HANCHU ESS

Version 01

User Manual

HESS-Gateway-M1

Smart Energy,

Sustainable Solutions

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Contents

1 Manual Overview

1.1 Purpose

This document describes the HESS-Gateway-M1 developed by Hanchu ESS in terms of its technical specifications, application scenarios, installation, commissioning, maintenance and troubleshooting. Please read this manual carefully, understand the safety information, familiarise yourself with the functions and usage of the gateway, and observe the signs on the equipment and all the safety precautions in the manual.

● Please read and understand all the contents of this manual before installing and operating the product. Any damage caused by ignoring the contents of this manual may void the warranty.

● This product can only be used in accordance with the manual, local standards, laws and regulations. Any other use may cause personal injury and property damage.

● The illustrations provided in this manual are used to illustrate product concepts, including product information, installation guidelines, instructions for use, safety information, FAQs, and maintenance, etc.

● Unauthorized changes or modifications to the product are not permitted, any unauthorized changes will void the HESS-Gateway-M1 warranty and Hanchu ESS will not be liable for any damages caused thereby.

● This manual and other product-related manuals are an integral part of the product and need to be kept properly for on-site installation personnel and related technical personnel to consult.

Thank you very much for choosing HESS-Gateway-M1 developed by Hanchu ESS. We sincerely believe that our products can meet your needs and look forward to your feedback.

1.2 Target Audience

This manual is intended for:

● End users

● Installers

● System engineers

● Technical Support Engineers

● End users tasks described in this manual can only be done by qualified electricians.

1.3 Symbol Conventions

Table 1 Meaning of the Identity

Symbol	Description
 DANGER	"DANGER" indicates a hazard with a high level of risks which, if not avoided, could result in death or serious injuries.
 WARNING	"WARNING" indicates a hazard with a medium level of risks which, if not avoided, could result in death or serious injuries.
 ATTENTION	"ATTENTION" indicates a hazard with a low level of risks which, if not avoided, could result in minor or moderate injuries.

The 'DANGER', 'WARNING' and 'ATTENTION' items in the manual do not represent all safety precautions to be followed, but as a supplement to all safety precautions.

Hanchu ESS is not responsible for any of the following situations:

- Operation beyond the conditions specified in this manual.
- Failure to comply with the operating instructions and safety precautions in this manual.
- Installation or use in environments that do not meet relevant international, national or local standards.
- Damage to the gateway, dropping, or damage to the hardware of the device due to improper operation or intentional damage.
- Disassemble and alter equipment or modify software code without authorization.
- The user or a third party uses the gateway outside the scenarios specified by us.
- Damage to the gateway when the gateway's operating environment or external power parameters do not meet the gateway's normal operating environment requirements.
- Failure to maintain the gateway in accordance with the operating instructions: e.g. failure to check the gateway terminals regularly.
- System damages caused by improper operations of a third party or customer, including those in transportation, installation, adjustment, alteration or removal of identification marks.
- The equipment damage caused by abnormal natural environment (force majeure, such as earthquake, fire, storm, flood, mudslide, etc).
- Damages caused during transportation by the customer.
- Storage conditions do not meet the requirements of the product manual.

2 Safety Requirements

The gateway has been designed and tested in accordance with international safety requirements. However, in order to prevent personal injury and property damage and ensure long-term operation of the gateway system, please do read this section carefully and observe all safety information at all times.

1) Important Safety Notice:

When installing the Hanchu Gateway within a property where an existing string inverter is connected to the property’s consumer unit, it is mandatory to disconnect the existing string inverter from the consumer unit and connect it directly to the Hanchu Gateway.

- Hanchu Ltd. will not be held liable for any damage, fire, or safety issues arising from improper installation where the existing string inverter is not connected to the Hanchu Gateway as instructed.
- Installers and property owners assume full responsibility for ensuring the installation complies with this guideline and all relevant safety regulations.

2) Risk of Severe Damage or Fire Hazard:

Failure to follow this procedure can result in severe damage to the property’s consumer unit, including the risk of fire or melting of the consumer unit. This is due to the following reasons:

- Inability of the String Inverter to Detect Power Cuts:

If the string inverter remains connected to the consumer unit, it will be unable to detect a power cut because the Hanchu Gateway keeps the consumer unit live.

Under G98 regulations, the string inverter must automatically shut down during a power cut for safety reasons. However, the continued live state of the consumer unit can prevent the string inverter from shutting down.

- Potential Power Imbalance and Overload:

In the event of a power cut, if the property’s energy consumption is lower than the energy generated by the PV system, the excess energy will be forced back into the consumer unit.

This scenario can cause overloading, overheating, and potentially result in a fire or severe damage to the consumer unit and other connected systems.

3) Compliance with G98 Regulations:

By connecting the existing string inverter to the Hanchu Gateway:

- The Gateway will automatically shut down the existing string inverter in the event of a power cut.
- This ensures compliance with G98 regulations for safe disconnection and protection of the property.
- It also protects the consumer unit from potential damage or hazards associated with improper power feedback.

4) Installation Guidance and Support:

- For further installation guidance or technical support, please contact Hanchu Ltd. or refer to the official Hanchu Gateway Installation Manual.
- It is strongly recommended that installation is carried out by a qualified and certified electrician experienced with PV systems and consumer unit configurations.

By proceeding with the installation, you acknowledge that you have read, understood, and agreed to the terms and safety requirements stated in this disclaimer.

2.1 General Requirements

The equipment has a high voltage. Irregular operation may generate electricshock or fire which may cause death, severe personal injuries or serious property damages. Please standardize the operation:

- It is strictly prohibited to install or operate outdoor equipments and cables (including handling equipment, operating equipment and cables, plugging and unplugging signal interfaces connected to the outdoors, working at heights, outdoor installation, etc.) in severe weather such as thunderstorm, snowy weather, strong breeze.
- Please observe the operation sequence and safety precautions in this manual and other related manuals.
- Follow the warning signs, cautions and precautions on the equipment.
- Follow the manual to use correct tools, and master the correct use of tools.
- Do not install and connect cables, maintain, or replace equipments with power on.
- Do not wash the equipment.
- Do not open the panel of the equipment.
- Measure the voltage before touching conductor surface or terminal to verify that there is no risk of electric shock.
- Repair the scratches that occur during equipment transportation and installation in time. It is strictly forbidden to expose the scratched parts to the outdoor environment for a long time.
- It is forbidden to lift and transport the batteries through the gateway terminals or bolts.
- Do not alter the internal structure or installation procedure of the equipment without prior permission of the manufacturer.
- Leave the building or the equipment area and turn on the fire alarm bell or make an emergency call immediately in the case of a fire. Do not enter the building on fire in any case.

2.2 Personnel Requirements

ATTENTION

- Personnel installing or maintaining Hanchu ESS equipment must be trained, understand all necessary safety precautions, and be able to correctly perform all operations. Personnel who will operate the equipment, including operators, trained personnel and professionals should possess local national required qualifications in special operations such as high-voltage operations and operations of special equipment.
- Only qualified professionals or trained personnel are allowed to install, operate and maintain the equipment.
- Only qualified professionals are allowed to remove security facilities and overhaul equipment.
- Only professionals or authorized personnel are allowed to replace the equipment or components (including software).

❖ Professionals: personnel who are trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation, operation and maintenance.

❖ Trained personnel: personnel who are technically trained, have required experience, are aware of possible hazards on themselves in certain operations and are able to take protective measures to minimize the hazards on themselves and other people.

❖ Operators: operation personnel who may come into contact with the equipment,except trained personnel and professionals.

2.3 Installation Environment Requirements

WARNING

● The installation and operating environment must comply with international, national and local standards and with local laws and regulations.

● Install in a location out of the reach of children.

● Garage installation needs to be far away from the direction of vehicle travel, it is recommended to install the gateway on the wall above the body bumper to avoid an accidental collision.

● When installing the gateway in a basement, keep good ventilation. It is recommended that the gateway be mounted on the wall to avoid contacting with water.

● Install the gateway in a dry and well-ventilated environment. Secure the gateway on a solid and flat surface.

● Install the gateway in a sheltered place or install an awning over it to avoid direct sunlight or rain.

● Install the gateway in a clean environment that is free from sources of strong infrared radiation, organic solvents, and corrosive gases.

● Precautions should be taken for installation in areas with frequent natural disasters such as floods, mudslides, earthquakes and typhoons.

● Keep the gateway away from fire sources. Do not place any flammable or explosive materials around the gateway.

● Keep the gateway away from water sources such as taps, sewer pipes, and sprinklers to prevent water seepage.

● Do not install the gateway in a position where it is easy to touch as the temperature of the chassis and heat sink is high when the gateway is running.

● Do not expose the gateway to flammable, explosive gas or smoke. Do not perform any operation on the gateway in such an environment.

● Do not install the gateway on a moving object, such as ship, train or car.

● Do not install the gateway outdoors in a salt-affected area because the gateway may be corroded. A salt-affected area is an area within 500m from the coast or affected by sea breeze. The area affected by the sea breeze varies according to meteorological conditions (such as typhoons and seasonal winds) or topographical conditions (such as DAMS and hills).

2.4 Electrical Requirements

➢ *2.4.1 General Requirements*

DANGER

Before connecting cables, ensure that the product is intact. Otherwise, electric shocks or fire may occur.

- Ensure that all electrical connections comply with local electrical standards.
- Ensure that the cables you prepared meet local regulations.
- Use dedicated insulated tools when performing high-voltage operations.

➢ *2.4.2 DC Operation*

DANGER

Do not connect or disconnect power cables with power-on. Transient contact between the core of the power cable and the conductor will generate electric arcs or sparks, which may cause fire or personal injury.

- Before connecting cables, cut off the power supply if people may contact energized components.
- Please ensure that the label on the power cable is correct before connecting the power cord.
- Disconnect all inputs and operate the equipment only after the equipment is powered off.

➢ *2.4.3 Cabling Requirements*

WARNING

When routing cables, ensure that a distance of at least 30mm exists between the cables and heat-generating components or areas. This prevents damage of the insulation layer of the cables.

When the temperature is low, violent impact or vibration may damage the plastic cable sheathing. To ensure safety, comply with the following requirements:

- ❖ Cables can be laid or installed only when the temperature is higher than 0°C. Handle cables with caution, especially at a low temperature.
- ❖ If the storage environment temperature of the cables is below 0°C, the cables must be stored at room temperature for more than 24 hours before laying the cables.

2.5 Personal Safety

WARNING

Wear proper personal protective equipment during operation. If there is a probability of personal injury or equipment damage, stop the operations and take feasible protective measures immediately.

- Use tools correctly to avoid hurting people or damaging the equipment.
- The anti-static gloves must be worn when touching the equipment. Do not wear clothes that can easily generate static electricity.
- Do not touch the shell when the equipment is running, the temperature of the shell is high, which may cause burns.
- To ensure personal safety and normal use, it should be grounded reliably before use.
- When the gateway is faulty, the temperature may exceed the burn threshold of the touchable surface. Therefore, avoid touching the gateway.

● Do not place irrelevant objects on the top of the equipment or insert them into any position of the equipment.

● Do not place flammable objects around the equipment.

● To prevent explosions and body injuries, do not place the gateway in a fire.

● Do not place the gateway in water or other liquids.

● Do not use water to clean electrical components inside or outside of a cabinet.

● Do not stand, rely or sit on the equipment.

● Do not destroy any module of the equipment.

● The gateway may cause electric shocks and high short-circuit currents. When using the gateway, pay attention to the following points:

a) Remove all metal objects from yourself, such as watches and rings.

b) Use tools with insulated handles.

c) Wear rubber gloves and boots.

d) Do not put tools or metal parts on the top of the gateway.

e) Disconnect the charging power supply before connecting or disconnecting the gateway terminal.

f) Determine if the gateway is unexpectedly grounded. Please remove power from the ground if accidental grounding occurs.

2.6 Gateway Safety

Do not expose the gateway at high temperatures or around heat-generating sources, such as sunlight, fire sources, transformers and heaters. The gateway may cause a fire if overheated.

● Do not insert foreign objects into the gateway or place the gateway in water or other liquids.

● The gateway must be stored separately inside the packaging.

● Do not use the gateway beyond the warranty period.

● Do not remove the gateway packaging before use.

● Move the gateway in the correct direction. Do not place a gateway upside down or tilt it.

● Protect the gateway from impact.

● Do not perform welding or grinding work around the gateway to prevent fire caused by electric sparks or arcs.

● Use the gateway within the temperature range specified in this manual.

● Do not use damaged the gateway.

● Do not place damaged the gateway in close proximity to flammable materials.

➢ *2.6.1 Label Description*

Table 2 Label Description

Symbol	Explanation
	**CE marking** The system complies with the requirements of the applicable EU directives.
	**Observe the documents** Observe all documents supplied with the system.
	**Disposal !** Do not dispose of the system together with household waste, please contact Hanchu service partner to dispose of it in accordance with regulations for electronic waste and used the gateway.
	**Grounding conductor** This symbol indicates the position for connecting a grounding conductor.
	**Beware of a danger zone!** This symbol indicates that the product must be additionally grounded if additional grounding or equipotential bonding is required at the installation site.
	**Beware of high voltage and operating current!** The product operates at a high voltage and current. Work on the product must only be carried out by skilled and authorized personnel.
	**Beware of hot surfaces!** The product can get hot during operation. Avoid contact during operation.
	**Capacitor discharge** Danger to life due to high voltages in the inverter. Do not touch live parts for 5 minutes after disconnection from the power sources.
	**Do not touch the product until 90 seconds after shutting down**
	**Keep ventilated**

2.7 Emergency Measures

DANGER

➢ *2.7.1 Damaged gateway*

● If the gateway is wet or immersed in the water, do not try to touch it.

● If the gateway seems to be damaged, they are not suitable for use and may be dangerous to personals or property.

➢ *2.7.2 Gateway Drop Emergency Measures*

● If a gateway is dropped or violently impacted during installation, internal damage may occur. Do not use such the gateway.

● If a dropped gateway has obvious damage or abnormal odor, smoke or fire occurs, evacuate the personnel immediately, call emergency services, and contact professionals. Professionals can use fire extinguishing facilities to extinguish the fire under safety protection.

● If a dropped gateway has no obvious deformation or damage and no abnormal odor, smoke or fire occurs, contact professionals to transfer the gateway to an open and safe place or contact a recycling company for disposal.

➢ *2.7.3 Fire Emergency Measures*

● If a fire occurs, power off the system if it is safe to do so.

● Use carbon dioxide, FM-200 or ABC dry powder extinguishers to extinguish the fire.

● Ask firefighters to avoid contacting with high-voltage components during extinguishing fires to prevent the risk of electric shock.

2.8 Gateway Recovery Process

ATTENTION

● Dispose of used the gateway in accordance with local laws and regulations. Do not dispose of the gateway as household waste.

● Do not expose the gateway to high temperatures or direct sunlight.

● Do not expose the gateway to high humidity or corrosive environments.

3 Product Description

HANCHU ESS has developed a gateway for home energy storage systems that supports partial home backup and is capable of connecting EV charger. It facilitates data collection and monitoring, off-grid backup switching, and provides more centralised management of household electricity consumption.

3.1 Product Description

➢ *3.1.1 Model Identification Description*

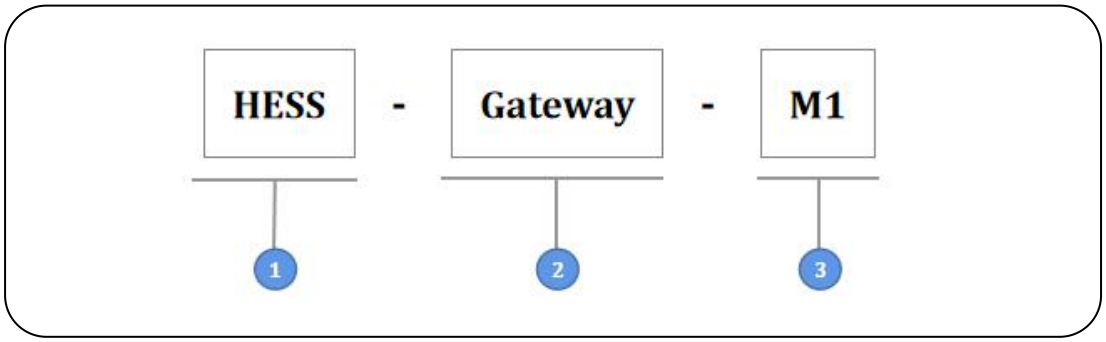


Figure 1 Name of the Product

Table 3 Definition of the Product Name

No.	Meaning	Value
1	Product	HESS: Home Energy Storage System
2	Name of the series	Gateway
3	Model code	M1： Product marking

➢ *3.1.2 Product Dimension And Weight*

Table 4 Product Dimension And Weight

Width	Depth	Height	Weight
360mm	450.5mm	169.5mm	14.5kg

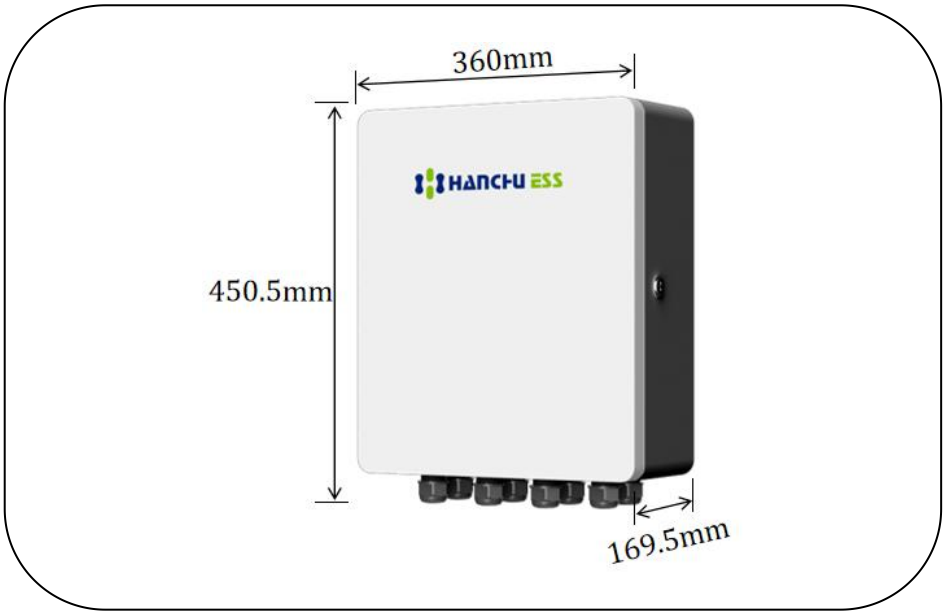


Figure 2 Picture of the Product

3.2 Interface Description

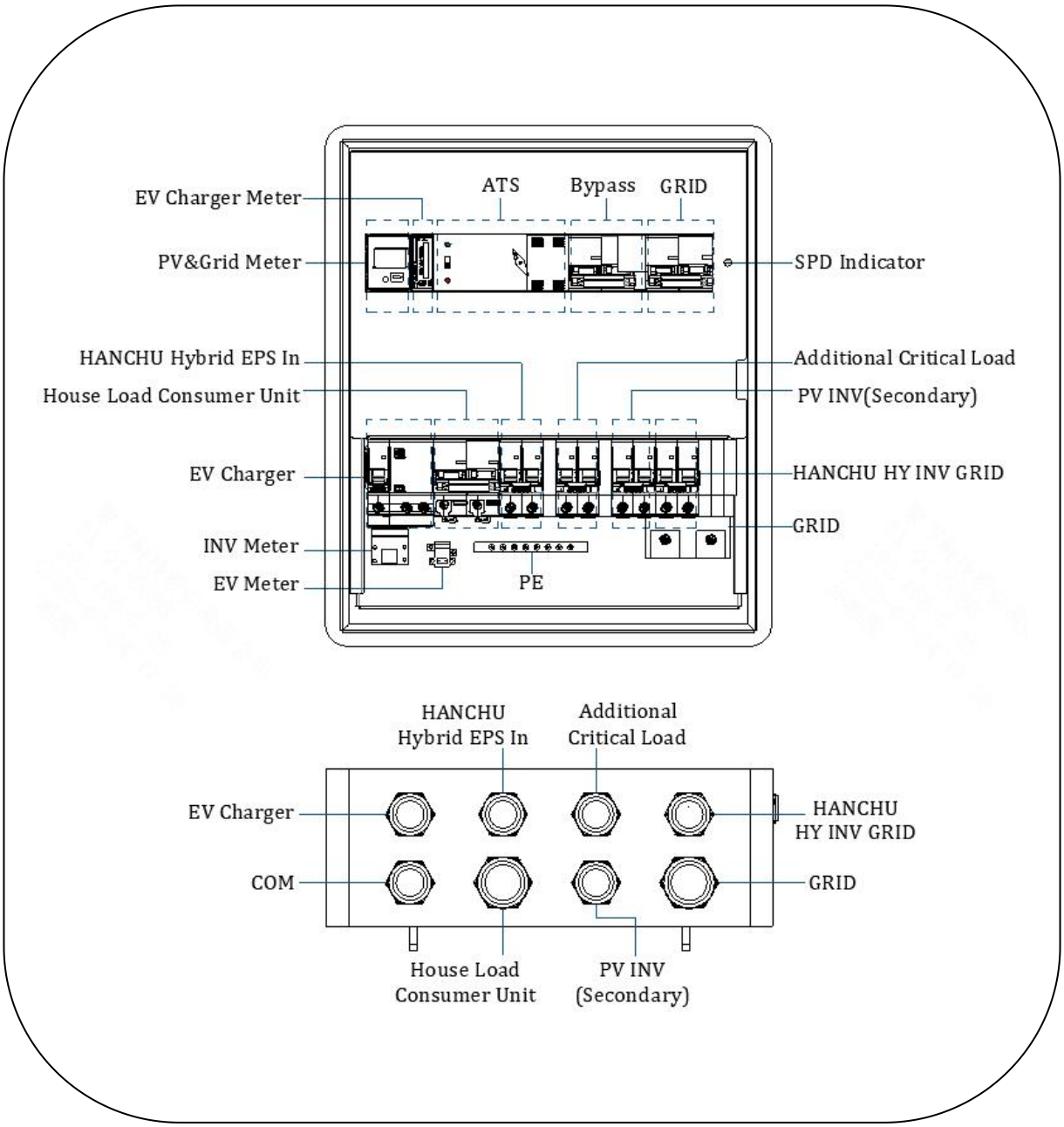


Figure 3 Interface Location Chart

3.3 Product Parameters

Table 4 Product Parameters

Project	Parameter
Model	HESS-Gateway-M1
Input Data	
Nominal AC Input Voltage Range	220/230/240V
Max. AC Current (Grid)	100A
Max. AC Current (PV INV)	32A
Max. AC Current (Inverter)	32A
Rated AC Frequency	50/60Hz
Output Data	
Nominal AC Output Voltage Range	220/230/240V
Max. AC Current (Load)	100A
Max. AC Current (Backup)	32A
Max. AC Current (EV Charger)	32A
Rated Output Frequency	50/60Hz
Switching time	House Load Consumer Unit≤300ms, Additional Critical Load≤10ms
Supported Devices	
Inverter	Yes
Battery	Yes
EV Charger	Yes
Load	Yes
General Data	
Activation Methods	Grid Startup + Inverter Startup

Operating Modes	On Grid + Off Grid
Bypass Mode	Manual
Protection Class	I
AC Surge Protection Type Ⅱ	Yes
Ingress Protection Degree	IP65
Operating Temperature Range	-20~50℃
Relative Humidity Range	5%~95%
Operating Altitude	<4000m（>2000m derating)
Cooling concept	Natural convection
Dimensions (W*H*D)	360*450.5*169.5mm
Weight	14.5kg

4 Installation

4.1 Installation Note

- Please read and understand this section carefully before installing the product!
- Installation personnel must inspect the customer's existing wiring before installing the Gateway to ensure the household circuit is in normal condition, so as to prevent the circuit breaker from tripping due to line leakage.

➢ *4.1.1 Personnel Qualification*

Product installers should have received safety technical training, obtained the local electrician certifications and the authorized qualifications for product installation. And installers should be familiar with electrical equipment, accumulate relevant experience and have the following capabilities, including but not limited to:

- Setup, startup, shutdown, grounding, short-circuiting and repair of electrical equipment.
- Standardized maintenance and use of protective tools for electrical equipment.
- Providing emergency assistance for the injured.
- Complying with local laws, regulations, standards and directives.

➢ *4.1.2 Installation Environment*

Please make sure the installation location meets the following conditions:

- The building is designed to withstand earthquakes.
- The floor is flat and hard, and the area has minimal dust and dirt.
- The ambient environment is cool, dry, well-ventilated, and away from the sea, salt water, humid air, heat sources as well as direct sunlight.
- Temperature and humidity are kept at a constant level.
- There are no flammable and explosive items, corrosive gases, including ammonia and acid vapors, and contaminants.

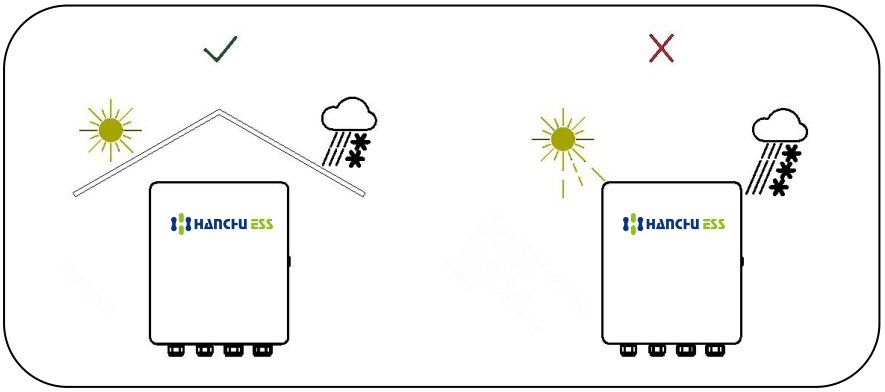


Figure 4 Installation Environment

➢4.1.3 Installation Angle

The gateway can be installed on the wall. When the gateway is installed on the wall, install it on a flat wall and keep the gateway parallel to the wall. And don't install the gateway at inclined, horizontal, or upside down positions.

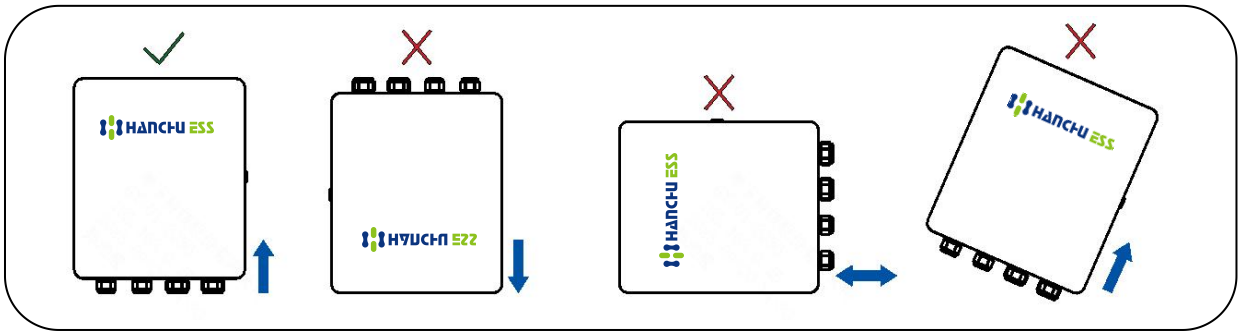


Figure 5 Installation Angle

➢4.1.4 Installation Space

Leave enough space to install the gateway. Installation space as shown below.

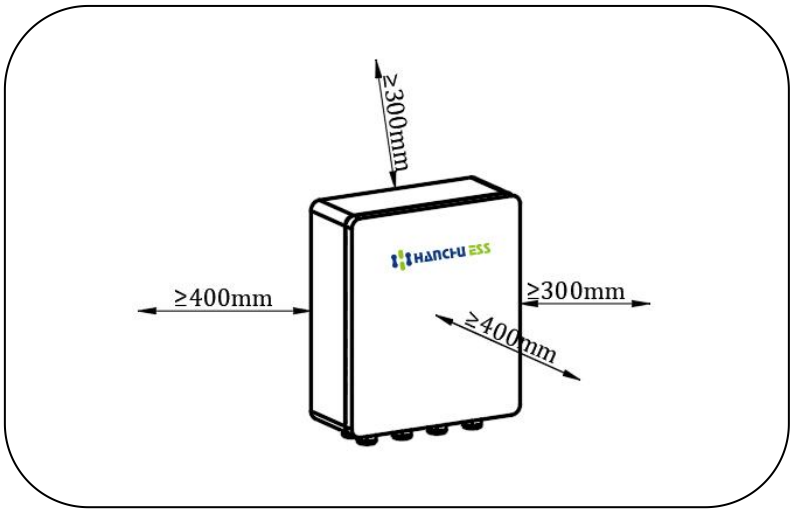


Figure 6 Installation Space

4.2 Installation Preparation

➢*4.2.1 Personal Protective Equipment*

Improper operation may cause personal injury and property damage.
Personal protective tools must be used during installation.
The following are the recommended personal protective tools:

- Safety gloves: Prevent the risk of electric shock and scratches during installation.
- Safety glasses: Prevent eye damage from splashing foreign objects during installation.
- Safety Shoes: Prevent the risk of electric shock. Ensure safety in case the module is accidentally dropped during installation.

Figure 7 Personal Protective Equipment

4.2.2 Installation Tools

Tools needed in the process of installing equipment, more effective to improve installation efficiency.

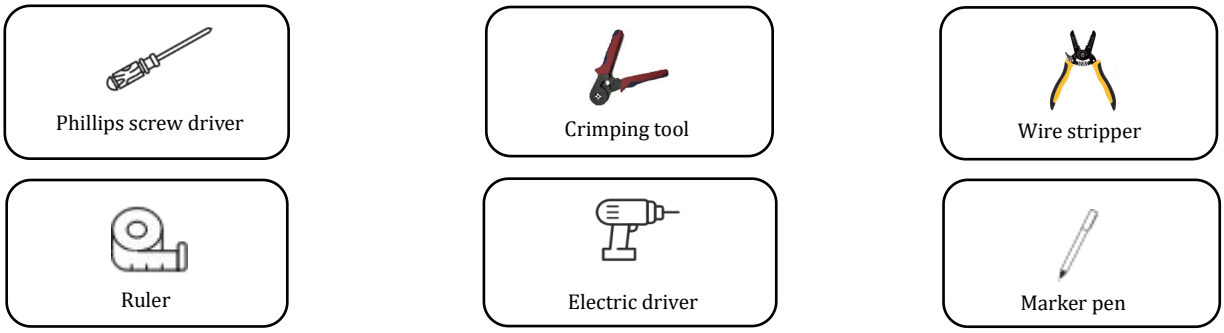


Figure 8 Installation Tools

➢*4.2.3 Open Box to Check*

- Make sure the gateway is intact during shipping. If there is any visible damage such as cracks, please contact your dealer immediately.
- Tear off the packaging tapes to unpack the gateway, please check that the gateway packaging and all related items are in good condition.
- Please check the packing list carefully by referring to Section 4.2.4 Packing accessories. If there's any item missing, please contact your dealer directly.

4.2.4 Product Accessories

Table 5 Product Accessories

Label	Name	Quantity	Function description
A	Gateway Box	1	System core components
B	Key	2	Keys for product lids
C	Wall mounted bracket	1	Fixed the gateway
D	Expansion tube/screw Diameter 6mm, depth 50mm	5	Fixed the bracket
E	Screw/M4*10	1	Connected to ground terminal
F	Terminal/OT6-4	1	Connected to ground cable
G	Hexagonal screw/M4*14	2	Fixed the bracket and gateway
H	Spare terminal/SC16-6	2	Connected to the GRID cable(6AWG)
I	Spare terminal/SC25-6	2	Connected to the GRID cable(3AWG)
J	Quick Installation Guide	1	Product installation guide

4.3 Installation

Before you start connecting cables, make sure that gateway and the equipment is fully switched off!
Make sure the wall is strong enough to bear the weight of the gateway.

Step 1: Locate drill holes in the wall

Use the bracket as a template to make positioning holes in the wall, mark the positions of the 4 holes, and then drill 10mm holes to ensure that the depth of the holes is greater than 50mm.The bracket should be placed at least 500mm above the ground.

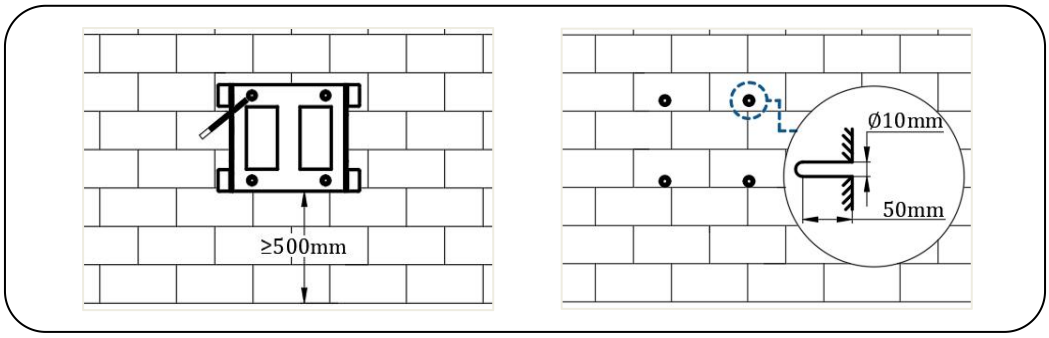


Figure 9 Sample of Step 1 For Wall Installation

Step 2: Fix the wall mount bracket

Fix the expansion tubes into the holes, pull them tight, and then use the expansion screws (packaged with expansion tube for use) to install and secure the wall mount bracket to the wall.

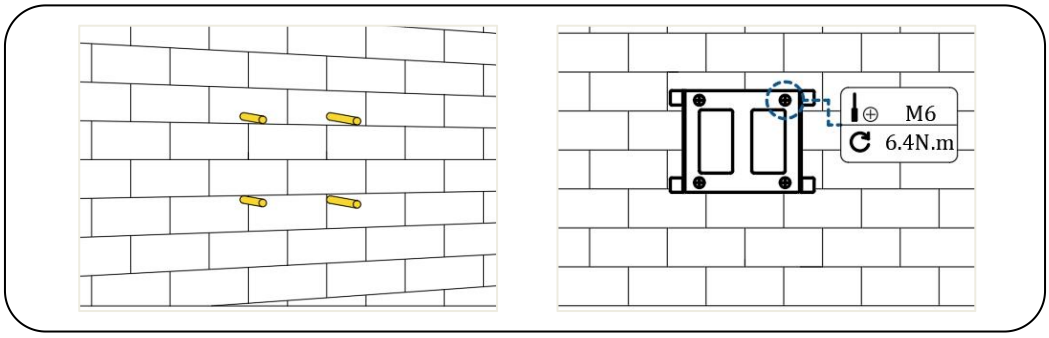


Figure 10 Sample of Step 2 For Wall Installation

Step 3: Fix the gateway

There is a hook design on the back of the gateway. Align and fix it to the positioning groove of the Wall mount bracket, and secure it with M4*14 screws. Make sure there is enough space around the gateway.

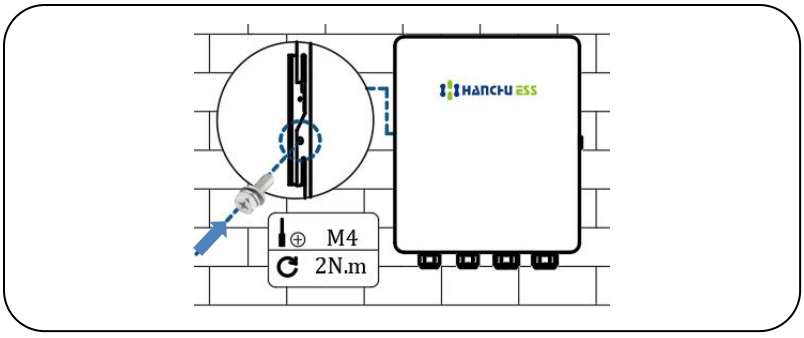


Figure 11 Sample of Step 3 For Wall Installation

4.4 Electrical Connections

➢*4.4.1 Preparing Cables*

Table 6 Preparing Cables

No.	Name		Size	Source
1	Ground cable	Ground the gateway with a ground cable	6 mm^2	Prepared by the customer
2	AC cable	Connecting EV Charger	Outdoor 3-Core Copper Cable	Prepared by the customer
3		Connecting House Load Consumer Unit		Prepared by the customer
4		Connecting HANCHU Hybrid EPS In		Prepared by the customer
5		Connecting Additional Critical Load		Prepared by the customer
6		Connecting PV INV (Secondary)		Prepared by the customer
7		Connecting HANCHU HY INV GRID		Prepared by the customer
8		Connecting GRID		Prepared by the customer
9	Communication cable	Connecting EV Charger	RJ45	Prepared by the customer
10		Connecting HY INV	Standard network cable	Prepared by the customer

➢*4.4.2 System General Wiring Diagram*

1) Connect cables according to the corresponding labels to prevent personal injury and equipment damage caused by incorrect cable connection.

2) To ensure that the inverters, loads, and the Gateway are connected to the common ground point, connect the PE cable.The PE cable of the AC output interface shall not be used as a substitute for the protective grounding point of the equipment enclosure.

3) The cable colours shown are for illustrative purposes only and the colours are subject to actual conditions.

4) The cable insulation layer shall be located inside the lower connector.

5) The wire core must be fully inserted into the terminal hole, with no exposure and a secure connection; otherwise, it may lead to improper operation of the equipment.

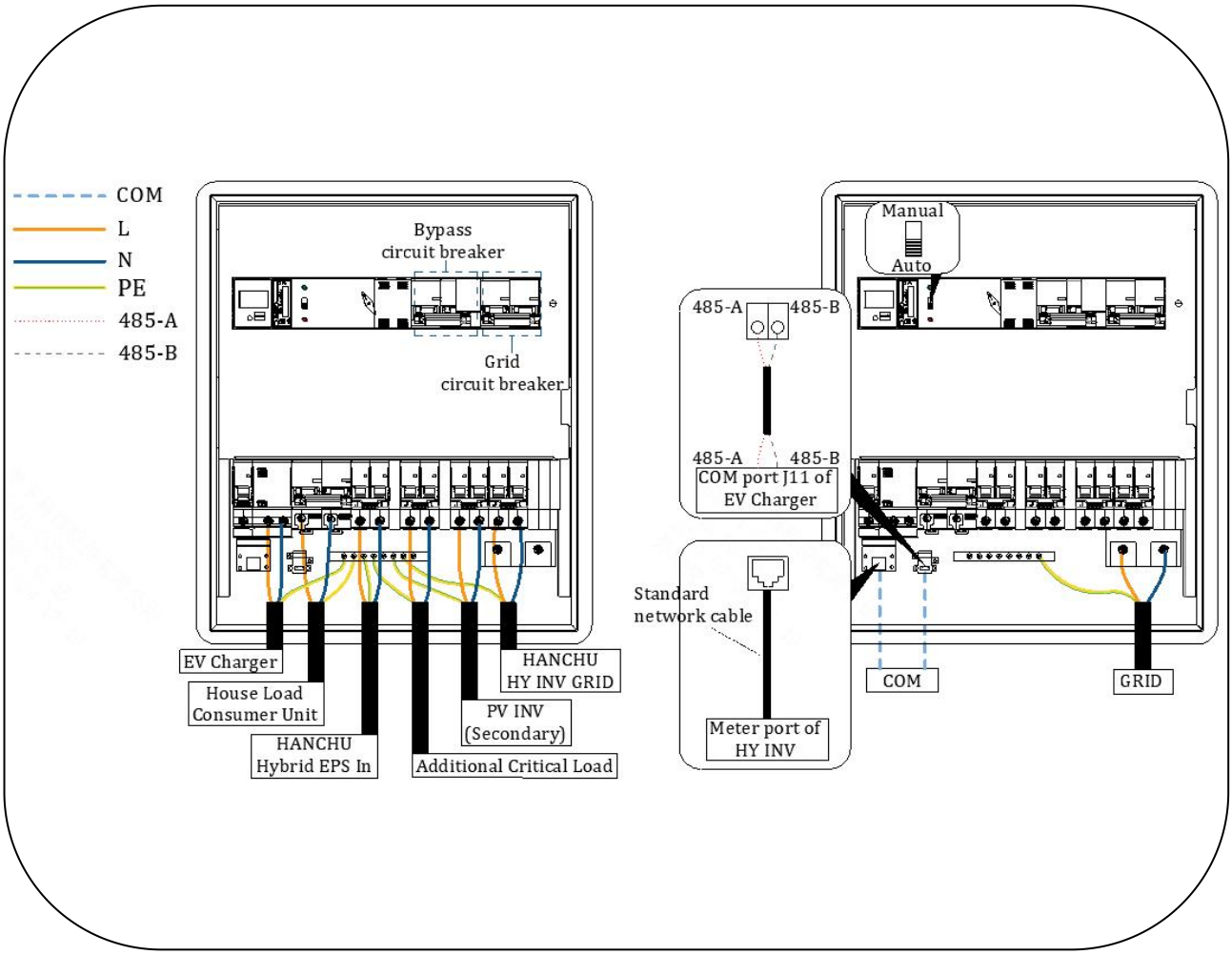


Figure 12 System General Wiring Diagram

Note:

When the system is working normally, please turn the switch of the ATS to the automatic switching state, otherwise it may cause the load to be disconnected.

➢*4.4.3 Gateway Ground Connection*

1) Crimp the ground terminal

Customer needs to prepare the area of the grounding cable shall be at least 6mm^2, use a ground screw and terminal to connect the ground cable. The bolt locking torque is 2NM.

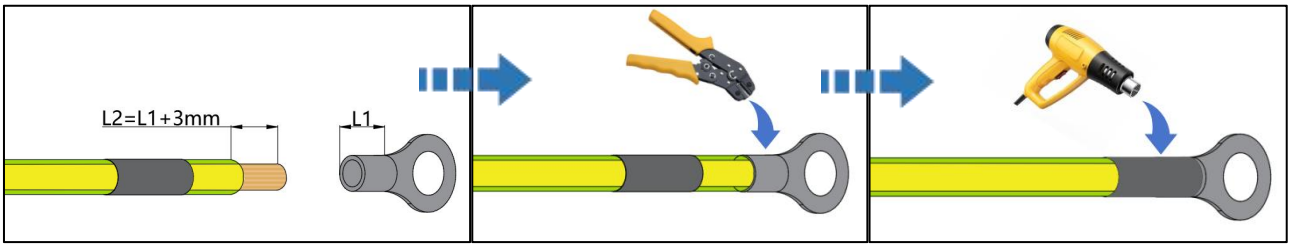


Figure 13 Sample of Crimping Method

2) Ground the gateway with a ground cable through the ground screw and terminal.

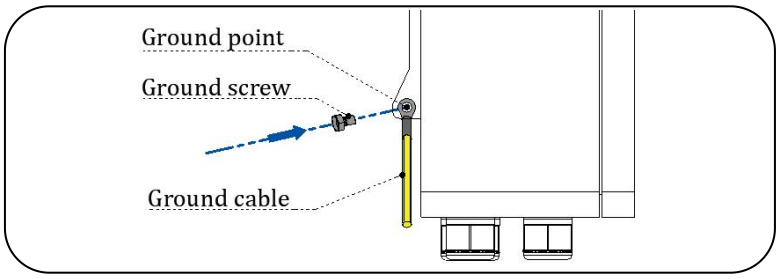


Figure 14 Sample of Gateway Ground Connection

➢*4.4.4 Opening Equipment Door*

1) Unlock and open the door with the key included in the box.

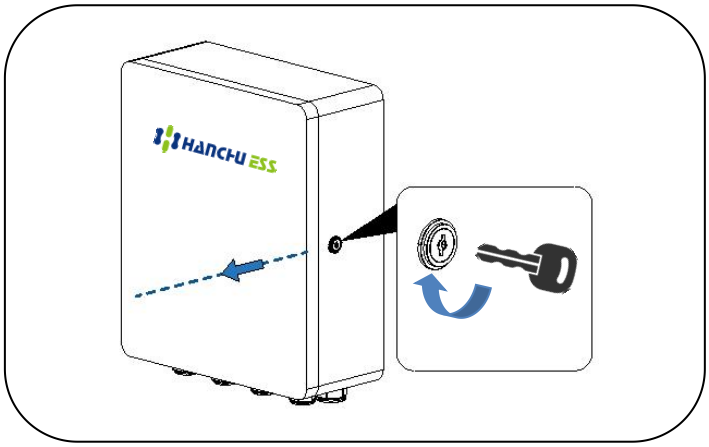


Figure 15 Sample of Opening Equipment Door

2) Remove the fastening screws on the cover plate and open the cover plate.

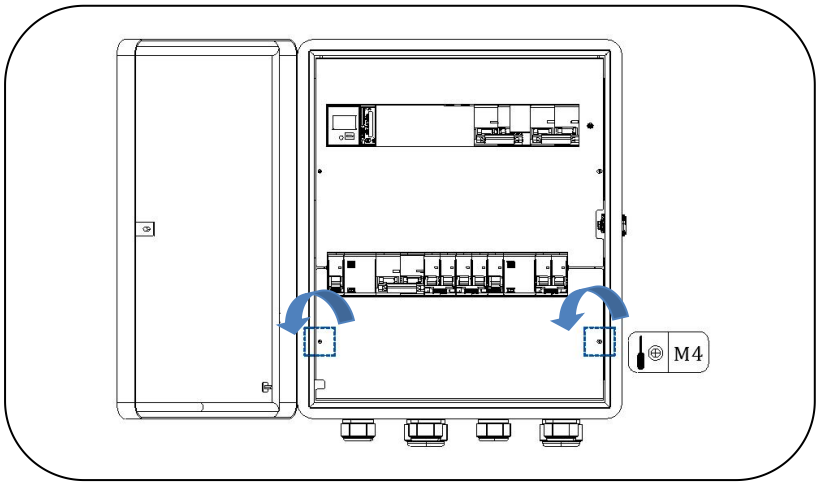
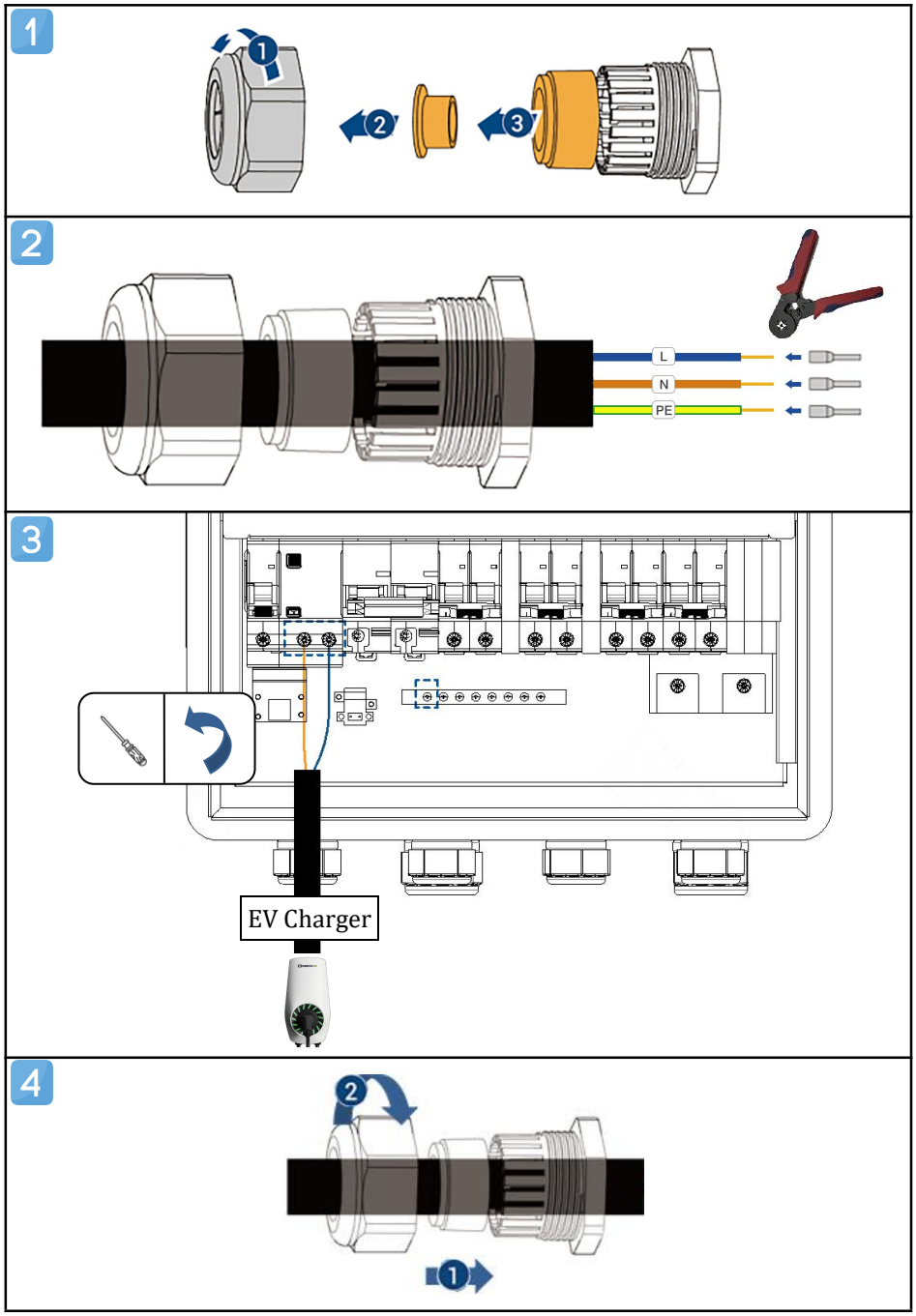


Figure 16 Sample of Opening Equipment Cover Plate

➢*4.4.5 Connecting EV Charger Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the EV Charger.
4) Tighten the connector.
5) The AC cable connection for the EV Charger is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.

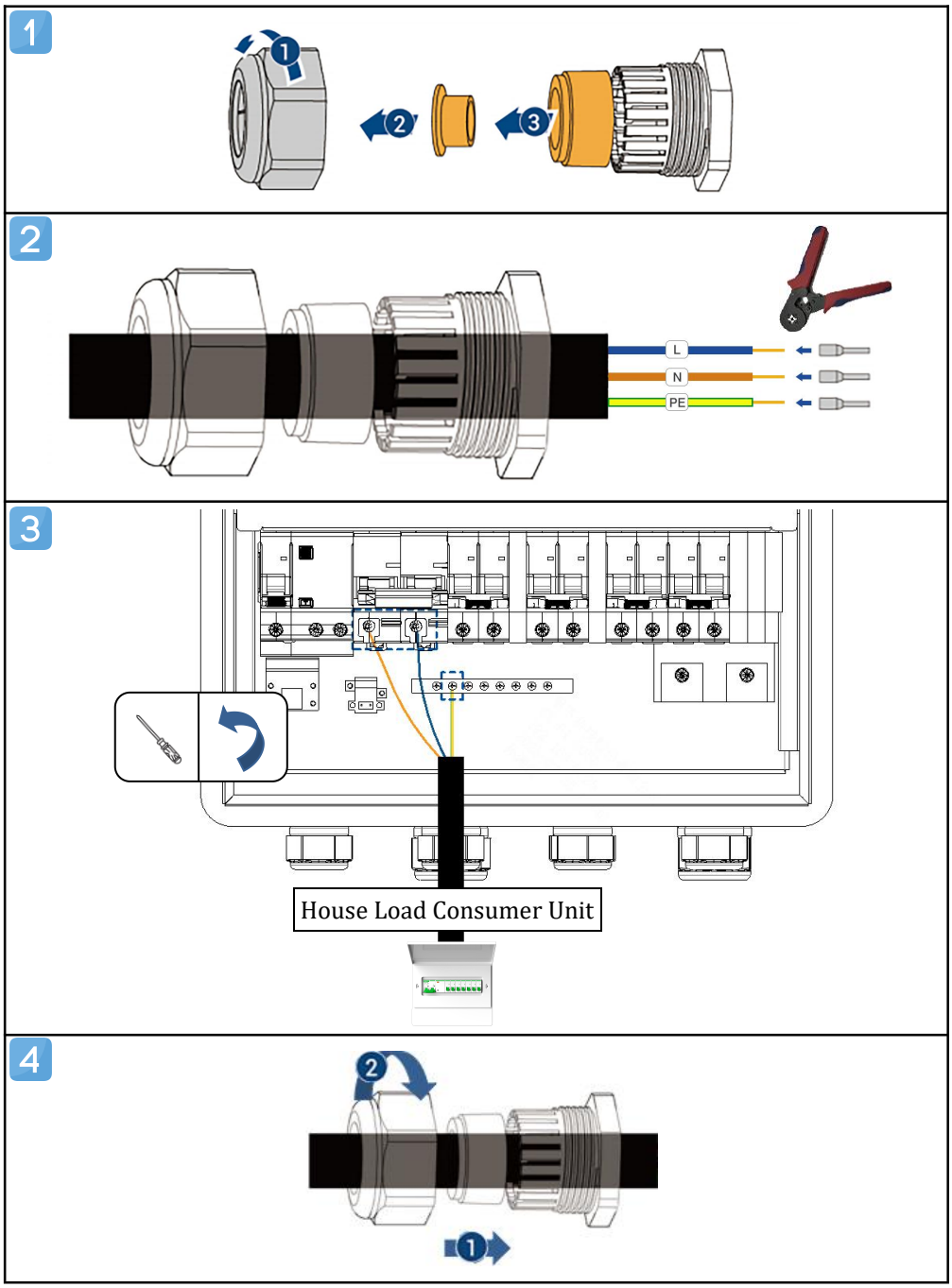


➢*4.4.6 Connecting House Load Consumer Unit Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the House Load Consumer Unit.
4) Tighten the connector.
5) The AC cable connection for the House Load Consumer Unit is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.

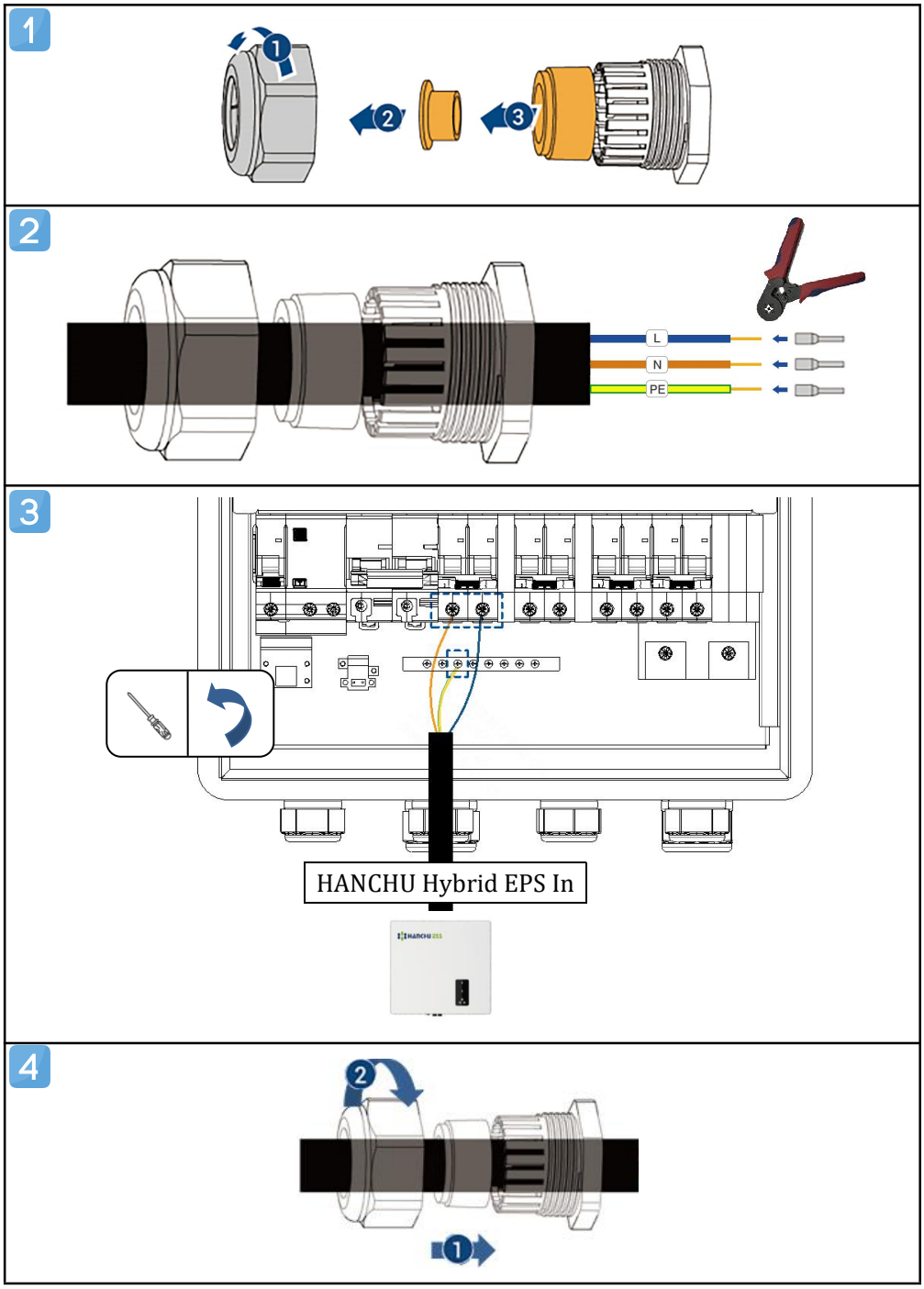
The Max. AC Current (Load) for the gateway is less than 100A. Do not install if the load exceeds 100A.



➢*4.4.7 Connecting HANCHU Hybrid EPS In Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the Hybrid EPS In.
4) Tighten the connector.
5) The AC cable connection for the Hybrid EPS In is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.

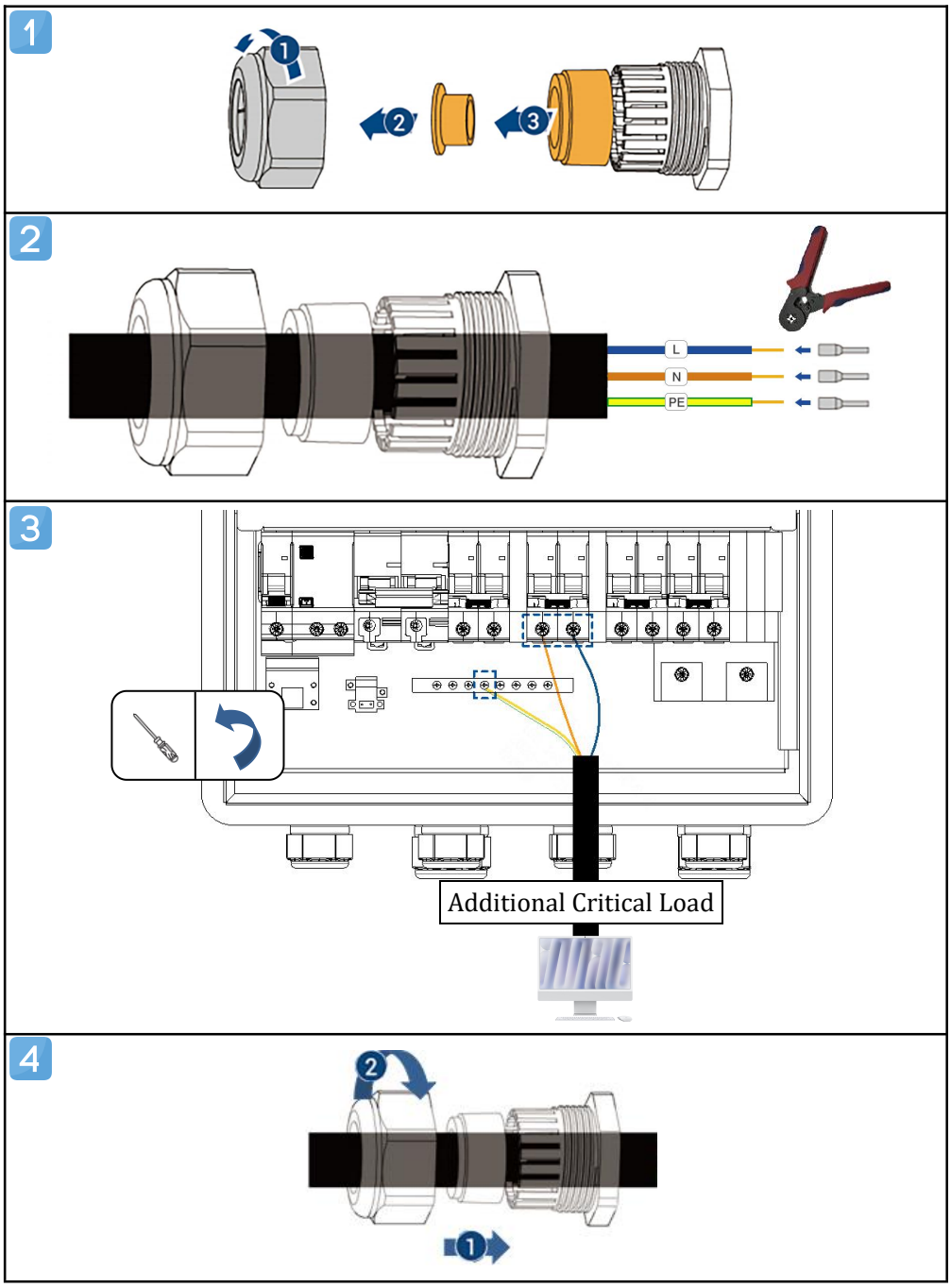


➢*4.4.8 Connecting Additional Critical Load Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the Additional Critical Load.
4) Tighten the connector.
5) The AC cable connection for the Additional Critical Load is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.

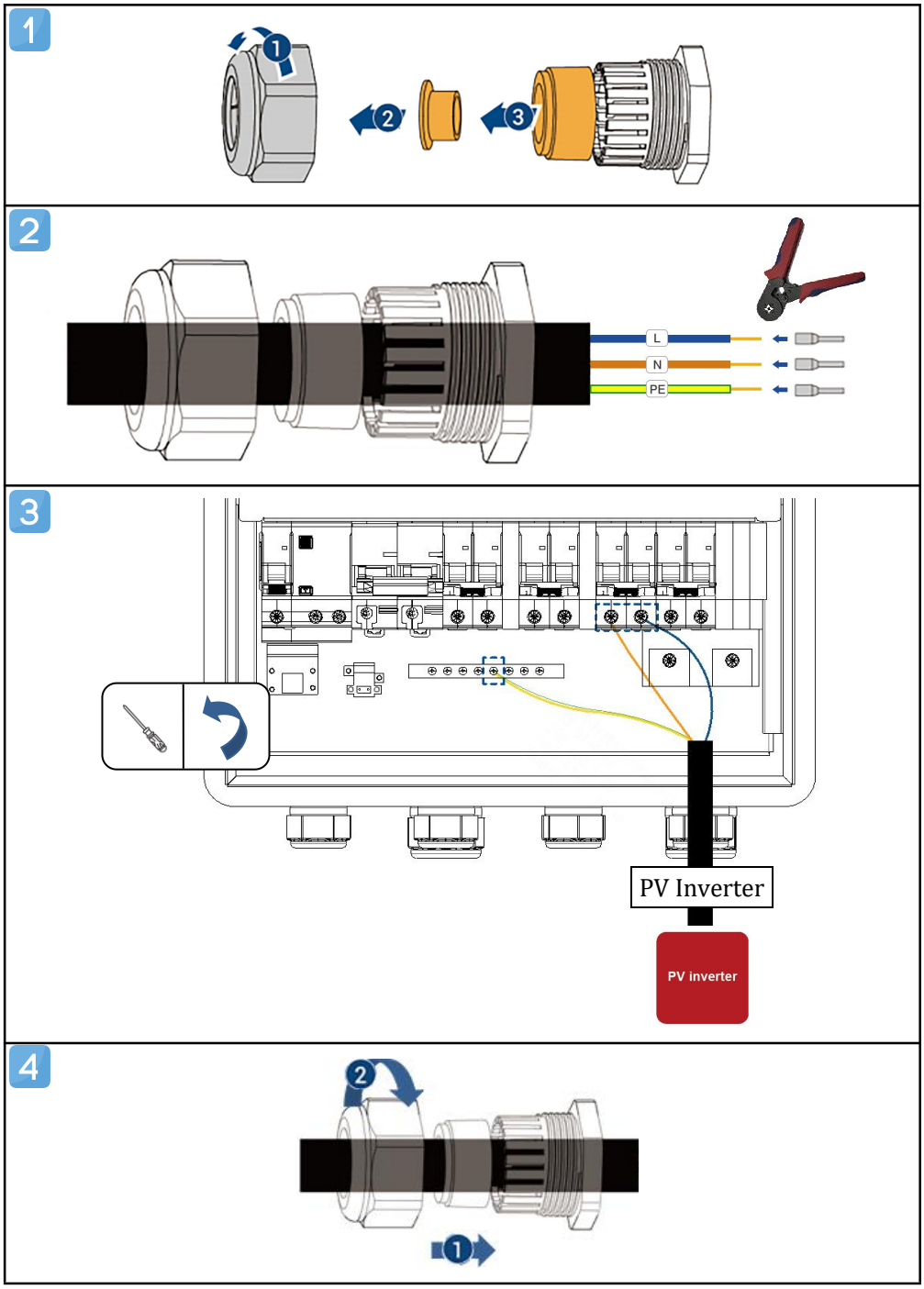
The Max. AC Current (Backup) for the gateway is less than 52A. Do not install if the backup load exceeds 52A.



➢*4.7.9 Connecting PV INV Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the PV INV.
4) Tighten the connector.
5) The AC cable connection for the PV INV is now complete.

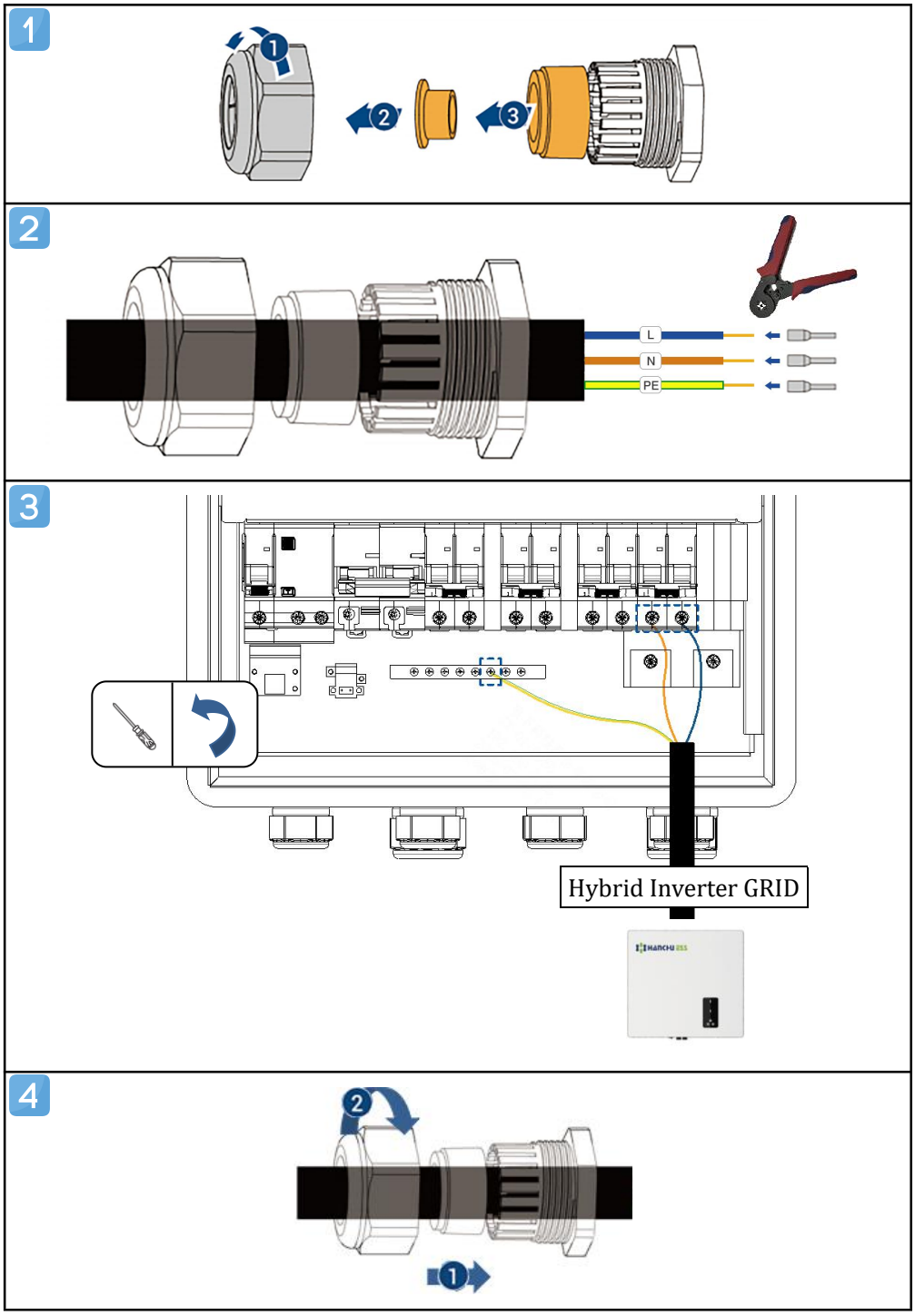
Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.



➢*4.4.10 Connecting HANCHU HY INV GRID Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the HY INV GRID.
4) Tighten the connector.
5) The AC cable connection for the HY INV GRID is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs.

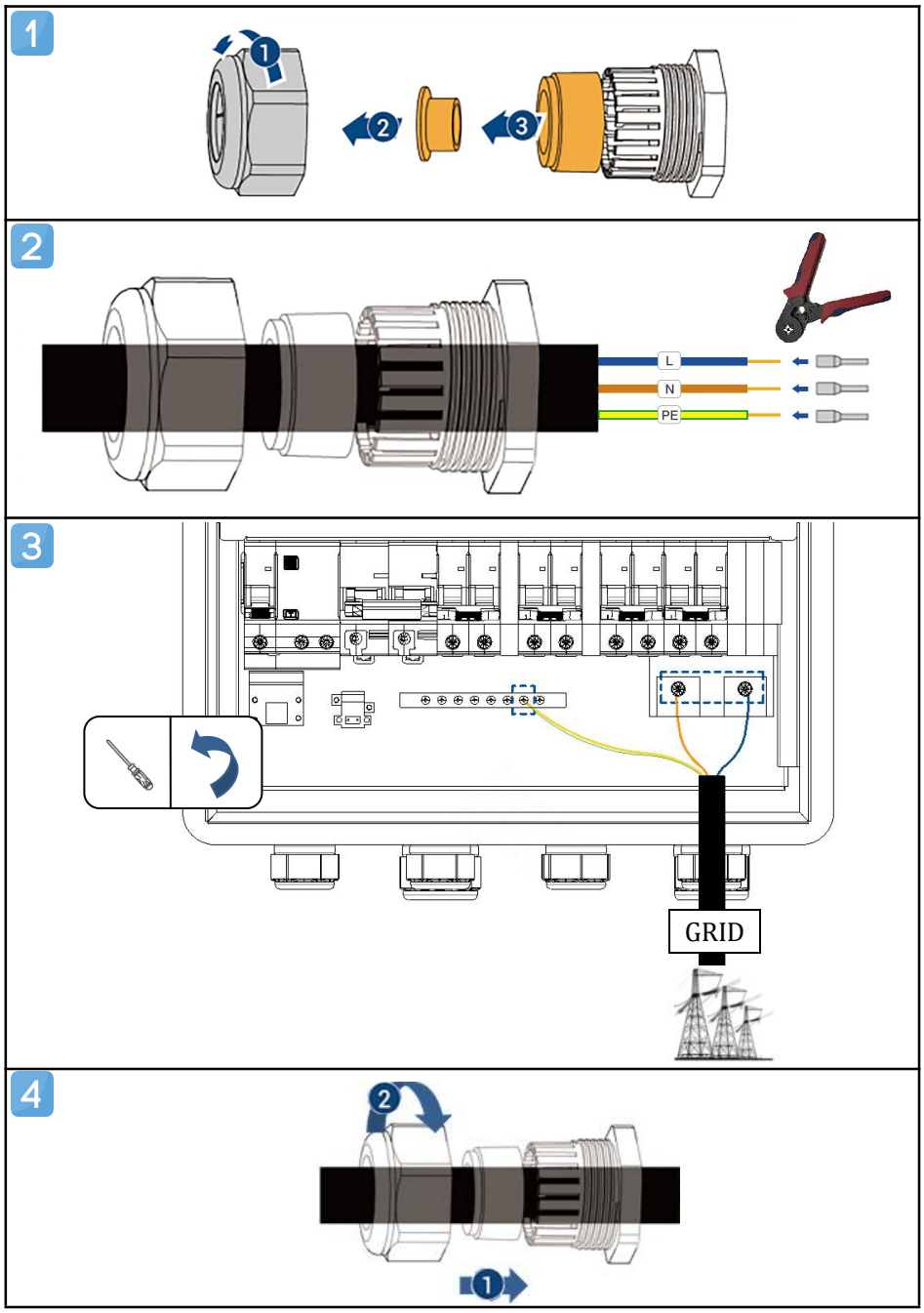


➢*4.4.11 Connecting GRID Cable*

1) Remove the connector.
2) Pass the cable through the locking nut and the waterproof grommet in sequence.
3) Connect the crimp terminal to the gateway and secure it, then connect the other end to the GRID.
4) Tighten the connector.
5) The AC cable connection for the GRID is now complete.

Note : The user should prepare AC crimp terminals that meet the requirements according to the actual installation needs. The following figure is an example of a three-core cable.

If the GRID cables use 6AWG or 3AWG, there are spare terminals SC16-6 and SC25-6 included in the box.



4.5 Communication Connection

➢*4.5.1 Connect the Meter Port of HY INV*

1) Remove the connector.
2) Pass the communication line through the locking nut and the waterproof grommet in sequence.
3) Connect the standard network cable to the gateway, then connect the other end to the meter port of the hybrid inverter.
4) The communication line connection for the meter port of the hybrid inverter is now complete.

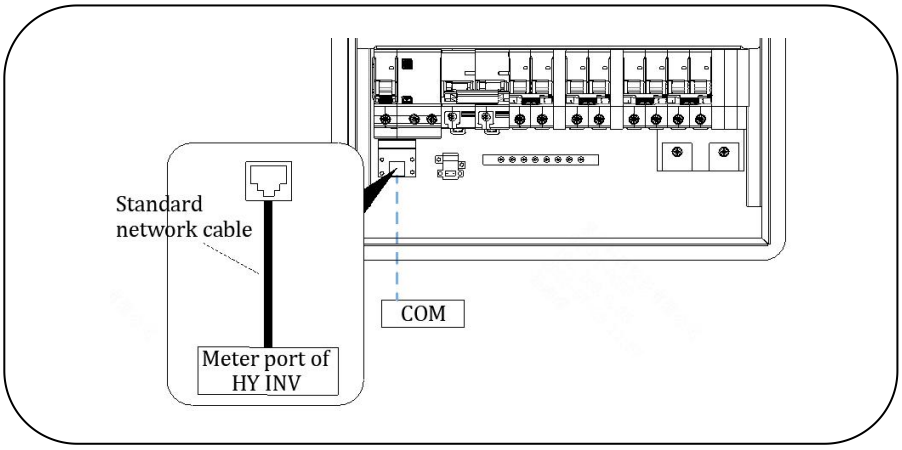


Figure 17 Sample of Connecting the Meter Port of HY INV

➢*4.5.2 Connect the Communication Cable of the EV Charger*

5) Pass the RJ45 communication line through the locking nut and the waterproof grommet in sequence.
6) Connect the 485A and 485B ports of the communication cable to the terminal block on the gateway, and connect the other end to the COM port J11 of EV Charger.
7) Tighten the connector.

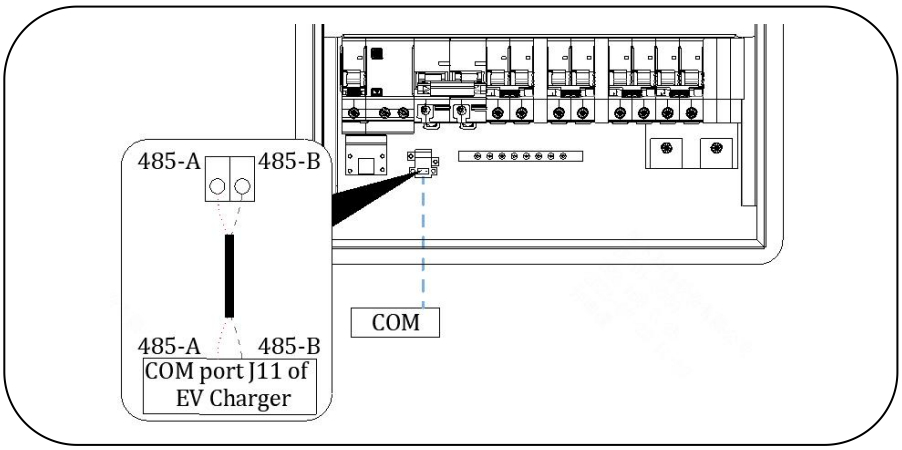


Figure 18 Sample of Connecting EV Charger Communication Cable

The communication line connections are completed.

4.6 Commissioning

➢*4.6.1 Check before Powering On*

1) Check if the gateway is firmly installed, check if the components and terminals inside the gateway are tightened without any loosen part.
2) Check all wires and cables are connected properly. Check if the L and N lines are connected properly.
3) After checking the cables, tighten the waterproof socket connector under the gateway to prevent insects and steam from going in.

Note:

- The bypass circuit breaker shall be permanently turned off, and only when the system failure occurs, it is necessary to turn on the circuit breaker to carry the load; at this time, the GRID circuit breaker should be turned off.
- When the grid stops working, if the power of the household load is greater than the power of the inverter, please switch off the equipment that exceeds the power, otherwise the inverter may not work properly.

➢*4.6.2 Commissioning Checklist*

With all steps above checked with no errors, tighten the fastening screws on the cover plate and close the cover plate.

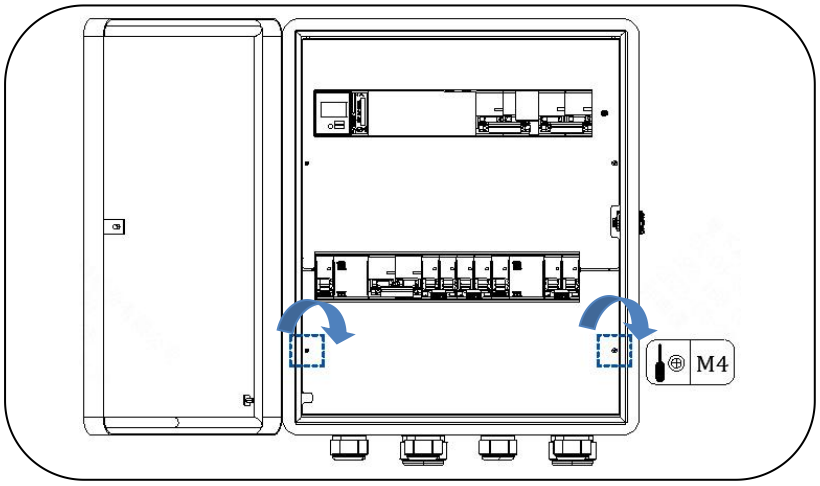


Figure 19 Sample of Closing Equipment Cover Plate

1. Device Connectivity

Ensure all inverters and batteries are online and connected.
Confirm that the communication cable from the inverter to the gateway is a standard patch lead.

2. Inverter Connectivity

- Set the inverter working mode to AC Coupled.
- Change the meter type to Chint DDSU666 – Q Channel A.
- Enable the N-PE contactor in the function settings.

3. Firmware and Device Updates

Verify that all devices (inverters, batteries, meters, gateway, etc.) are fully updated with the latest firmware.

4. Gateway Breakers

Turn on the following breakers inside the gateway:

① Hybrid power supply
② EPS power supply
③ Grid power supply
④ Load supply to property

Important:

If there is a secondary PV system, its circuit must be connected to the "Secondary PV" breaker in the gateway.

5. ATS (Automatic Transfer Switch) Configuration

- Normal operation indicators should be:
  - Green light at Point A
  - Red light at Point B
  - Transfer switch physically pointing to A
  - ATS switch set to Auto

Note:

If there is no red light at Point B, the EPS may not be enabled. This could be due to:

- Low State of Charge (SOC) of the battery
- Communication issues between battery and inverter, or inverter and meter

6. Safety and Earth Verification

Ensure the earth spike is installed by the installer and that the resistance has been recorded.

7. Monitoring and Testing

- Verify that inverter monitoring is reading correctly.
- Ask the installer to turn off the grid power supply at the gateway. This should:
  - Trigger the system to enter EPS mode
  - Cause the ATS to automatically switch to Point B
  - Ensure the property's circuits remain powered normally
- Once tested, ask the installer to turn the grid supply back on. This should:
  - Cause the ATS to switch back to Point A
  - Confirm that the system is now back on grid supply

Note:

This commissioning procedure also supports basic fault finding if issues arise during setup.

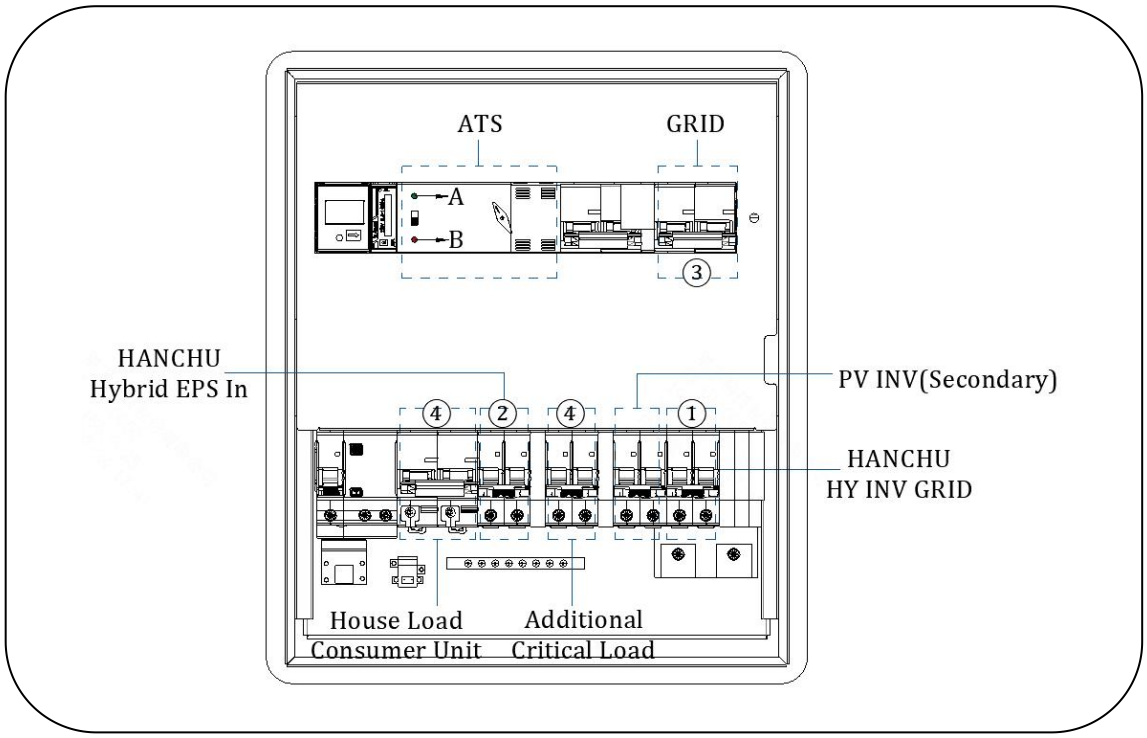


Figure 20 Sample of Turn on Circuit

When the operation is complete, close the appliance door.

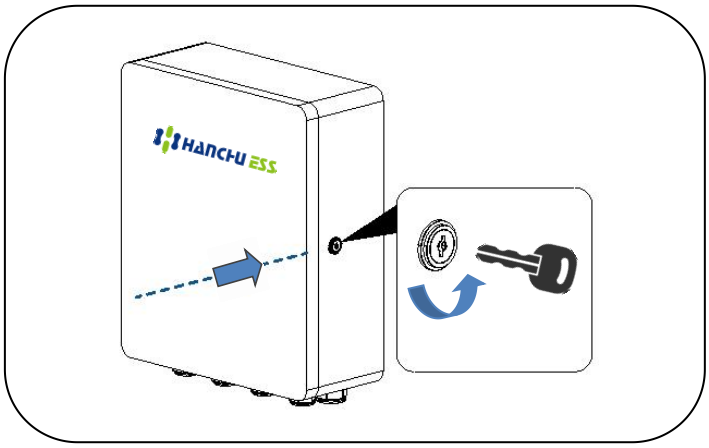


Figure 21 Sample of Closing Equipment Door

➢*4.6.3 Power Down*

High Voltage Hazard: Only authorized professional personnel are permitted to open the equipment cover plate to operate the electrical connections.

1) Before opening the equipment door, first turn off the main switch at the entrance, then turn off the switches for the backup load and home load. Turn off the inverter and disconnect the DC switch and energy storage switch of the inverter.

2) Before opening the equipment cover plate, turn off all circuit breakers inside the gateway.

Complete the device power down.

4.7 Definition of Indicator Lights

The gateway has an indicator light that shows whether the device is operating normally.

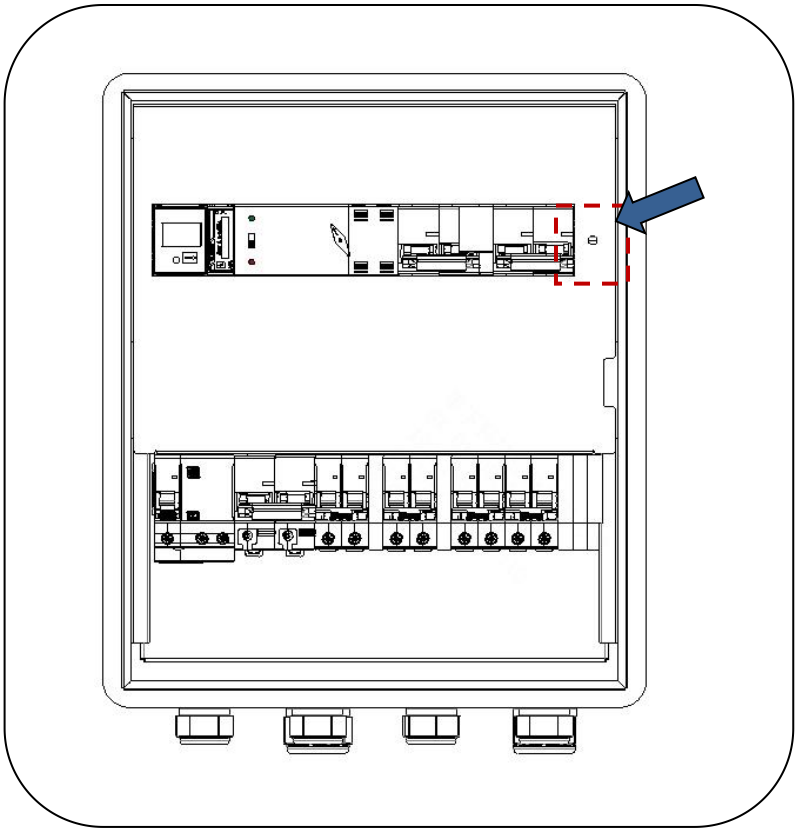


Figure 22 Sample of Indicator the Light

Table 7 Definition of Indicator Lights

No.	Status	Explanation
1	Green On	The device is operating normally.
2	OFF	The device has a malfunction.

Android APP

iOS APP

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