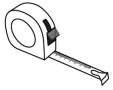

Insulation screwdriver set

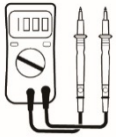

Insulation sleeve set


Torque socket wrench


Marker


Level


Tape measure



Multimeter

Caution

- The specifications of the Installer-provided cable must comply with the cable regulations and standards of the country/region standards.
- L, N and PE should be connected to other equipment in sequence without mixing.

Installer-provided cable

S/N	Cable name		Recommended specifications
1	Functional ground cable		Outdoor single-core copper flexible cable Cross-sectional area of core conductor: 6–10 mm²; Outer diameter: 5–8 mm
2	AC cable	Connected to inverter	Outdoor three-core copper flexible cable (L, N, PE) Cross-sectional area of core conductor: 4–6 mm²; Outer diameter: 13–21 mm
3		Connected to backup household loads	Outdoor three-core copper flexible cable (L, N, PE) Cross-sectional area of core conductor: 35–50 mm²; Outer diameter: 28–32 mm
4		Connected to power grid	
5		Connected to smart loads/diesel generator/ (optional)	Outdoor three-core copper flexible cable (L, N, PE) Cross-sectional area of core conductor: 16–35 mm²; Outer diameter: 26–32 mm
6	RJ45 network cable		Outdoor eight-conductor shielded twin-twisted pair cable Cross-sectional area of core conductor: 0.13–0.2 mm²; Outer diameter: 4–7.5 mm Length:： ≤ 100 m[2] RJ45 network cables are EIA/TIA 568B standard network cables
7	DI/DO signal cable (Optional)		Outdoor two-conductor shielded cable Cross-sectional area of core conductor: 0.2–1.5 mm²; Outer diameter: 2–4 mm

Note [2]: The communication distance limits the cable length. If the cable is too long, it will affect 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 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

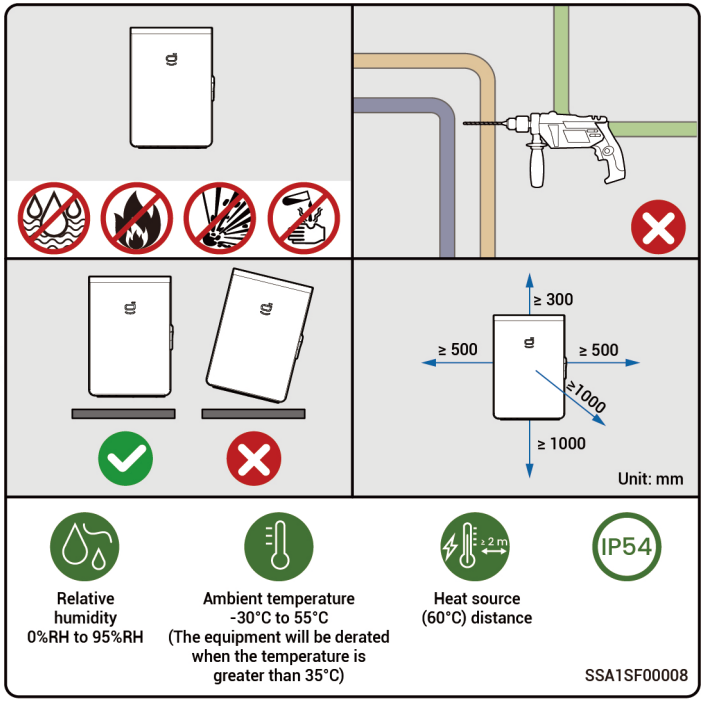
- Do not install the equipment in smoky, flammable, or explosive environments.
- Avoid exposing the equipment to direct sunlight, rain, standing water, snow, or dust. Install the equipment in a sheltered place. Take preventive measures in operating areas prone to natural disasters such as floods, mudslides, earthquakes, and typhoons.
- Do not install the equipment in an environment with strong electromagnetic interference.
- Ensure that the temperature and humidity of the installation environment comply with the equipment's 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 position

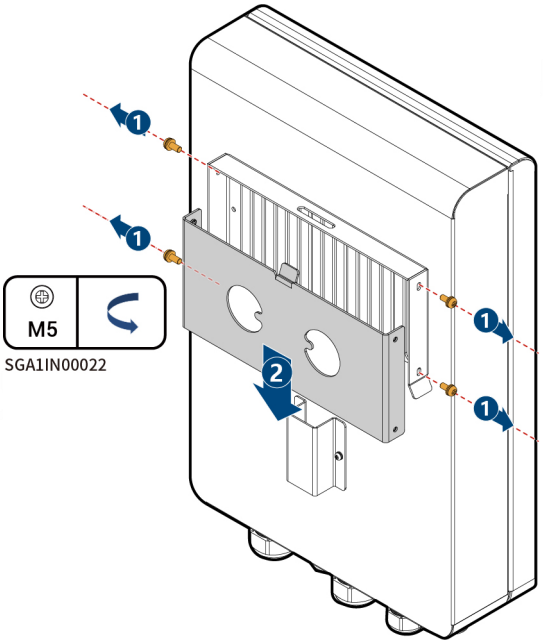
- Do not tilt or overturn the equipment to ensure that it is installed horizontally.
- Do not install the equipment in places easily touched by children.
- Do not install the equipment in places with fire or damp.
- Please keep away from the daily work and living places.
- Do not install the equipment 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 3°C while the equipment is running. Otherwise, the equipment will be derated.
- Do not install the equipment in mobile scenarios such as RVS, cruise ships, and trains.
- You are advised to install the equipment in places that are easy to access, install, operate, maintain status.

Mounting surface

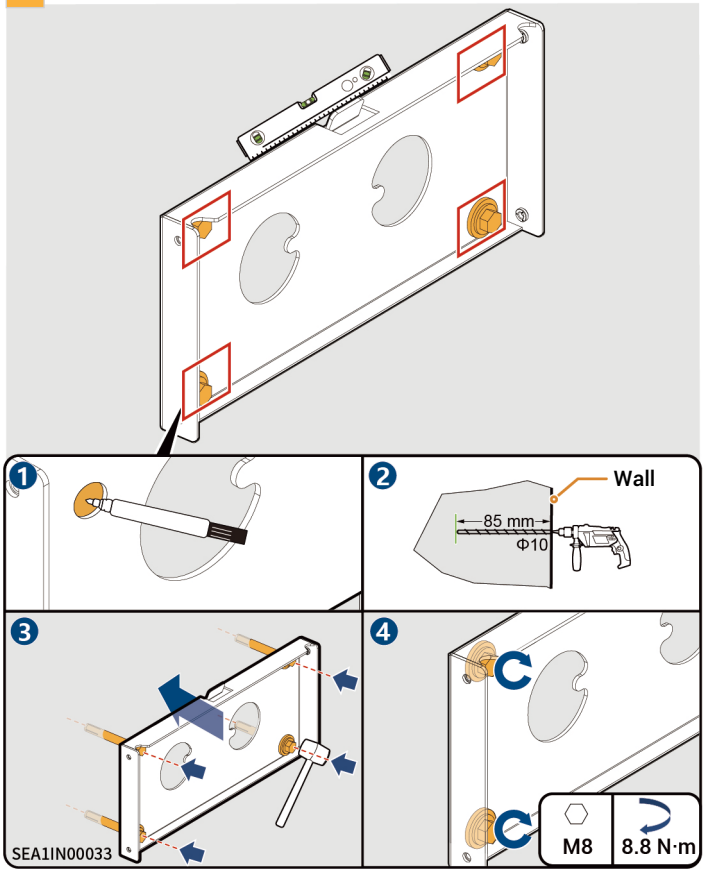
- Do not install the equipment on a flammable carrier.
- The installation carrier must meet load-bearing requirements. Solid brick-concrete structure, concrete walls is recommended.
- The surface of the installation carrier must be smooth and the installation area must meet the installation space requirements.
- No water or electricity is routed inside the carrier to prevent drilling hazards during equipment installation.



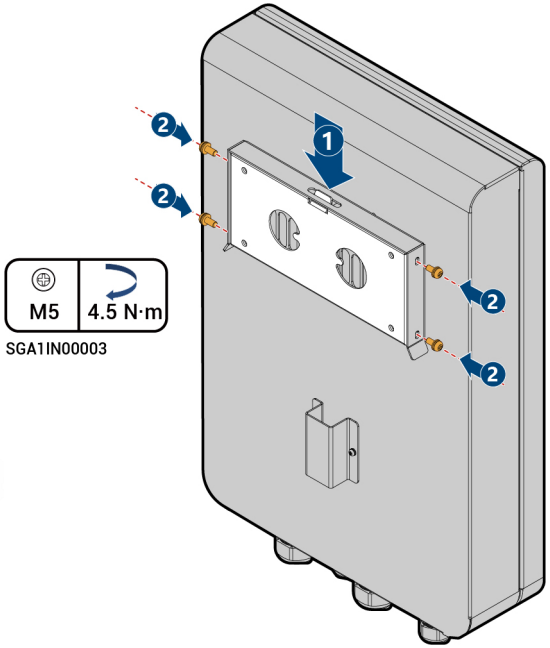
1



2



3



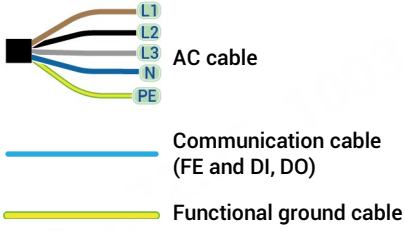
5.1 Recommended Routing

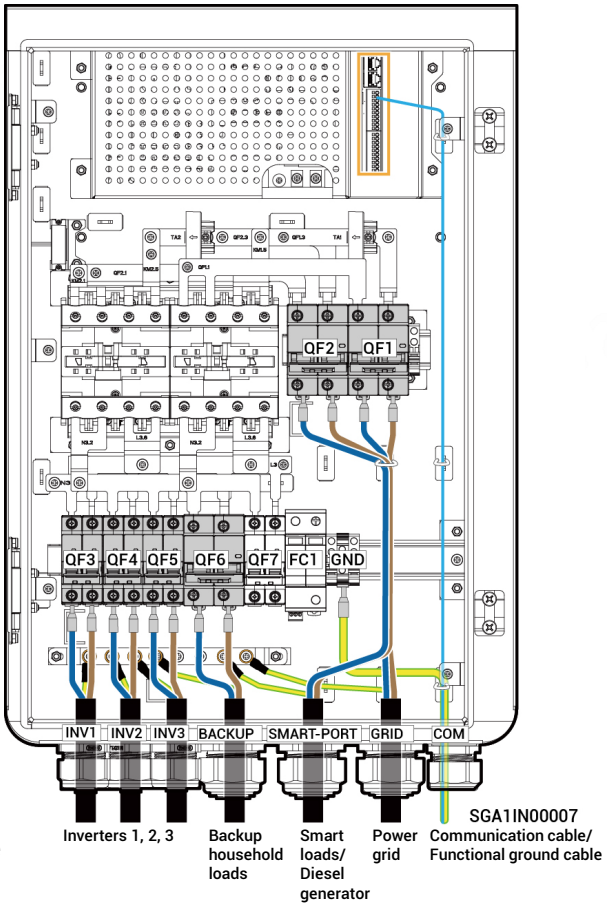
Danger

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, inverter and diesel generator power switches.

Caution

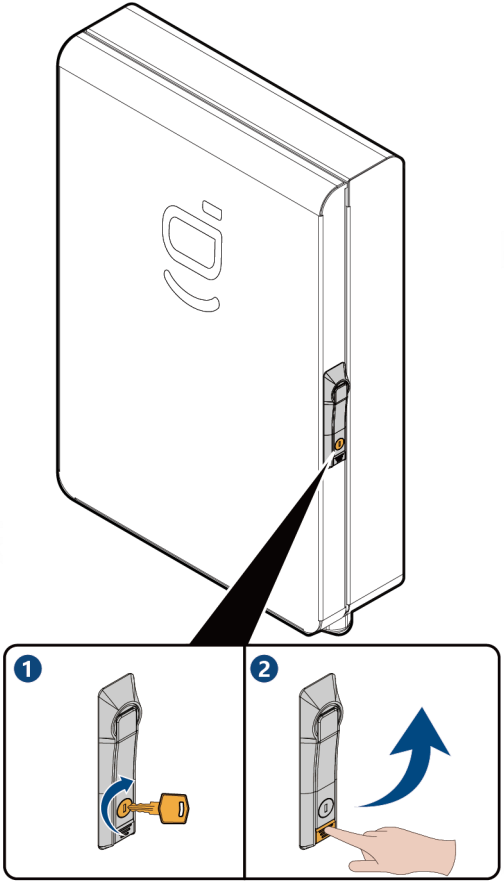
- Connect cables according to the corresponding labels to prevent personal injury and equipment damage caused by incorrect cable connection.
- To ensure that the inverters, loads, and the Gateway are connected to the common ground point, connect the PE cable.





5.2 Opening Equipment Door

1



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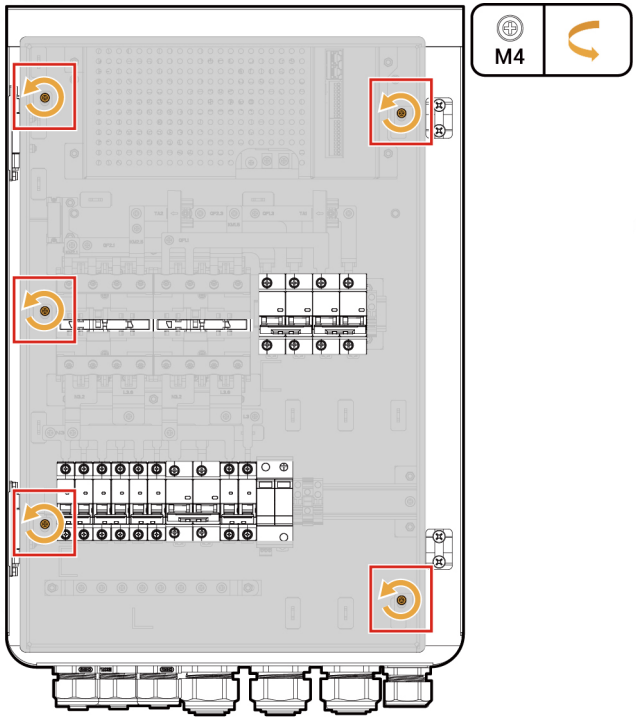
2



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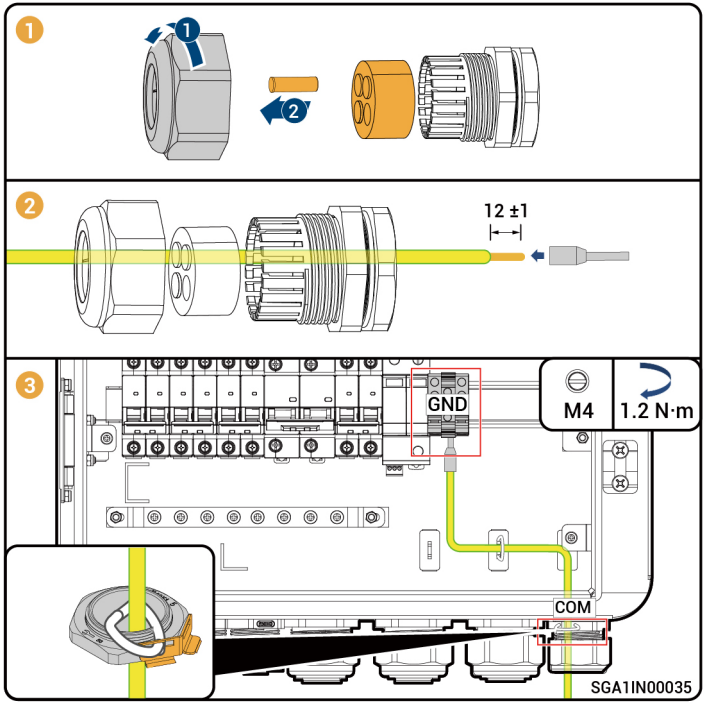
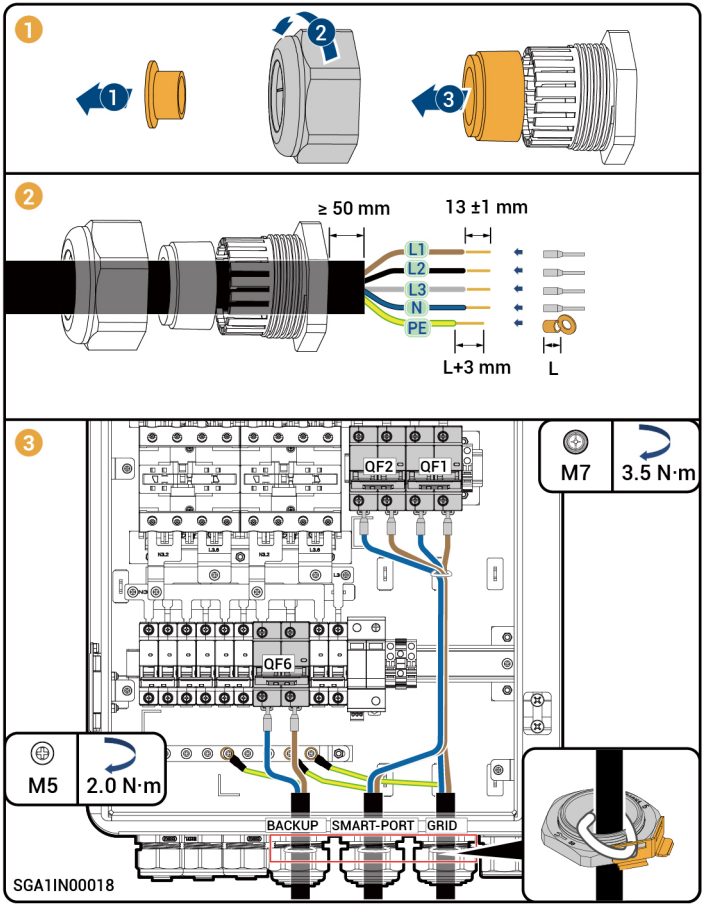
5.3 Connecting Functional ground cable

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.



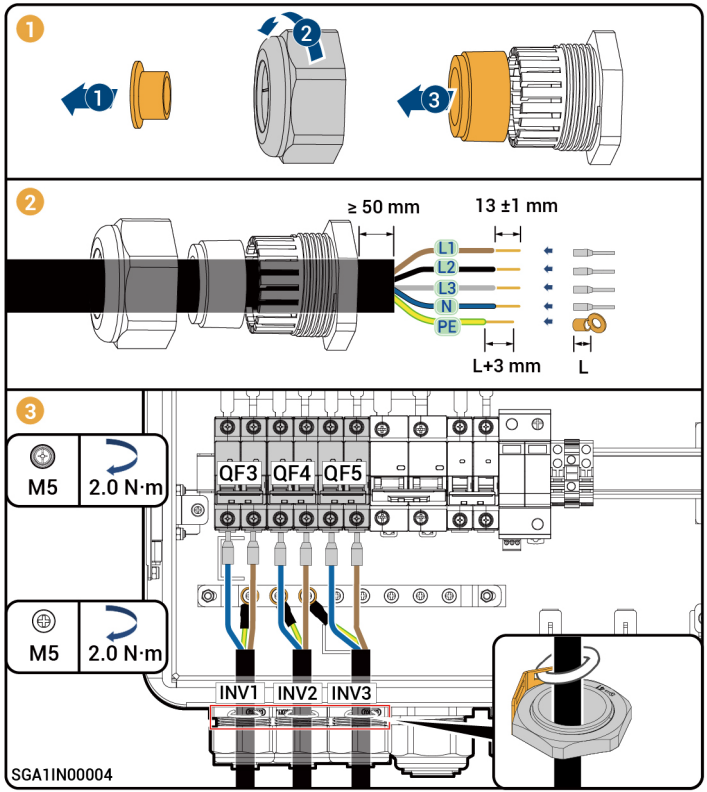
5.4 Connecting Power Grid / Backup household loads / Smart Load / Diesel Generator



5.5 Connected to Inverters

Caution

To ensure that the inverters, loads, and the Gateway are connected to the common ground point, connect the PE cable.

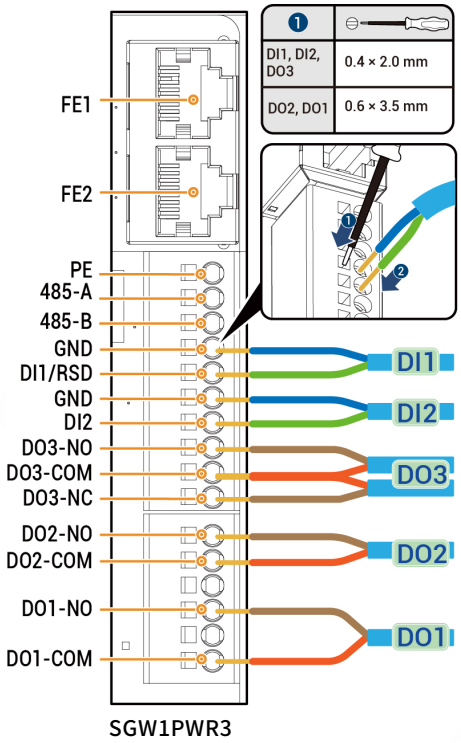


5.6 Introductions to FE, RS485, DI, and DO Terminals

Tips

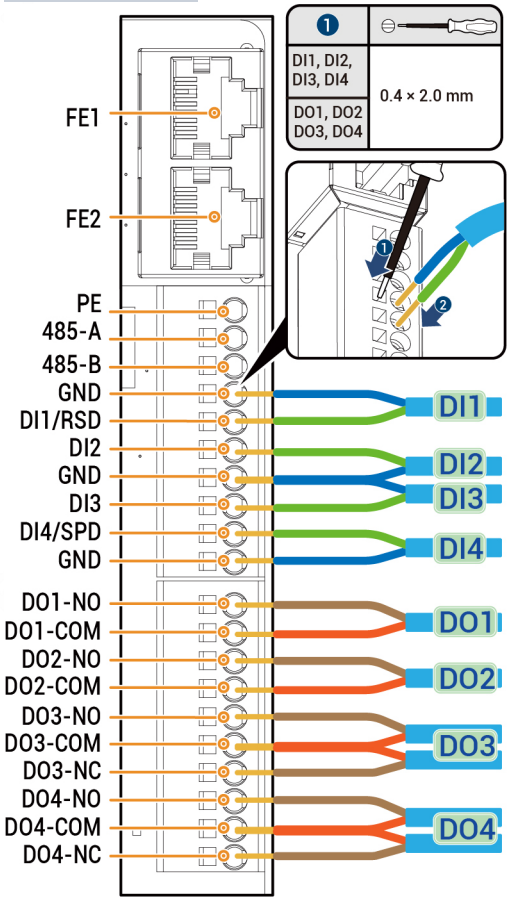
- Refer to Appearance 1 when the label bottom is printed with SGW1PWR3 and Appearance 2 when the label bottom is not printed with SGW1PWR3.
- Identify the cable connection and table content suiting you according to the label appearance.

Appearance 1



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 2_A+	
		485-B	RS485 signal 2_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	Digital input 2	
DO3 (Dry contact 3)	-	DO3-NO	Digital output 3 - Normal Open	• Universal digital output interface. • DO1 has a contact capacity of 250 Va.c./1 A or 30 Vd.c./1 A. • DO2 and DO3 have a contact capacity of 30 Vd.c./1 A. • NO/COM is normally open contact and NC/COM is normally close contact. • The DO3-COM and DO3-NC interface can be used for controlling generator start in two-wire start mode.
	GEN (Diesel generator startup)	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-COM	Digital output 2 - Common	
DO1 (Dry contact 1)		-	-	
		DO1-NO	Digital output 1 - Normal Open	
		-	-	
		DO1-COM	Digital output 1 - Common	

Appearance 2



Label		Definition	Description
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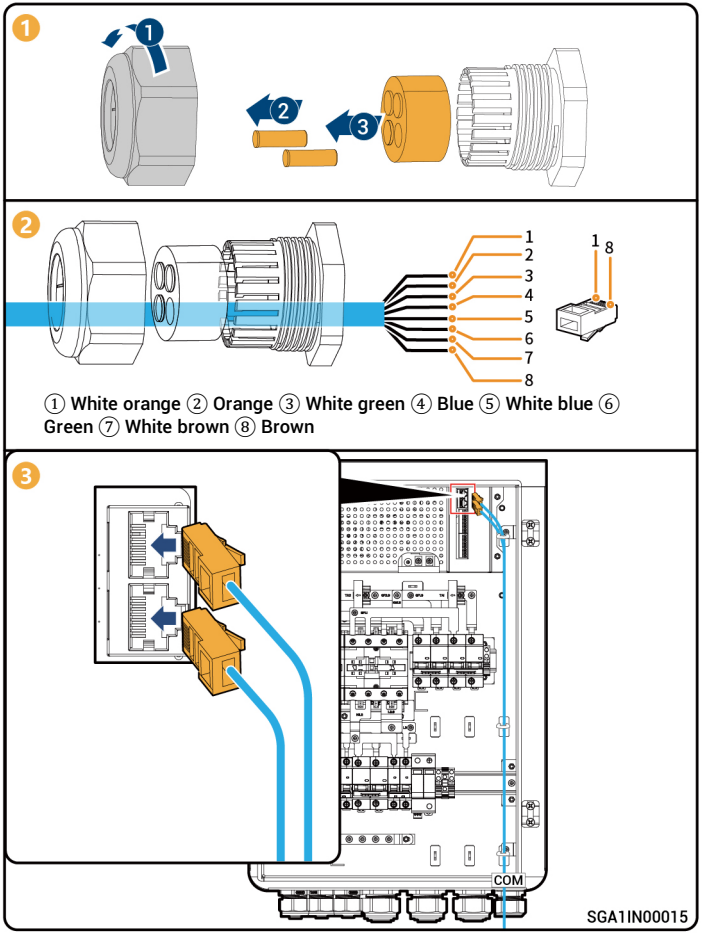
	FE2	Fast Ethernet 2	Used to connect an Sigen EV AC Charger, inverter, router and so on.
(Reserved)485 (RS485 interface)	PE	PE signal shielding ground	Used to connect the equipment over RS485.
	485-A	RS485 signal 2_A+	
	485-B	RS485 signal 2_B-	
DI (Digital input)	GND	Signal GND	• Universal digital input interfaces. • DI1 support rapid shutdown input signal. • DI4 support surge protection device status feedback input signal, among others.
	DI1/RSD	Digital input 1 / Rapid shutdown	
	DI2	Digital input 2	
	GND	Signal GND	
	DI3	Digital input 3	
	DI4/SPD	Digital input 4 / Surge protection device	
	GND	Signal GND	
DO1 (Dry contact 1)	DO1-NO	Digital output 1 - Normal Open	• Universal digital output interface. The contact capacity of 24 Vd.c./40 mA. • NO/COM is normally open contact and NC/COM is normally close contact. • The DO3-COM and DO3-NC interface can be used for controlling generator start in two-wire start mode.
	DO1-COM	Digital output 1 - Common	
DO2 (Dry contact 2)	DO2-NO	Digital output 2 - Normal Open	
	DO2-COM	Digital output 2 - Common	
DO3 (Dry contact 3) -	DO3-NO	Digital output 3 - Normal Open	
DO3 (Dry contact 3) GEN (Generator startup)	DO3-COM	Digital output 3 - Common	
	DO3-NC	Digital output 3 - Normal Close	
DO4 (Dry contact 4)	DO4-NO	Digital output 4 - Normal Open	
	DO4-COM	Digital output 4 - Common	
	DO4-NC	Digital output 4 - Normal Close	

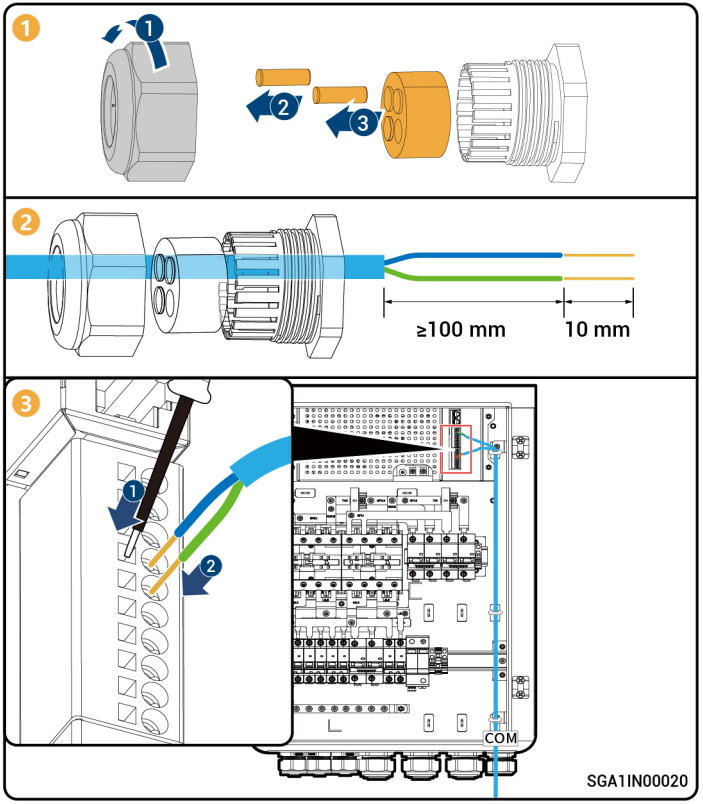
5.6.1 Connecting RJ45 Network Cable



5.6.2 Connecting DI, DO Cable

Tips

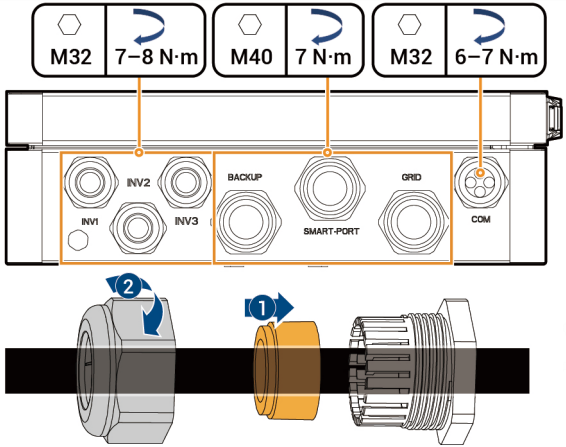
DI and DO interfaces are available in two appearances. Please make connections based on your actual needs. For details, refer to "5.6 Introductions to FE, RS485, DI, and DO Terminals."



5.7 Installing Inner panel

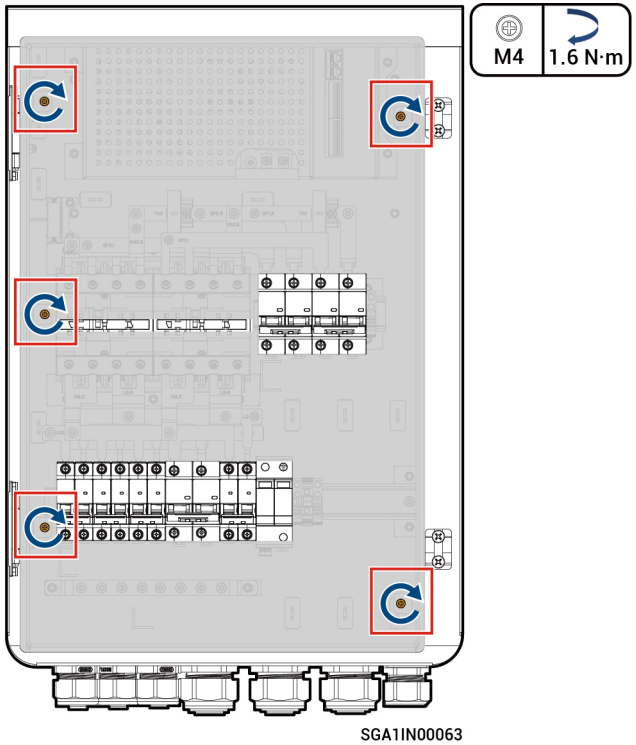
Check the following items against the provided table, tighten routing holes, and install the protective covers.

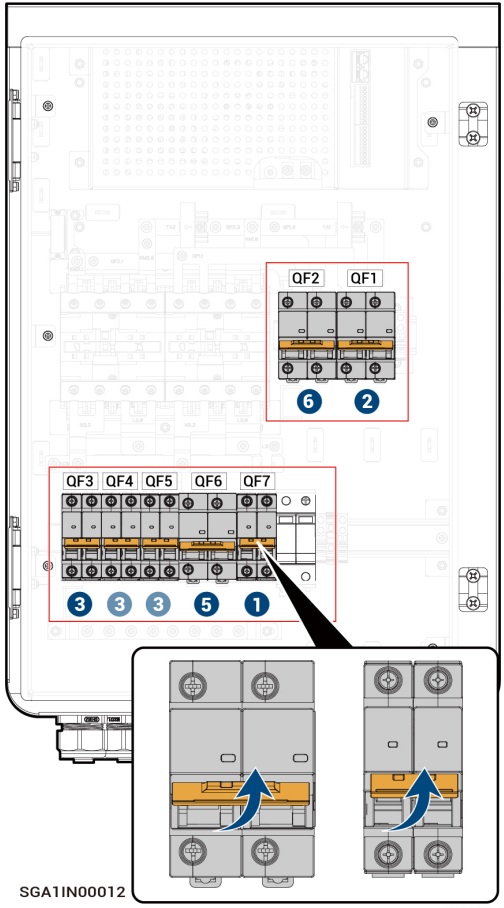
S/N	Check Item
1	The equipment has been securely installed.
2	Ground cables, DC cables, signal cables, etc. are installed accurately without leftovers.
3	The cable fastening screws or terminals are properly installed.
4	There are no sharp spikes or acute angles at the cut point of the cable tie.
5	The Gateway protective cover is locked.
6	There is no construction left inside or 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, tighten routing holes, and install protective covers.





Tips

- Turn on the front switch of the equipment.
- There is a risk of electric shock if the Gateway is left ungrounded.
- If the surge protective device is not switched on, failure of surge protection may lead to damage to household loads and Gateway.

1

Caution

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

1. Switch on the miniature circuit breaker (Surge Protection Device) QF7.
2. Switch on the miniature circuit breaker (Power grid) QF1.
3. Switch on the miniature circuit breaker (Inverter) QF3 or QF4 or QF5.
4. Wait until inverter is powered on.
5. Switch on the miniature circuit breaker (backup household loads) QF6.
6. (Optional) Switch on the miniature circuit breaker (Smart loads/Diesel generator) QF2.

2

Upon completion of the operation, close the front panel of the Gateway and lock the sides with the key key delivered with the case; the power-on is completed.

Sigenergy Technology Co., Ltd.

Website	LinkedIn	YouTube

www.sigenergy.com