



RISE 261H-XH

User Manual

Version Number: 00

Data: 2026/7/1

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Preface

Overview

This document mainly introduces the safety precautions, product information, installation, electrical connection, commissioning and maintenance methods of the RISE 261H-XH optical storage All in One (hereinafter referred to as "RISE"). Before operating this product, please read the relevant content in this document carefully and keep this document properly for future reference at any time.

Target Readers

- Operation and maintenance personnel of photovoltaic power stations
- professional electrician

Applicable Products

- RISE 261H-2H
- RISE 261H-2.5H
- RISE 261H-3H
- RISE 261H-4H
- RISE 261H-5H

Symbol Definition

To ensure the personal and property safety of users when using the product, this document uses the following icons to prompt safety or key information. When the following signs appear in the document, be sure to read carefully and comply with the relevant instructions.

Symbol	Description
 DANGER	It indicates a high-risk hazard, if not avoided, will result in death or serious injury.
 WARNING	It indicates a medium-risk hazard, if not avoided, will result in death or serious injury.

Symbol	Description
 CAUTION	It indicates a low-risk hazard, if not avoided, will result in minor or moderate injury.
 NOTICE	It indicates a potential hazard that, if not avoided, may result in product malfunction or property damage.
 Information	It provides key information to supplement the main text.

Terms and Abbreviations

Term/Abbreviation	Description
AC	Alternating Current
DC	Direct Current
PV	Photovoltaic
GFCI	Ground Fault Circuit Interrupter, a ground fault circuit breaker, a safety device used to protect against line-to-ground faults
MPPT	Maximum Power Point Tracking
AFCI	Arc-Fault Circuit Interrupter
PID	Potential-Induced Degradation
TOU	Time of Use, Time-of-Use Electricity Price
SOC	State of Charge,
BSS	Battery Storage System
EMS	EMS control system
PACK	PACK Battery Cluster
BMS	Battery Management System
Hybrid Inverter	Energy Storage Converter
EM	Environmental Control Unit
RISE	RISE 261H-XH

Revision History

Version No.	Release Date	Revision Details
00	2026/7/1	First Edition

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1 Safety Precautions

Before installing, operating and maintaining this product, please read this section carefully and strictly observe all safety precautions during operation. For equipment damage caused by installation not in accordance with the instructions in this manual, and for any liability arising from violation of general safety operation requirements or violation of safety standards for equipment design, production and use, Growatt New Energy reserves the right to refuse to provide Quality Assurance.

- 1) All operations, wiring work and maintenance must be performed by trained professional electrical technicians in compliance with the procedures specified in the documentation.
- 2) During installation, do not touch any other parts inside the chassis except the wiring terminals.
- 3) Do not operate this product under the operating conditions not specified in this manual.
- 4) Do not disassemble, modify the product or alter the software code without authorization.
- 5) Permission from the local power supply authority is required to operate this equipment in grid-connected mode, and all electrical connections must comply with local electrical safety standards.

1.1 Personnel Safety

 DANGER	● All installation, operation and maintenance work of this product must be carried out by professional technicians who have received specialized training and are familiar with relevant local standards and safety regulations. ● Non-professionals are strictly prohibited from operating this product, and are forbidden from attempting to repair, modify or disassemble the product on their own. ● Do not operate with power on to avoid electric shock accidents and personal injury. ● During operation, do not wear conductive items such as watches, bracelets, bangle bracelets and rings to avoid the risk of electric shock.
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	● Except for the personnel operating the equipment, all other personnel shall keep away from the equipment. When the equipment is in operation, temporary warning signs or fences must be erected for isolation. ● Do not connect or disconnect the power cord while the system is running. Arcs or sparks may be generated the instant the cable core comes into contact with a conductor, which can easily cause a fire or personal injury. ● Do not open the equipment cabinet door while the system is running. ● Before performing routine maintenance, you must disconnect all power supplies to the system, let it stand for at least 5 minutes, and wait until the internal capacitors are fully discharged before proceeding with any operation.
 WARNING	● When performing maintenance on optical storage systems and products, there must be two or more personnel on site. ● Before operation, dedicated protective gear must be worn, including safety helmets, goggles, insulating gloves, protective clothing and insulating shoes, etc. ● During operation, dedicated insulated tools with insulation withstand voltage rating that complies with local laws, regulations and relevant standards and specifications must be used to avoid electric shock injuries. ● Arc welding, drilling, cutting and other operations are prohibited on the equipment. Such operations will damage the sealing performance of the entire enclosure, the electromagnetic shielding performance of the equipment, as well as internal components and cables. Metal shavings generated during the operations entering the equipment may cause electrical short circuits, affecting the equipment's functions or resulting in equipment damage. ● When operating and maintaining the equipment, if personnel need to leave temporarily, please close and lock the cabinet door. After completing relevant operations such as maintenance and replacement, the cabinet door shall be locked in time, the safety rope shall be fixed, and the key shall be properly kept.

1.2 Electrical Safety

 DANGER	● Before making electrical connections, ensure the product is undamaged to prevent electric shock or fire hazards. ● Before making electrical connections, ensure that all switches are in the off position. ● During operation, effective protective measures must be taken to prevent impurities such as liquid, metal shavings and dust from entering the interior of each module of the product and causing short circuits. ● Photovoltaic modules generate high-voltage direct current when exposed to light. Before making electrical connections, always ensure that the DC switch of the inverter module is in the fully disconnected state to prevent high-voltage electric shock. ● The installation layout of RISE must comply with the fire separation distance specified in local standards and the installation spacing specified in this manual.
 WARNING	● Prior to making electrical connections, the equipment grounding operation must be completed as a priority, and the grounding resistance as well as the specifications of the grounding cable shall strictly comply with the local power grid regulations and the safety construction requirements for photovoltaic strings. ● When dismantling equipment, the protective grounding wire must be removed last. ● Electrical connection operations must be performed by professionally trained and qualified technicians in strict accordance with the wiring instructions in this document. Equipment damage caused by non-standard wiring is not covered under the warranty. ● When making electrical connections, be sure to use dedicated insulated tools. ● Avoid subjecting the cable to excessive stress, which may otherwise result in poor contact. ● Do not open the cabinet door in weather conditions such as rain, snow, thunder, lightning, sand and dust, or heavy fog.

 NOTICE	● The cable entry holes at the bottom of the RISE cabinet must be coated with fireproof mud in accordance with specifications. Damage caused by dust or moisture intrusion into the equipment due to improper installation is not covered under the warranty. ● If the equipment is installed in a place with lush vegetation, in addition to routine weeding, the ground under the equipment needs to be hardened to prevent overgrowth of weeds. ● Static electricity generated by the human body may damage electrostatic-sensitive components on the single board. Anti-static gloves must be worn when handling the single board, and anti-static packaging materials shall be used for packaging during storage or transportation. ● Cables of different types shall be laid at least 30mm apart, and shall not be intertwined or cross-laid with each other.
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1.3 Mechanical Safety

Handling Safety

 WARNING	● When handling materials, it is necessary to allocate an appropriate number of personnel corresponding to the equipment used to avoid mechanical injuries. ● When handling the goods, you must wear protective equipment such as protective gloves, anti-crush shoes and safety helmets throughout the process to avoid injury. ● When handling the equipment, strictly refrain from grasping its easily detachable parts such as edges, corners and cover plates, so as to prevent personal injury caused by the equipment falling. ● When using a forklift for handling, the equipment must be placed centrally at the center of the forks and secured with straps of matching strength to prevent tilting or falling.
 NOTICE	When handling the equipment, do not apply external force to its vulnerable components such as switches and wiring terminals; damage caused thereby is not covered under the warranty.

Safety for Ladder Use

Work performed at a height of 2 meters or more above the ground is referred to as work at height, and ladders shall be used when carrying out such work.

 WARNING	● Before using a ladder, you must ensure that it is in good condition and its load-bearing capacity meets the requirements, and overloading is strictly prohibited. ● Ladders must be placed on a flat, solid and anti-slip ground, and a dedicated person must be arranged to hold the ladder steady when using it. ● During the entire process of ladder climbing and working at heights, a double-hook safety belt must be worn or a safety rope must be used to provide proper fall protection. ● The safety harness hook or lanyard must be secured to a stable building structure against which the ladder leans; it is strictly prohibited to secure it to non-load-bearing and easily detachable parts such as ladder rungs or handrails.
 NOTICE	● When working on live electrical equipment at height, it is mandatory to use wooden ladders or insulated ladders whose insulation class complies with local electrical construction specifications. Before use, ensure that the insulation performance of the ladder is intact, and ladders with potential safety hazards are strictly prohibited from being used. ● Guardrail-equipped platform ladders must be used for work at height, and the use of ordinary straight ladders for work at height is strictly prohibited.

Lifting Safety

 WARNING	● Hoisting operations must be carried out strictly in accordance with local hoisting safety standards and specifications by technicians who have received professional training and passed the assessment; unlicensed personnel are strictly prohibited from conducting hoisting operations.
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	● Prior to hoisting, it is necessary to ensure that all hoisting tools meet the load-bearing requirements of the equipment. ● Prior to hoisting, warning signs shall be set up in the hoisting area and the area shall be isolated with protective fences. ● During hoisting operations, irrelevant personnel are strictly prohibited from entering or walking within the hoisting area.
--	--

Drilling Safety

 NOTICE	● When drilling, you must wear protective equipment such as goggles, masks and protective gloves throughout the process to prevent injury. ● When drilling, care must be taken to avoid pipes or wires to prevent short circuits or other hazards. ● When drilling, effective protective measures must be taken to prevent debris from entering the interior of the equipment. ● After drilling, the debris in the hole must be cleaned up in time.
---	--

1.4 Identification Description

Symbol	Meaning
	High voltage risk exists, which may cause electric shock.
	Delayed Discharge: High voltage remains in the battery module after power-off, and it requires 5 minutes to discharge to a safe voltage.
	Grounding: Indicates the position where the ground wire is connected.
	Direct Current (DC)
	Alternating Current (AC)

Symbol	Meaning
	Please refer to the manual
	CE marking
	Do not dispose of this product together with household waste. Instead, dispose of it in accordance with the methods permitted by local regulations.

2 Product Introduction

2.1 Product Overview

RISE is a three-phase integrated hybrid storage cabinet, whose function is to convert the direct current generated by photovoltaic modules into alternating current that meets the grid standards. The generated electric energy can be used for loads, stored in batteries or output to the power grid, and different operation modes can be configured according to the power generation and actual power consumption demands.

Working Principle

1. RISE performs maximum power point tracking (MPPT) on the photovoltaic input through the MPPT circuit, converts direct current into three-phase alternating current via the DC/AC circuit for load use or grid connection, and can also charge the internal battery through the DC/DC circuit.
2. The internal battery of RISE can convert direct current into three-phase alternating current through the DC/DC circuit and DC/AC circuit for use by loads or for integration into the power grid.
3. The power grid charges the internal battery through AC/DC circuits and DC/DC circuits.
4. The built-in battery of the RISE cabinet has off-grid load-bearing capacity when the power grid is down, and the battery outputs three-phase alternating current through the DCDC circuit and DCAC circuit to supply power for off-grid loads.
5. The diesel generator interface can be connected to any one of a diesel generator, an intelligent load, or a grid-tied inverter, wherein:
 - When the generator interface is connected to a generator and the unit is switched to the "generator" mode, the generator can supply power to the load and also charge the internal battery via the AC/DC circuit and DC/DC circuit;
 - When the generator interface is connected to a load and set to "Smart Load mode": during grid-connected operation, the mains power and RISE can jointly supply power to the load; during off-grid operation, RISE supplies power to the load, and when the internal battery SOC is lower than the smart load shutdown SOC or the sum of load power exceeds 1.1 times the rated load, the smart load at the generator port will be cut off;
 - When the generator interface is connected to a grid-tied inverter and set to grid-tied inverter mode: during grid-tied operation, the grid-tied inverter can feed power to the utility grid, power loads, and charge the internal battery; during off-grid operation, the grid-tied inverter will power loads together with RISE and charge the internal battery.

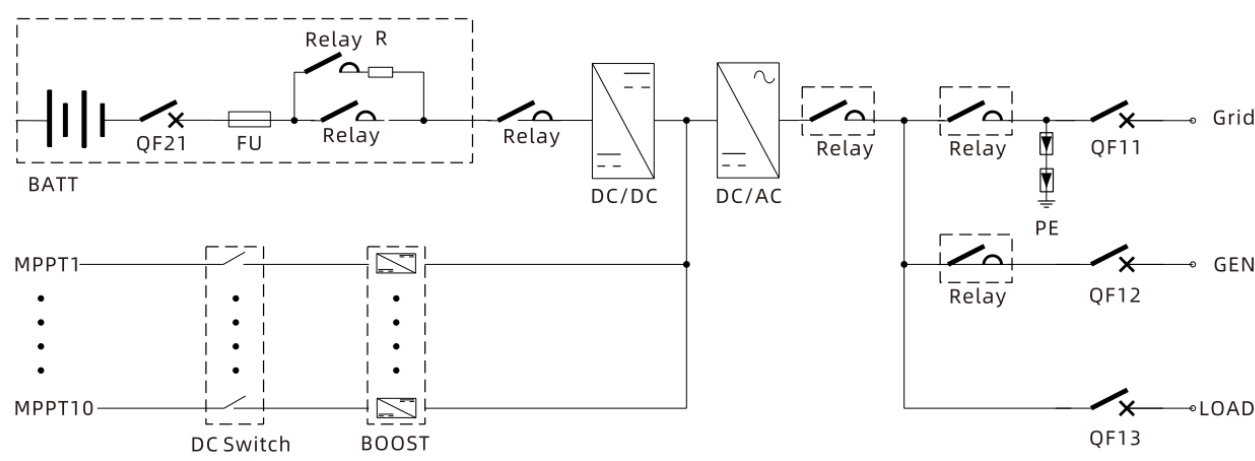


Figure2.1 Schematic Diagram

Model Description

RISE 261H-XH
① ②③ ④

Table 2.1 Model Examples

No.	Meaning	Description
①	Product Line	RISE: Name of the product line
②	System Capacity	261: The battery capacity is 261 kWh
③	/	H: stands for high-voltage series connection
④	Backup Power Duration	XH: Optional backup power options:2H&2.5H&3H&4H&5H

2.2 Product Appearance

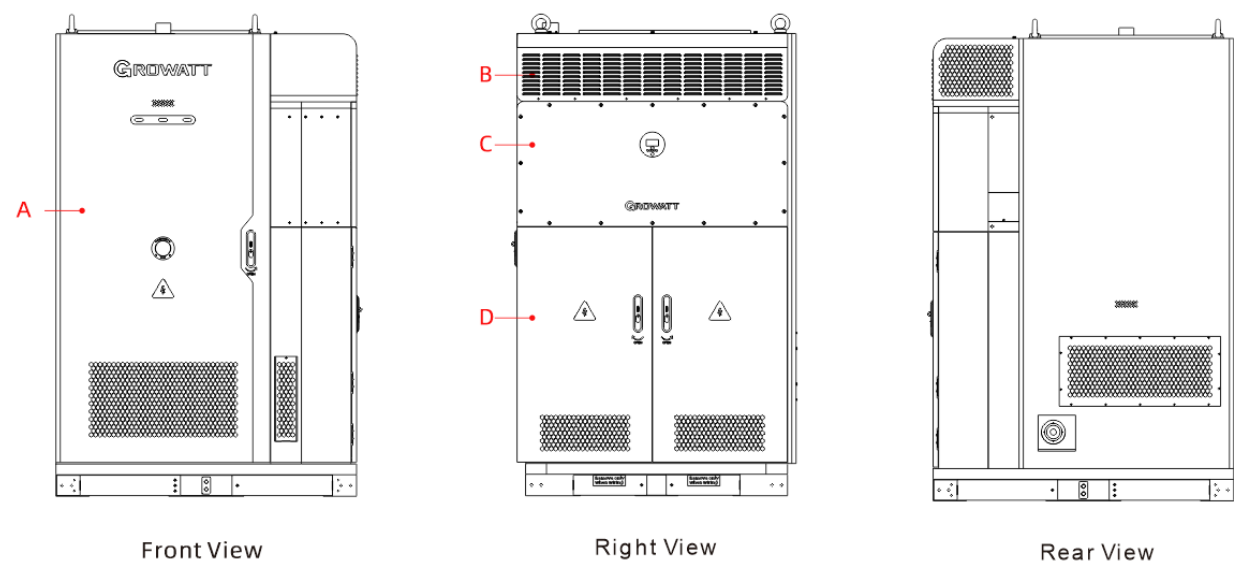


Figure 2.2 Product Appearance Diagram

No.	Description	No.	Description
A	Battery Cabinet	C	Hybrid Inverter
B	Dustproof Eave	D	Distribution Cabinet

2.2.1 Hybrid inverter

Appearance and interface

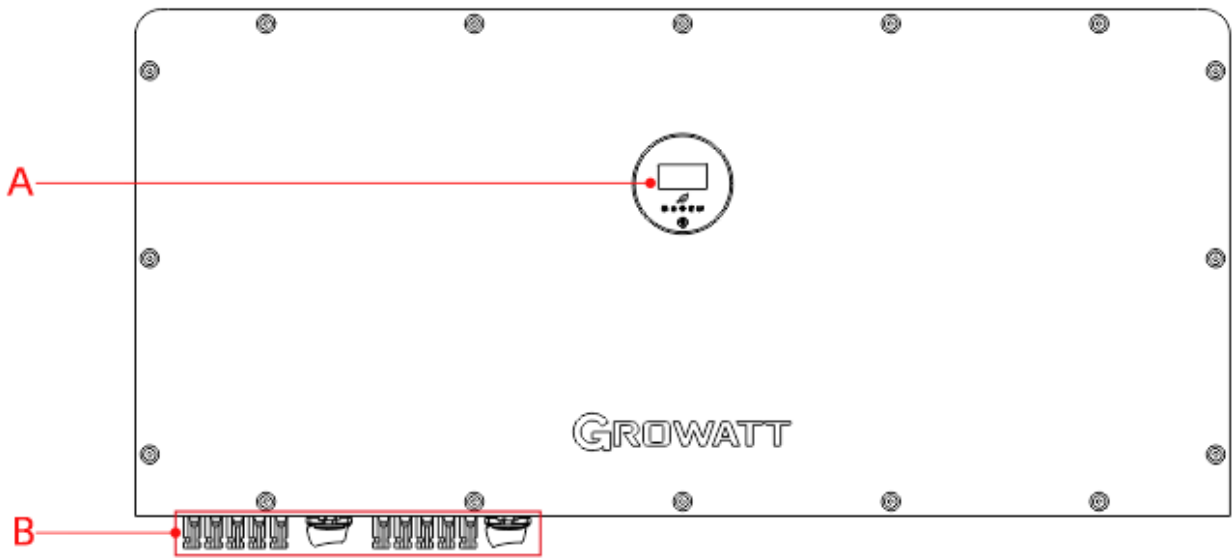


Figure2.3 Appearance and Interface

No.	Description	No.	Description
A	Display screen	B	PV wiring location

 NOTICE	The RISE PV wiring position is located inside the distribution cabinet, please refer to "2.2.3 Distribution Cabinet Module" for details
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Pilot lamp

The LED and OLED display panels for RISE operation status are shown in Figure 2.4, with corresponding symbol explanations in Table 2.1. The user interface is shown in Figure 2.5, and Table 2.2 provides LED display status explanations.

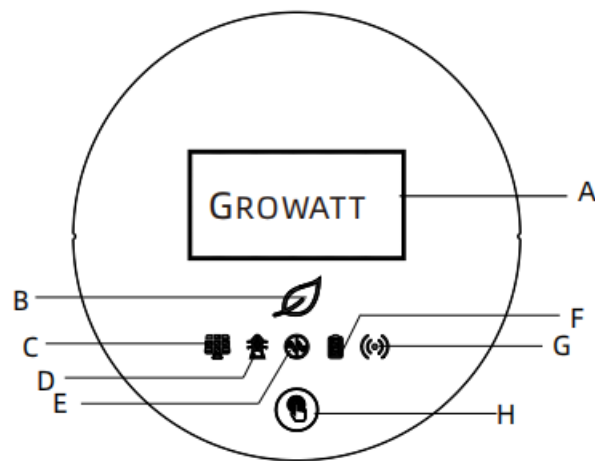


Figure2.4 Display Panel Diagram

Table 2.2 Explanation of Display Screen Symbols

No.	Instructions	Remark
A	OLED display	Display the main information of the system
B	System indicator light	System status display
C	Photovoltaic indicator light	Photovoltaic operation status display
D	Power grid/oil engine indicator light	Grid operation status display, GEN port status
E	Off grid indicator light	Display whether off grid is enabled
F	Battery indicator light	Battery status display
G	Communication indicator light	Display communication status and other system faults
H	button	You can switch OLED display pages by touching the buttons

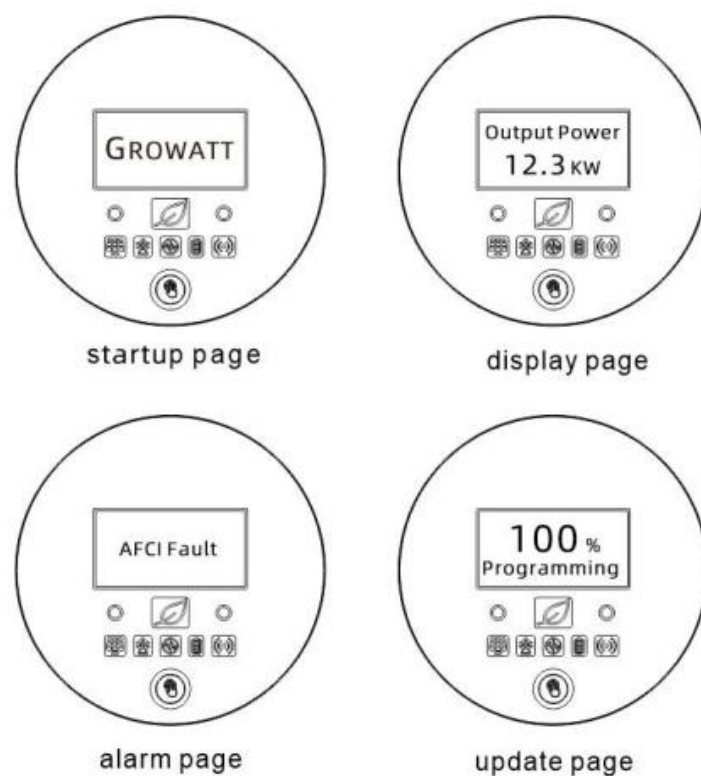
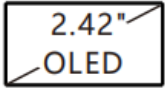


Figure2.5 User Interface Display Diagram

Table2.2 Display Status Explanation Table

Pilot lamp	status	Indicating meaning
	Always Off	Power-on initialization
	The green light stays on constantly.	System running
	The green light is flashing.	system standby
	The red light is constantly on.	System failure
	Always Off	The photovoltaic voltage has not reached the operating voltage
	The green light stays on constantly.	The photovoltaic voltage reaches the operating voltage and there are no faults in the photovoltaic system
	The red light is	Fault or alarm on the photovoltaic side

	constantly on.	
	Always Off	No mains electricity available
	The green light stays on constantly.	The power grid connection is normal
	The red light is constantly on.	Fault alarm or abnormal oil engine on the power grid side
	Always Off	The system is running in grid connected mode
	The green light stays on constantly.	The system is running in off grid mode and there are no faults or alarms on the inverter side
	The red light is constantly on.	The system is running in off grid mode and there is a fault or alarm on the inverter side
	Always Off	No battery connection
	The green light stays on constantly.	Connect the battery without any faults or alarms (when multiple clusters of batteries are connected, the battery
	The red light is constantly on.	The status is displayed according to the corresponding interface, with the green light indicating that the battery cluster is positive
	Always Off	The battery cluster is abnormal in the constant and red lights, and the light is not on and the battery cluster is not connected
	The green light stays on constantly.	There is a fault or alarm on the battery side
	The green light is flashing.	No external communication
	The red light is constantly on.	Communication normal

	Display important data in the system, which can be awakened and converted through touch buttons. The system has
	When there is a malfunction or alarm, the content of the malfunction or alarm will be displayed

2.2.2 Battery Cabinet

Appearance and interface

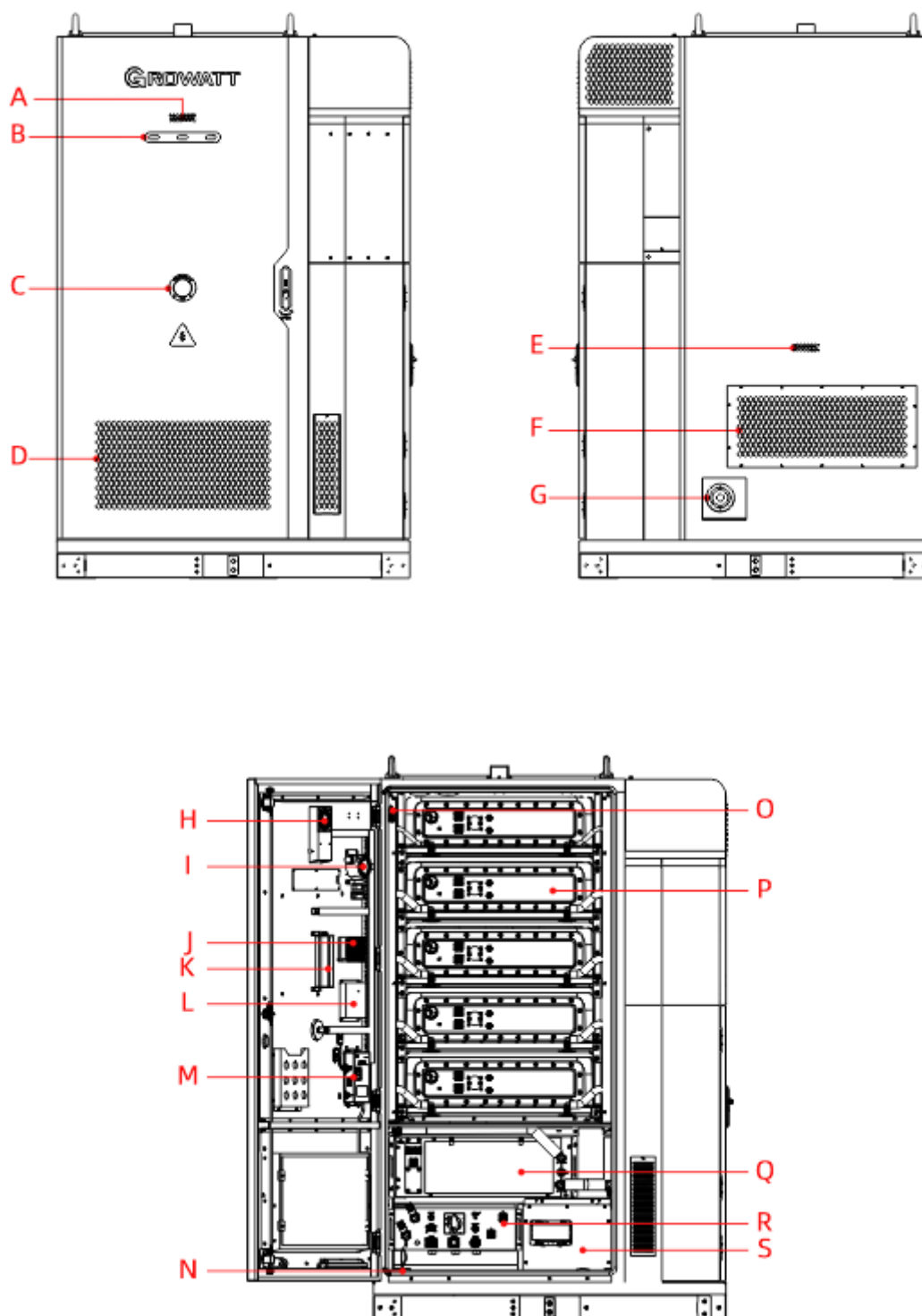


Figure2.6 Display of Battery Cabinet

No.	Description	No.	Description
A	Hydrogen exhaust outlet	K	Aerosol
B	Battery indicator light	L	EM board
C	Emergency stop switch	M	Dehumidifier

D	Liquid cooling unit inlet	N	Immersion sensor
E	Hydrogen exhaust outlet	O	Access control switch
F	Air outlet of liquid cooling device	P	battery pack
G	Fire Hydrant Connection	Q	Liquid cooling unit
H	Hydrogen exhaust fan	R	High-voltage box
I	Combustible gas detection sensor	S	DC switch
J	24V DC source		

Indicator

No.	Condition	Operating condition description	Battery cabinet light display strategy	Display Priority
1	The cabinet door is open.	The battery cabinet door is open	Running light, alarm light, and fault light are always on	high
2	Initialization	BMS initialization status	The running light is always on	low
3	Standby	BMS standby mode	The running light is always on	low
4	Charging	BMS charging status	Running light flashing (On 500ms/Off 500ms)	low
5	Discharge	BMS discharge status	Running light flashing (On 100ms/Off 100ms)	low
6	Shut down	BMS shutdown status	Running is always off	low
7	Warning	① Hybrid inverter has an alarm	The alarm light id always on	low

8	Fault	② EM has an fault	The fault light id always on	Middle
9	Upgrading	① There is a malfunction in the hybrid inverter	The alarm/running flashing (On 500ms/Off 500ms)	highest

2.2.2.1 High voltage box

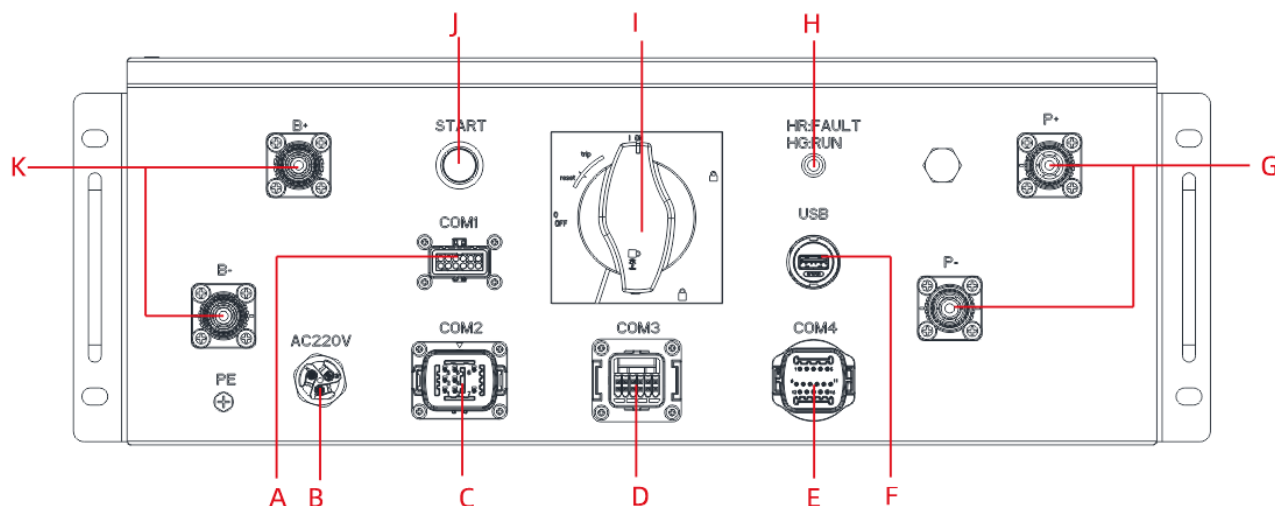


Figure2.7 High voltage box module display

No.	Description	No.	Description
A	COM1 communication terminal	G	High voltage box DC output terminal
B	Battery 220VAC COM2 communication terminal	H	Battery running indicator light
C	COM2 communication terminal	I	Battery input circuit breaker (QF1)
D	COM3 communication terminal	J	Battery auxiliary power start button
E	COM4 communication terminal	K	High voltage box DC input terminal
F	USB		

2.2.2.2 Battery PACK

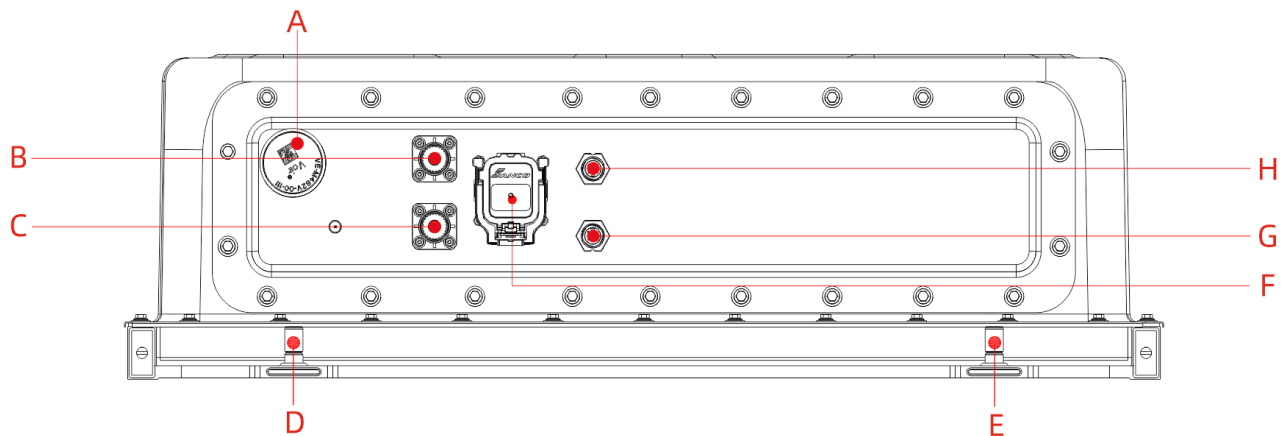


Figure2.8 Battery PACK Display Diagram

No.	Description	No.	Description
A	Explosion-proof valve	E	Coolant inlet
B	Negative output terminal	F	MSD safety switch
C	Positive output terminal	G	Communication output port
D	Coolant outlet	H	Communication input port

2.2.2.3 Liquid cooling Unit

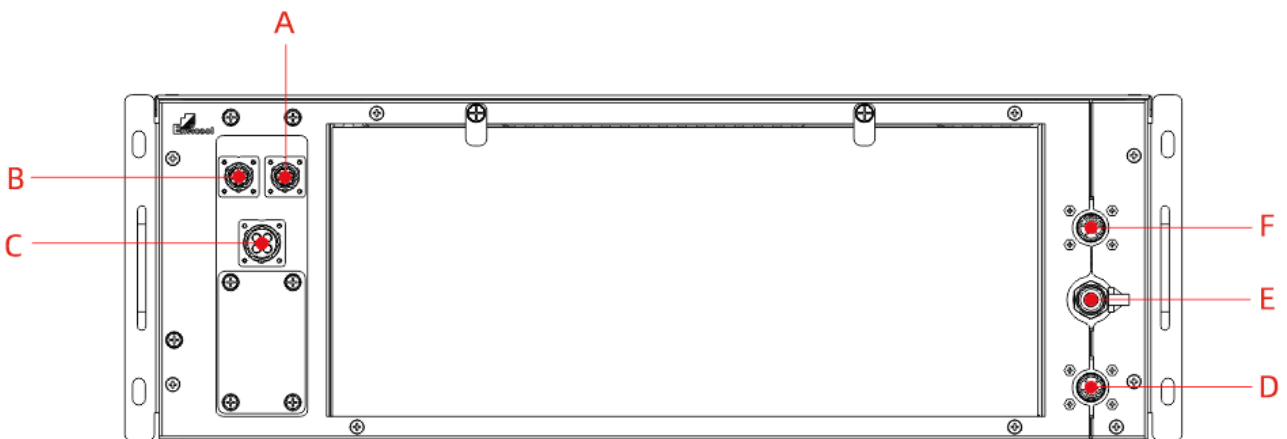


Figure2.9 Liquid cooling unit display

No.	Description	No.	Description
A	Communication terminal	D	Coolant outlet

B	Debugging terminal	E	Coolant Filling Port
C	Power terminal	F	Coolant inlet

2.2.3 Distribution Cabinet

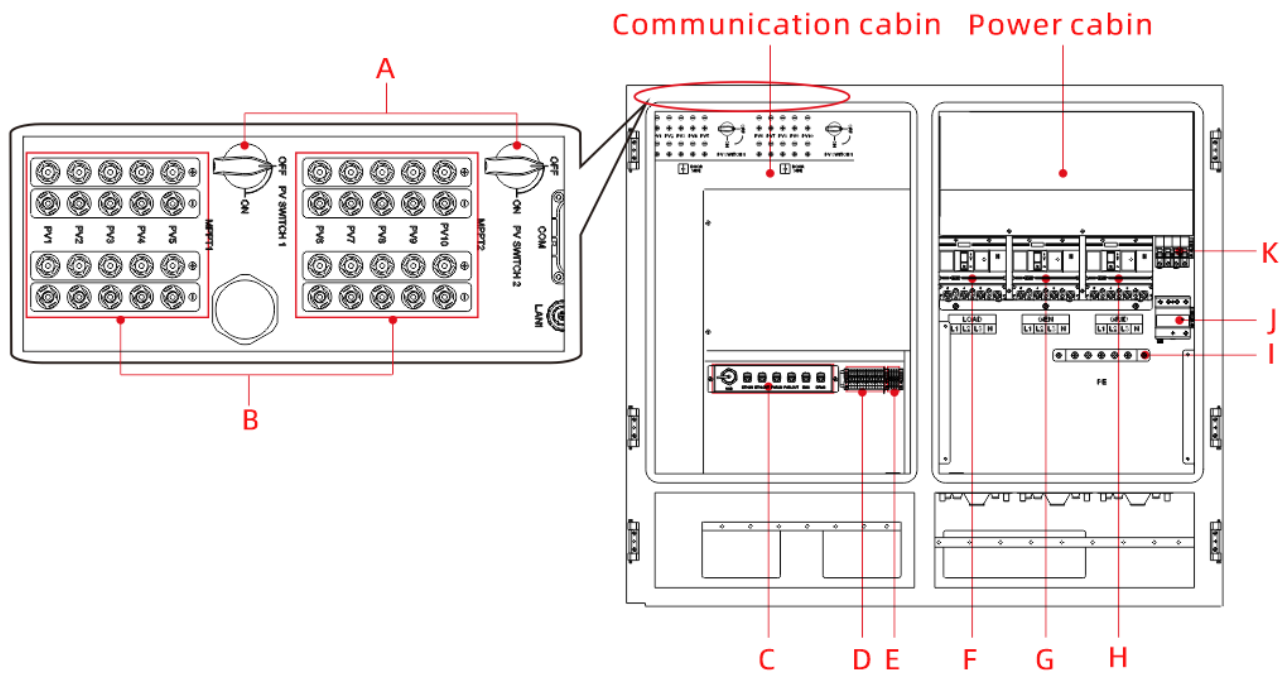


Figure2.10 Distribution Cabinet Display Diagram

No.	Description	No.	Description
A	PV switch	G	Generator circuit breaker
B	PV terminal	H	Grid circuit breaker
C	Communication port	I	Ground Bar
D	Terminal XT1	J	Surge arrester
E	Terminal XT2	K	Lightning protection switch
F	Load circuit breaker		

2.3 Product nameplate

The following figure shows the nameplate of RISE 261H-2H as an example. The schematic diagram of the nameplate is for reference only, and the actual content of the nameplate shall prevail. Please refer to "8 Technical Parameters" for specific specifications.

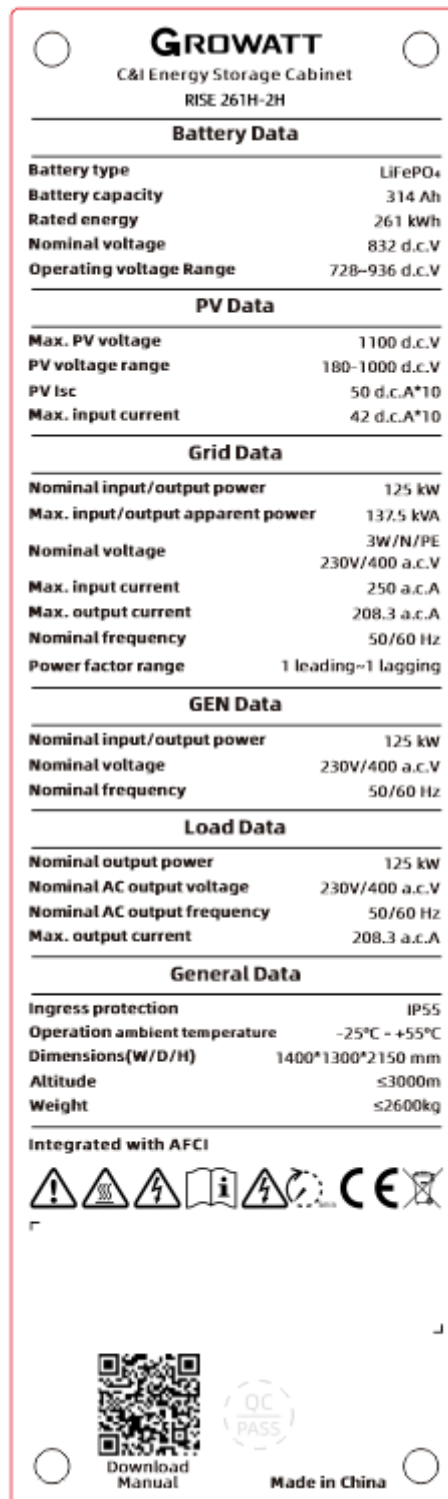


Figure 2.11 Nameplate

2.4 Product size

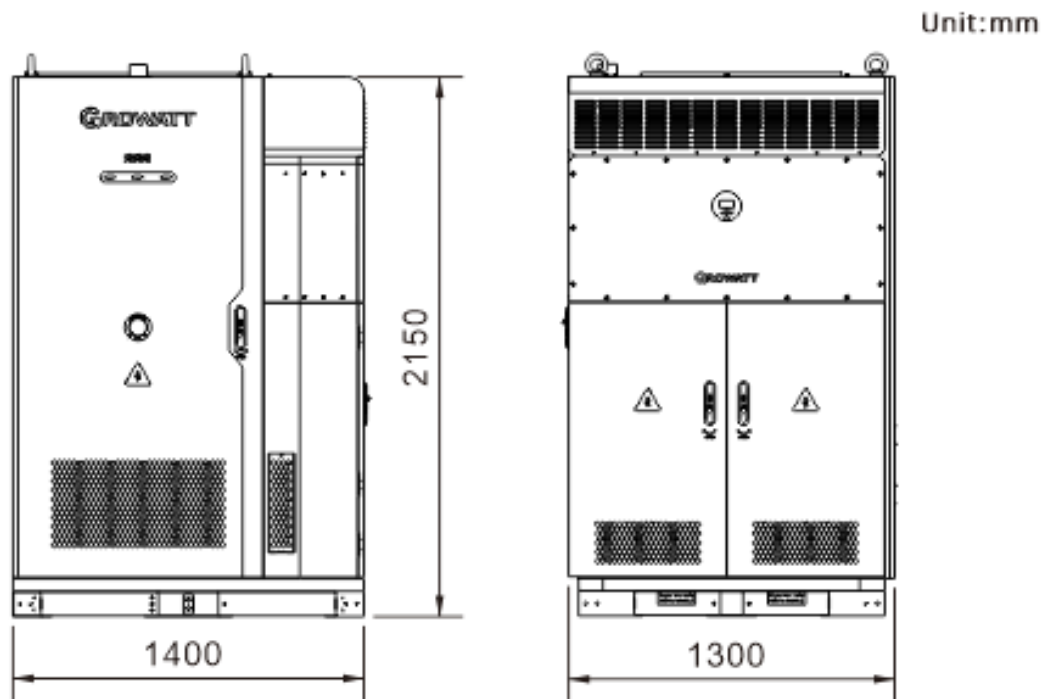


Figure2.12 Structural dimension display diagram

Model	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
RISE 261H-2H	1400	1300	2150	2600
RISE 261H-2.5H	1400	1300	2150	2600
RISE 261H-3H	1400	1300	2150	2600
RISE 261H-4H	1400	1300	2150	2600
RISE 261H-5H	1400	1300	2150	2600

2.5 Operating Status

RISE has five operating states: standby, self-test, normal, fault, and upgrade.

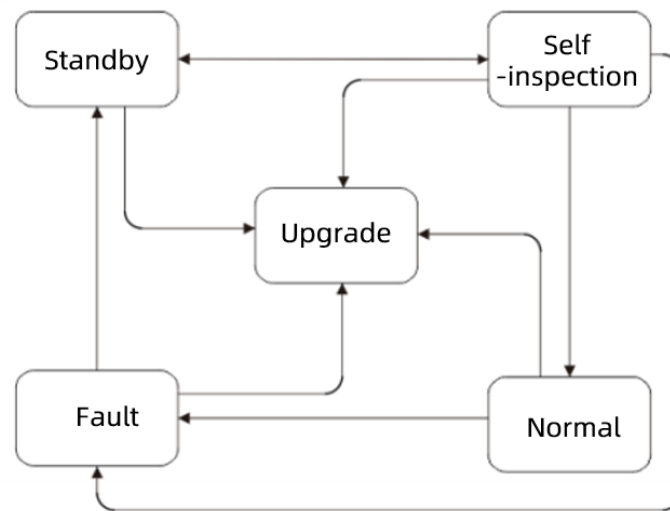


Figure 2.13 Operating Status Diagram

Operating status	Instructions
standby	Received shutdown command/PV voltage does not meet grid connection requirements/system only has PV energy input.
Self-check	Perform a self-check to confirm if the relay is functioning properly.
Normal	Successfully connected to the grid or RISE working normally in off grid mode.
Fault	RISE is in grid connected mode, and in the event of a malfunction, it will switch to off grid mode or shut down.
upgrade	RISE is in off grid mode, and in the event of a malfunction, it will switch to oil engine mode or shut down.

2.6 Application Scenarios

 NOTICE	1. To ensure that the system can effectively configure different operating modes, an external electricity meter should be installed between the power grid and the load. 2. It is necessary to connect the Growatt photovoltaic inverter and does not support third-party photovoltaic inverters to connect to the GEN port.
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2.6.1 Single system off-grid operation

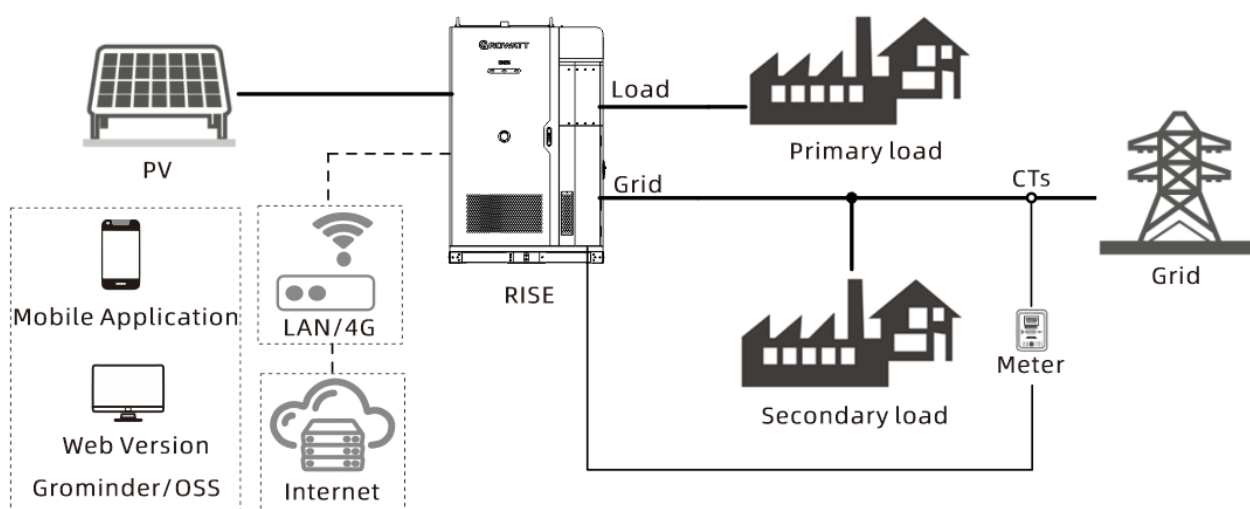


Figure2.14 Single system off-grid scenario

2.6.2 Single system microgrid operation

There are three reuse forms for the oil engine port in single machine mode: oil engine, grid connected inverter, and intelligent load. You can choose one of them to connect, and the specific matching scenario can refer to the following figure:

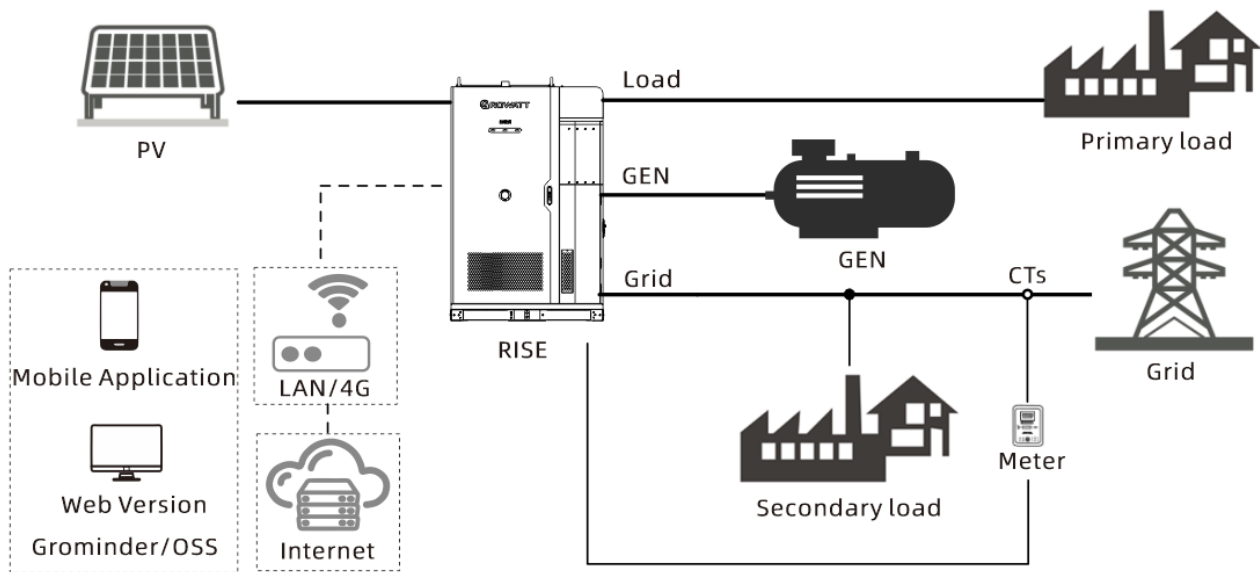


Figure2.15 Single system with generator

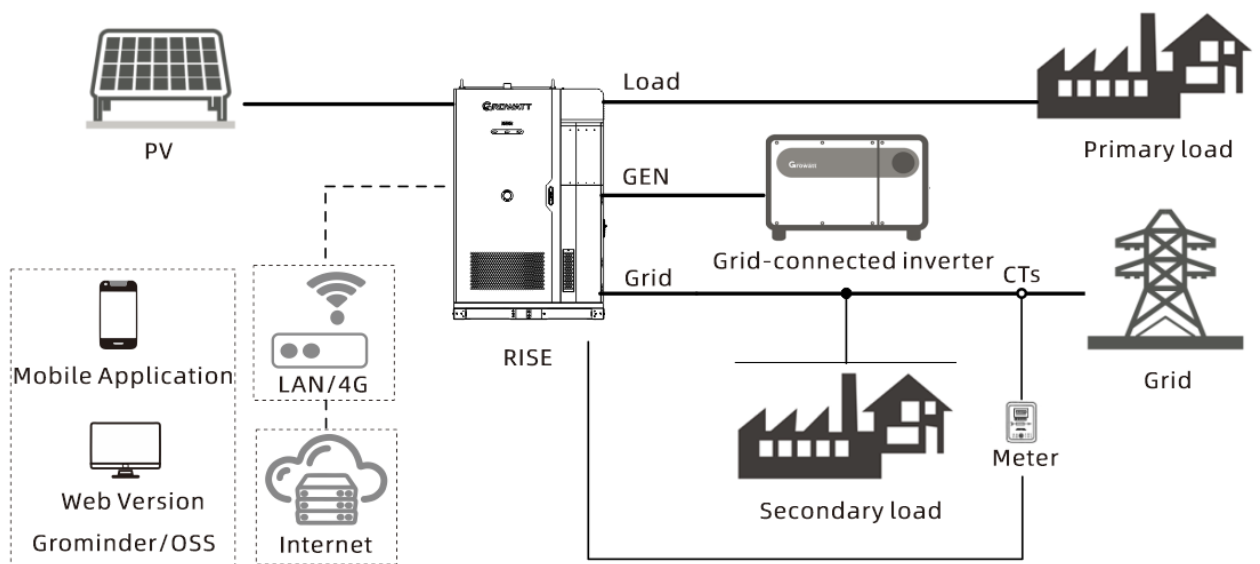


Figure 2.16 Single system with PV inverter

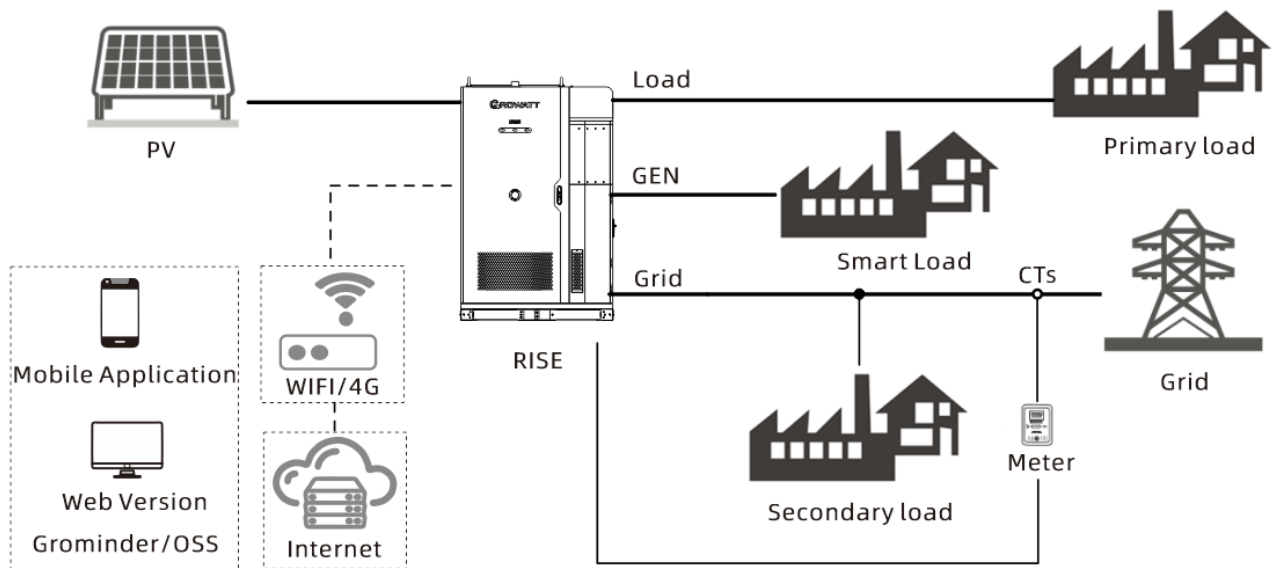


Figure 2.17 Single system with Smart Load

2.6.3 Parallel system on/off-grid operation

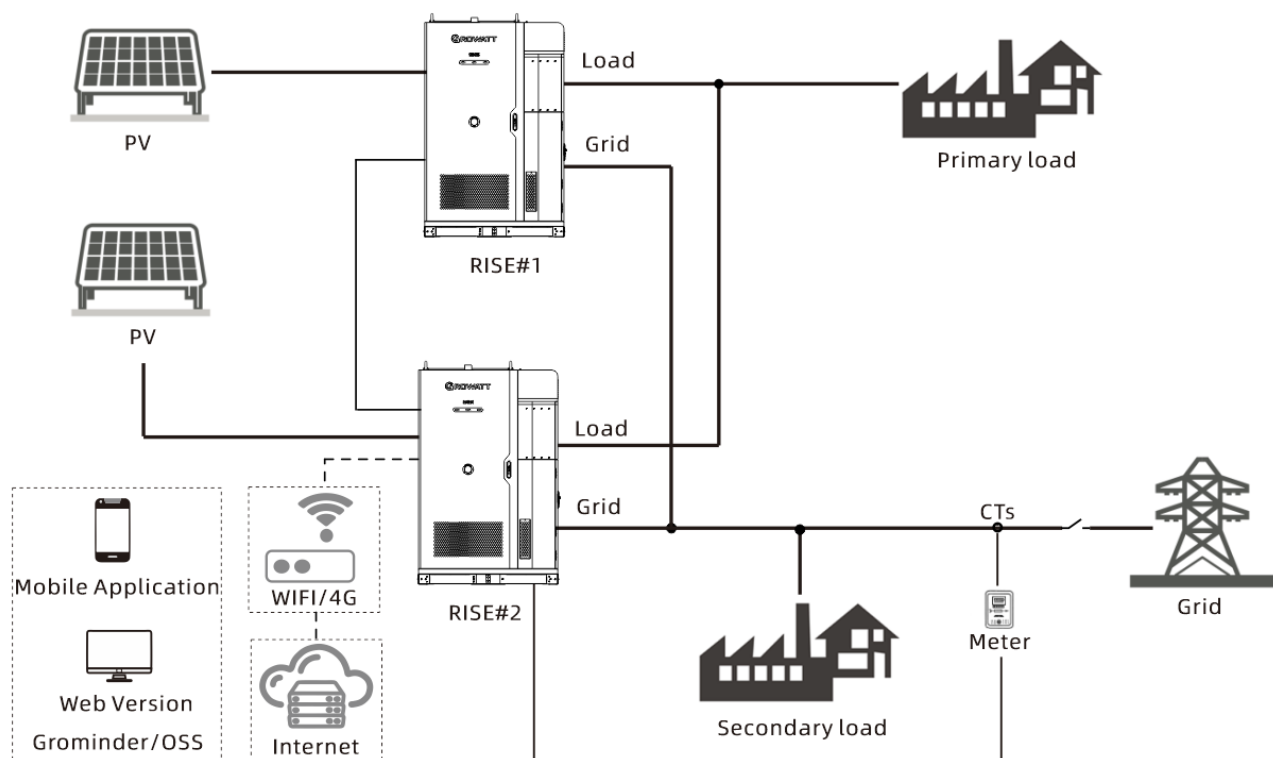


Figure 2.18 Parallel system off-grid scenario

2.6.4 Parallel system microgrid operation

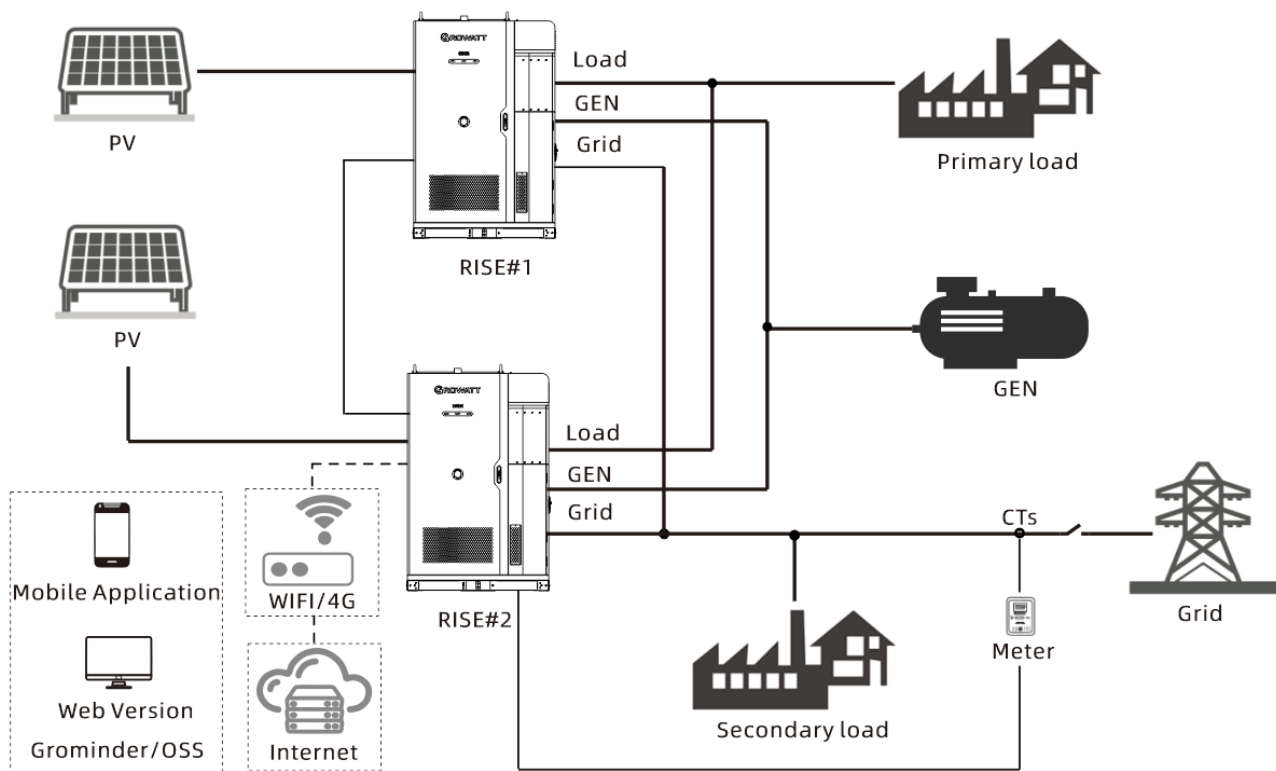


Figure 2.19 Parallel system microgrid scenario

2.7 Operating Mode

RISE supports setting multiple operation modes for microgrid operation. Users can set different operation modes based on actual photovoltaic power generation, local electricity price policies, their own electricity consumption characteristics, and needs.

 Information	● In areas with high electricity prices or no grid subsidies, it is recommended to set the "load priority" mode. ● In areas where time of use electricity pricing (peak valley electricity pricing) is implemented, it is recommended to set the "grid priority" mode during peak electricity pricing periods and the "battery priority" mode during low electricity pricing periods. ● If different light storage modes need to be set at different time periods, the configuration steps can be found in "5.2.2.1 TOU Mode Settings".
--	---

Load priority mode

The power priority of load priority mode is: load>battery>grid.

When the solar power generation is sufficient, priority is given to supplying it to the load, and excess electricity is stored in the battery before being fed to the grid.

When the solar power generation is insufficient or the photovoltaic panels do not generate electricity, the load is powered by the battery for use; When the battery has been discharged to the set discharge cut-off SOC or the photovoltaic panel and battery energy are insufficient to supply the load, the system will take power from the grid to the load for use.

When there is surplus energy outside the photovoltaic energy carrying capacity, the surplus energy will be charged to the battery (the charging power is smaller than the user set battery charging power).

Battery priority mode

The power priority of battery priority mode is: battery>load>grid.

When the solar power generation is sufficient, the battery should be charged first, and the excess electricity should be supplied to the load before feeding the power grid.

When the solar power generation is insufficient or the photovoltaic panels do not generate electricity, all solar energy is used to charge the battery, and the system will take power from the grid to supply the load for use.

Photovoltaic energy will charge the battery at maximum power (unless limited by user set charging power or insufficient photovoltaic energy). When the solar power generation is insufficient and the "mains charging allowed" parameter is enabled according to local regulations, electricity will be taken from the grid to charge the battery at the same time.

Grid priority mode

The power priority of the grid priority mode is: load>grid>battery.

When the solar power generation is sufficient, priority is given to supplying the load for use, and excess electricity is fed into the grid before charging the battery.

When the solar power generation is insufficient or the photovoltaic panel does not generate electricity, the battery participates in discharging to the load and flowing back to the grid (when the "anti-backflow" function is not enabled or the backflow limit is not reached).

standby mode

When setting this mode, the device is in standby mode and only supports PV charging to the battery. RISE does not output energy load or feed to the grid.

idle mode

ShineMaster-X2 only serves the functions of monitoring, data recording, and uploading, and does not perform energy scheduling and regulation.

Off grid mode

Off grid mode is suitable for scenarios where the power grid is unstable and there are critical loads present. When the power grid is abnormal or disconnected, RISE automatically switches to off grid mode (default value: 3P4W, 230V/400V, 50Hz) to supply power to critical loads. After the power grid is restored, RISE automatically switches back to grid connected mode to supply power to critical loads.

Microgrid mode

In microgrid mode, there are three reuse forms for oil engine ports: oil engine, grid connected inverter, and intelligent load, which can be connected to any of them. When connecting the oil engine, the system can be loaded in oil engine mode; When connected to a grid connected inverter, it can be connected to the grid to feed power to the grid or off grid to load and charge the battery together with RISE; When connecting smart loads, if the battery SOC is less than or equal to the intelligent load stop SOC or the sum of load power is greater than or equal to 1.1 times the rated load during off grid operation, the load on the oil engine port will be cut off.

2.8 Arrival inspection

Before opening the box, please check the product model and confirm that the outer packaging is intact. If there are any abnormalities, please do not open it and contact the dealer in a timely manner.

When opening the box, be careful when using tools to avoid scratching the product.

After opening the box, please carefully check whether the product and accessories are complete according to the packing list, and whether the product appearance is good. If there are any abnormalities, please contact the dealer in a timely manner.

2.9 Packing List

Inverter module

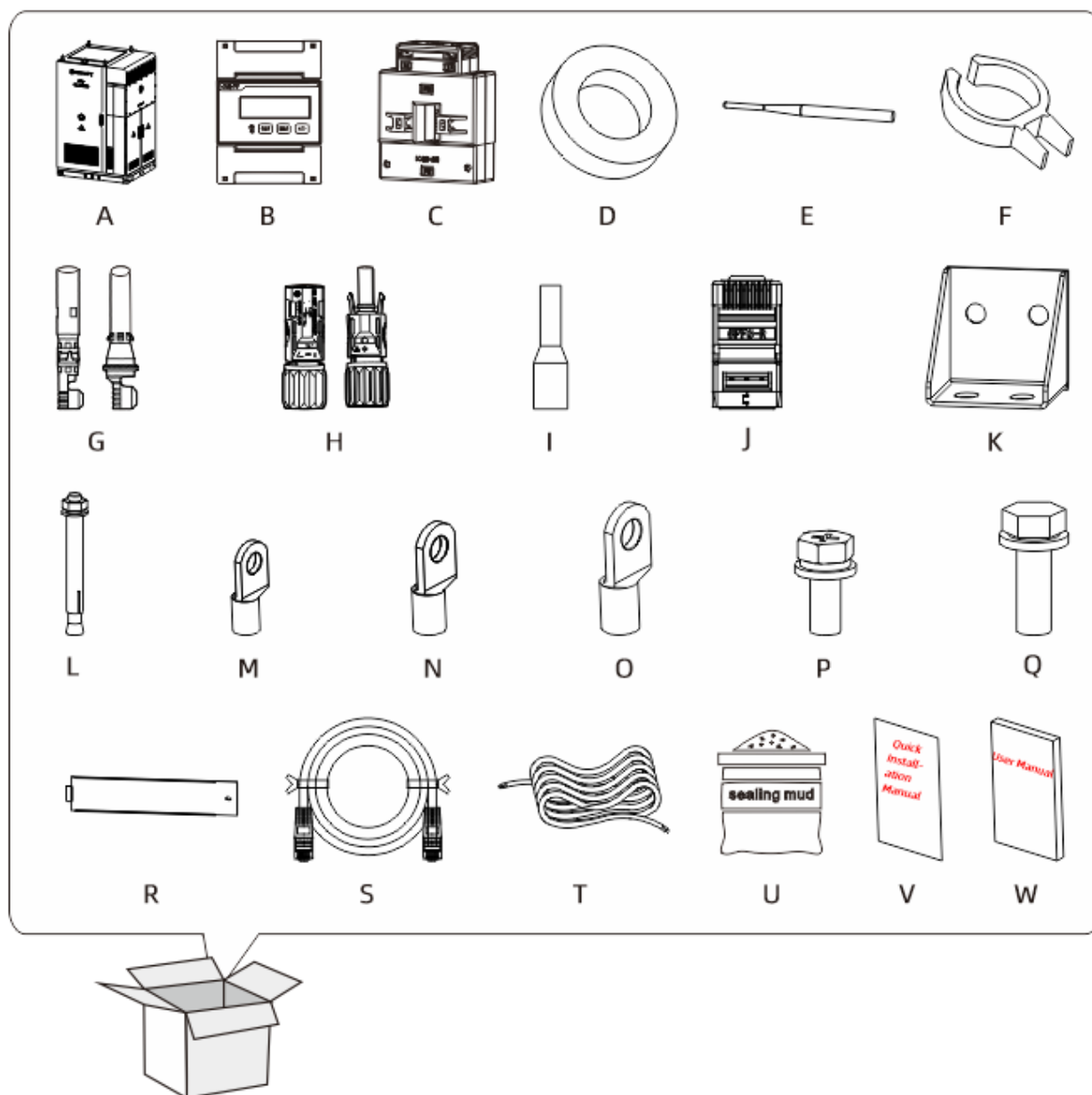


Figure 2.20 Packing Attachment Display Diagram

No.	Description	quantity	No.	Description	quantity
A	RISE cabinet	1	M	SC35-8	3
B	Meter	1	N	SC50-10	2
C	CT(600/5A)	3	O	SC70-8	12
D	Ferrite bead	2	P	M8*20	2
E	Antenna	1	Q	M12*35	2
F	Photovoltaic terminal dismantling tool	1	R	Base baffle	4
G	PV+, PV metal terminals	40	S	Ethernet cable	2
H	PV+, PV - terminals	40	T	Meter communication cable	1
I	Tubular terminal	14	U	Fireproof Putty	1
J	RJ45 crystal head	6	V	Quick Installation Manual	1
K	Anchor bracket	4	W	User Manual	1
L	Expansion Screw	8	X		



M8 * 20 and M12 * 35 are spare accessories.

2.10 Transportation and Handling



- The battery module has passed UN38.3 (Recommendations for the Transport of Dangerous Goods: Manual of Tests and Criteria, Sixth Revision, Section 38.3) and UN3480 transport certification, and belongs to Class 9 dangerous goods.
- It is strictly prohibited to transport the product together with other flammable, explosive, or toxic substances.



- Before transportation, please ensure that the original packaging is intact and the transportation conditions must meet the transportation requirements on the packaging.

	● During transportation, it is necessary to ensure proper sealing protection and buffering reinforcement to avoid exposure to sunlight, rain, condensation water immersion, and mechanical damage. ● The transportation temperature of the product should be maintained between -20 ° C and +45 ° C, and the relative humidity should be maintained between 5% RH and 95% RH. ● When transporting products under temperature, humidity, and ventilation conditions that comply with regulations, the capacity of battery modules may slightly decrease, which is a normal phenomenon.
 WARNING	● Do not use the switches, wiring terminals, etc. of the equipment as handles during transportation. ● During transportation, it is necessary to allocate a corresponding number of personnel based on the actual weight of the equipment to avoid mechanical injuries.

Carton dimensions

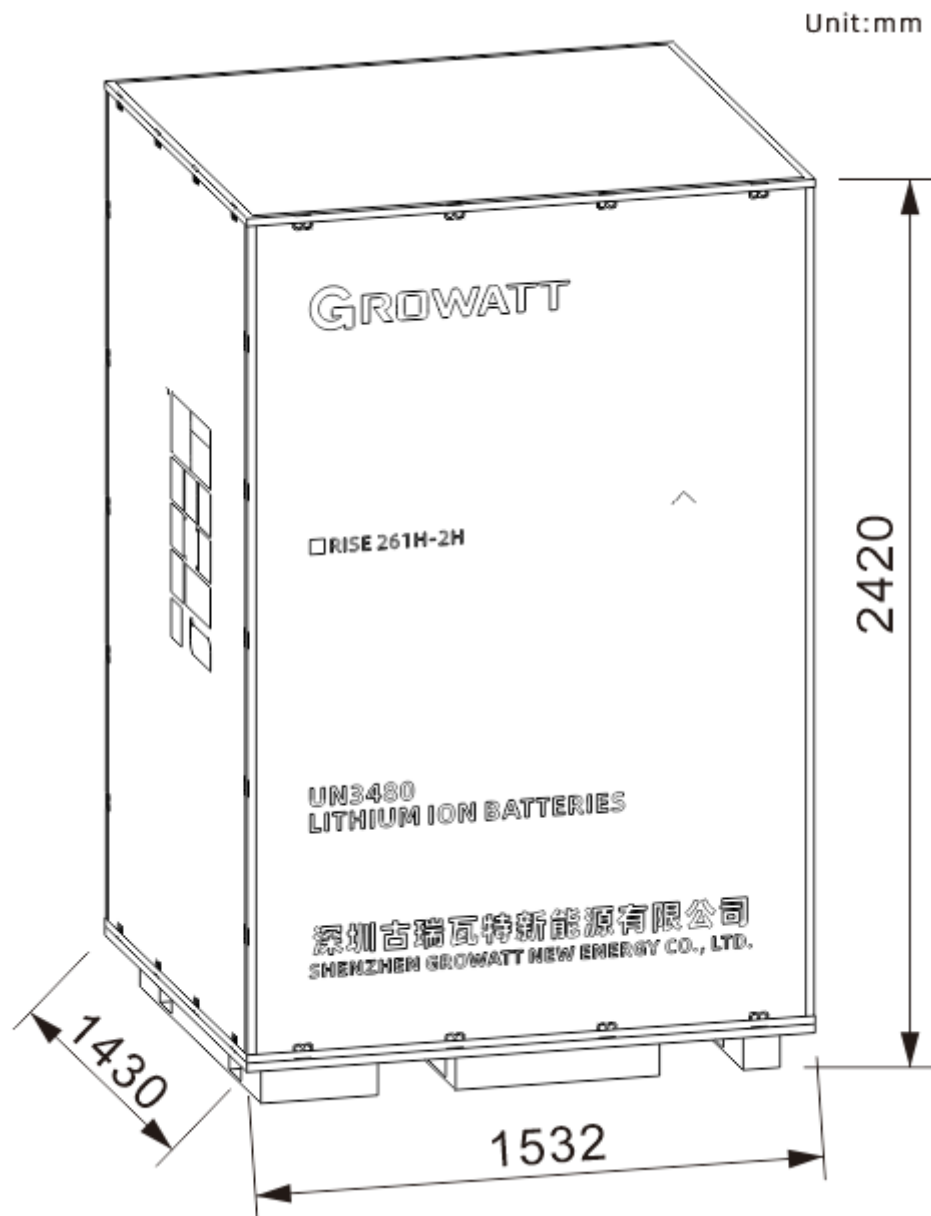


Figure 2.21 Packaging Dimensions Diagram

Model	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
RISE 261H-2H	1532	1430	2420	2750
RISE 261H-2.5H	1532	1430	2420	2750
RISE 261H-3H	1532	1430	2420	2750
RISE 261H-4H	1532	1430	2420	2750
RISE 261H-5H	1532	1430	2420	2750

Forklift handling

Step 1: Use a forklift to fork in from the bottom of RISE

Step 2: Secure the cabinet to the forklift with a safety rope

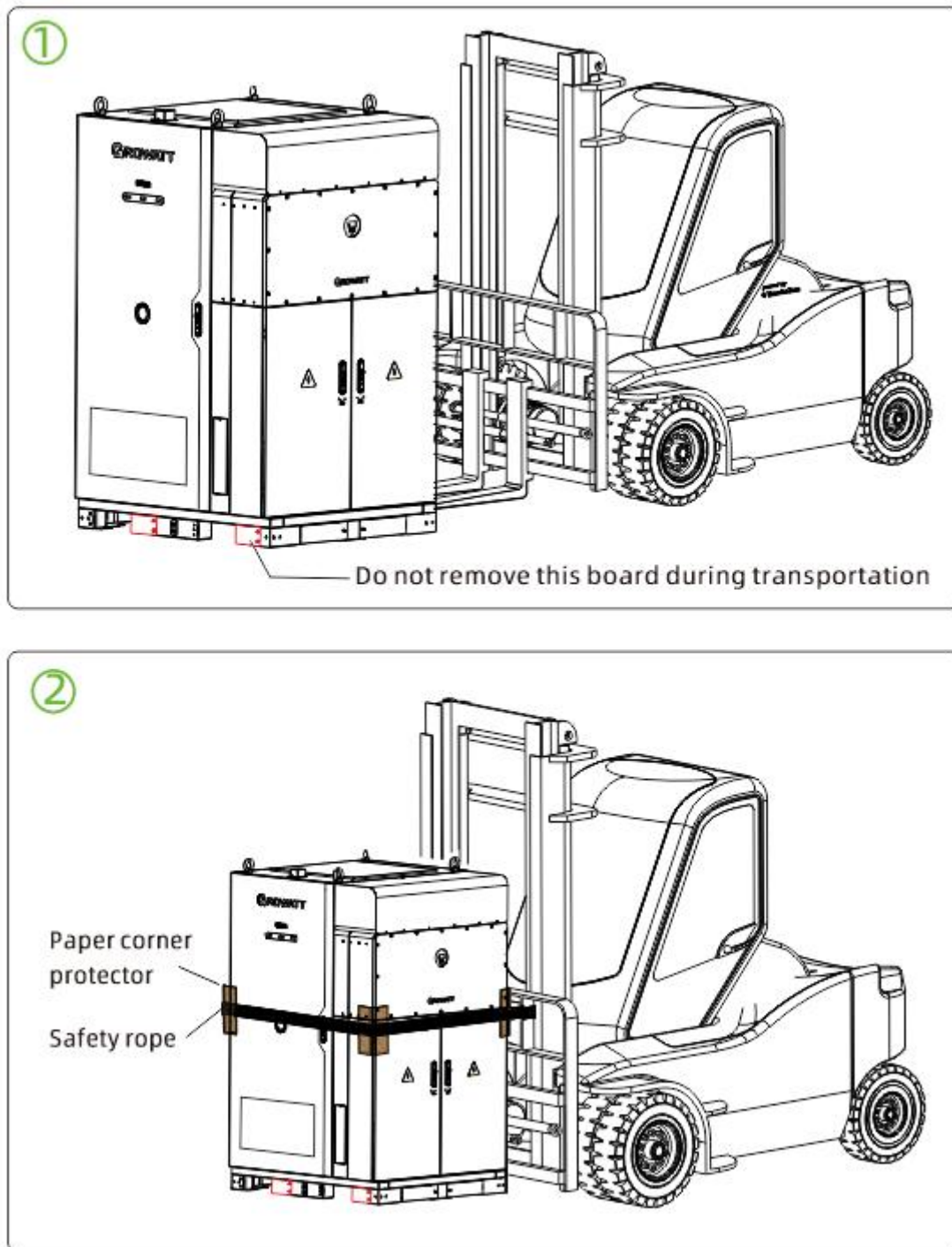


Figure 2.22 Forklift Handling Diagram



NOTICE

When forklifts cannot be used for transportation routes, please use cranes to transport equipment.

Please do not remove the bottom baffle of RISE during transportation.

起重机搬运

 WARNING	● No one is allowed to stand within the range of 5m~10m in the operation area. During the lifting operation, there should be professional personnel on site to command the entire process, and the operation must be strictly carried out in accordance with the safety operation specifications of the crane. ● In case of adverse weather conditions such as heavy rain, heavy fog, strong winds, etc., lifting work should be stopped. ● The strength of the sling used should be able to withstand the weight of the equipment, ensure the safety and reliability of all sling connections, and ensure that each section of the sling connected to the corner piece is of equal length. ● During the entire lifting process, it is necessary to ensure that the equipment is stable and not skewed.
--	---

Step 1: Secure the suspension rope onto the lifting ring;

Step 2: Fix the other side of the lifting rope onto the crane hook. The lifting rope is 1400mm long and forms an angle of $\geq 60^\circ$ with the top of the cabinet when straightened.

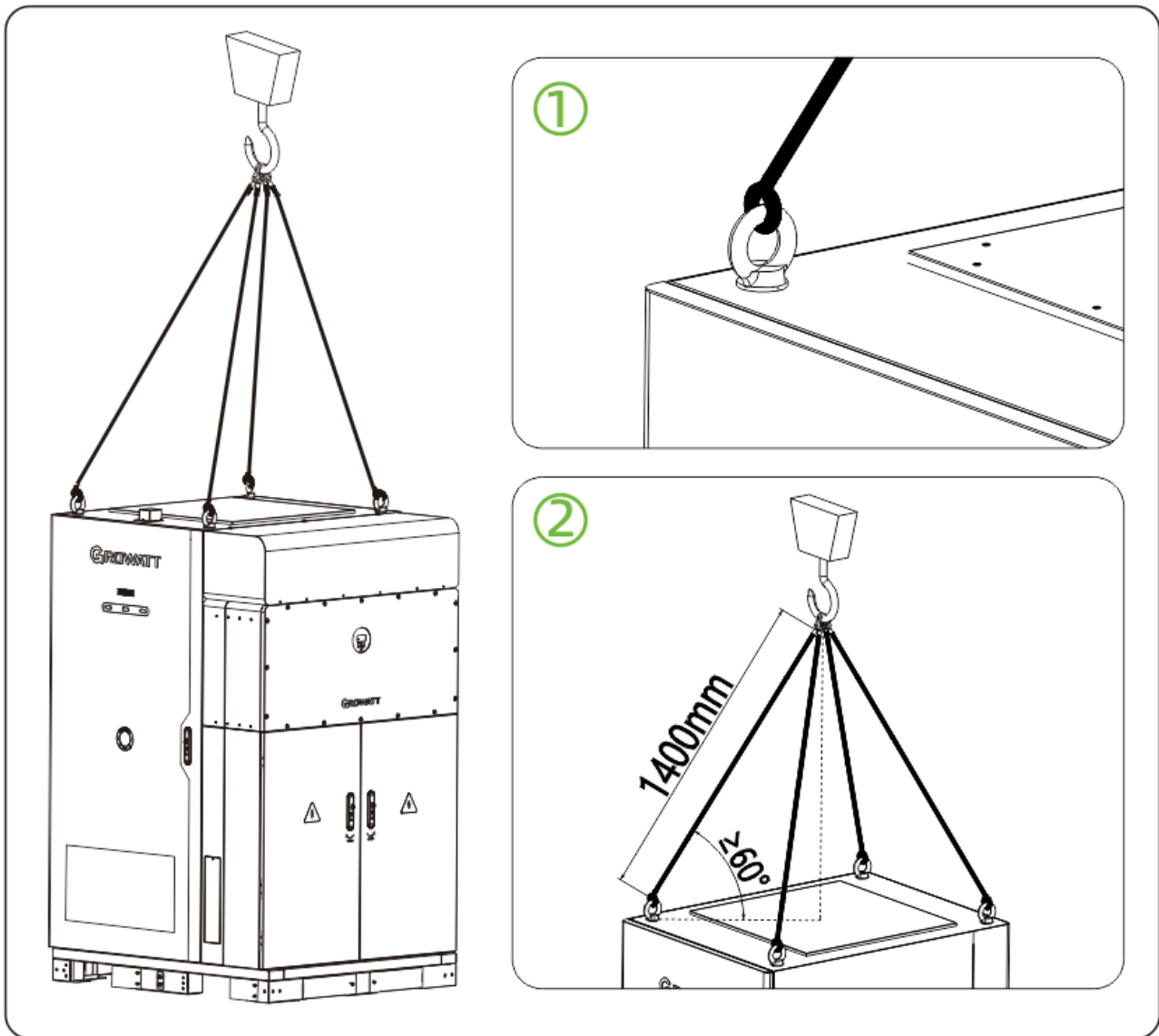


Figure 2.23 Crane Handling Diagram

2.11 Product Storage

- It is strictly prohibited to store products without packaging.
- It is strictly prohibited to store flammable and explosive materials around the product, and it is strictly prohibited to expose the product to corrosive environments.
- The storage temperature of the product should be maintained between -20 °C and +45 °C, and the relative humidity should be maintained between 5% RH and 95% RH.
- Stacking is strictly prohibited. Products must be placed strictly according to the markings on the packaging box, and cannot be stored tilted or inverted.
- Please store RISE in a dry, clean, and well-ventilated place to prevent erosion from dust, moisture, and ground water.
- Please avoid being eroded by rainwater or surface water.

- RISE should maintain a distance of at least two meters from the heat source (such as a radiator).
- After long-term storage, the product must undergo functional inspection and testing by professional personnel before being put into operation.



To ensure product performance and service life, it is necessary to strictly follow the above storage instructions.

2.11.1 Storage Requirements for Battery PACK

Temperature and humidity requirements for battery storage and charging cycle

Temperature relative	Humidity (RH)	Charging cycle
-20°C~35°C	5%~95%	≤12 months
35°C~45°C	5%~95%	≤3 months
45°C~50°C	5%~95%	≤1 month



- If the storage period exceeds the allowed limit and the battery module is not charged, it may cause damage to the battery module.
- At present, battery modules only support charging through hybrid inverter modules.
- Long term storage of battery packs and cabinets is not recommended. Long term storage of lithium batteries can lead to capacity loss. After being stored at room temperature of 25 °C for 12 months, the irreversible capacity loss of lithium batteries is generally 3% to 10%
- When the storage time of devices other than battery packs is two years or more, they need to be inspected and tested by professional personnel before they can be put into use.
- If the SOC of the battery is below 10%, it is recommended to charge the battery in a timely manner.

2.11.2 Battery PACK undervoltage detection instructions

If there is a battery depletion issue on site, battery testing and evaluation should be conducted according to this standard:

1. Battery cell testing standards:

Single cell voltage standard	Suggested coping strategies
$1.8V \leq \text{Single cell voltage} < 2.8V$	Contact the after-sales personnel of Growatt
$2.8V \leq \text{Single cell voltage} \leq 3.65V$	Use
Single cell voltage $< 1.8V$	Suggest scrapping

2. Battery PACK testing standard:

Battery PACK voltage standard	Suggested coping strategies
$93.6V \leq \text{Battery PACK voltage} < 145.6V$	Contact the after-sales personnel of Growatt
$145.6V \leq \text{Battery PACK voltage} \leq 189.8V$	Use
Battery PACK voltage $< 93.6V$	Suggest scrapping

3. Battery cluster detection standard:

Battery cluster voltage standard	Suggested coping strategies
$468V \leq \text{battery cluster voltage} < 728V$	Contact the after-sales personnel of Growatt
$728V \leq \text{battery cluster voltage} \leq 949V$	Use
Battery cluster voltage $< 468V$	Suggest scrapping

2.12 Installation Requirements

2.12.1 Environmental requirements

RISE has a protection level of IP55 and supports indoor and outdoor installation.

Please ensure that the installation environment is dry, ventilated, and has appropriate temperature and humidity.

It is strictly prohibited to install RISE in flammable, explosive, and corrosive environments.

During RISE operation, the shell temperature is high, and it is strictly prohibited to install it within the reach of children.

RISE generates noise during operation, please do not install it in living areas. If unavoidable, the installation location should be at least 25 meters away from residential areas, or effective noise reduction measures should be taken.

Environmental requirements for energy storage system installation: If installed in areas with salt hazards or pollution, ESS may corrode. ESS is suitable for the following or better environments:

1) Outdoor environments above 2000 meters from the coast: It is not recommended to install within 2000 meters of the coast. If installation is required, please consult our company's distributor engineer for confirmation.

2) More than 3000 meters away from heavy pollution sources such as smelters, coal mines, and thermal power plants.

3) More than 2000 meters away from moderate pollution sources such as chemical plants, rubber factories, and electroplating facilities.

4) More than 1000 meters away from light pollution sources such as food processing plants, leather factories, heating boilers, garbage dumps, and sewage treatment stations

2.12.2 Foundation Requirements

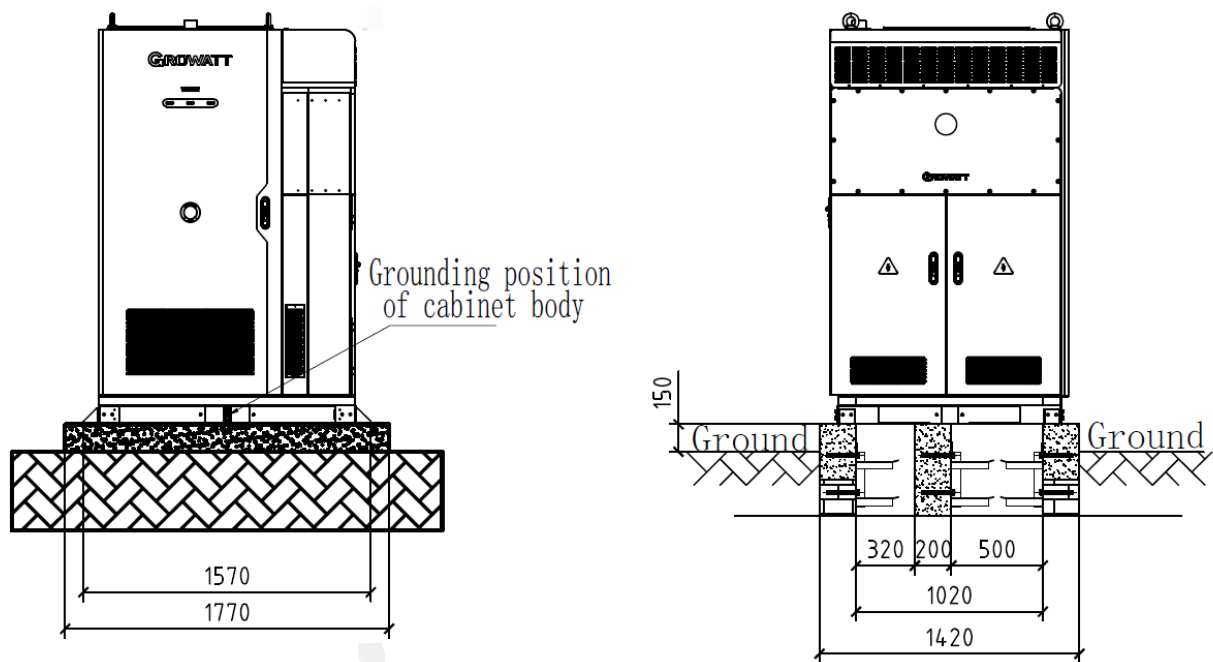


Figure 2.24 Foundation Diagram

- The installation foundation must have fire resistance and high temperature resistance.
- If RISE is installed in densely vegetated areas, regular weeding must be carried out and the ground below must be hardened (recommended hardening area: 2m × 2.5m, concrete, gravel and other materials can be used)
- The foundation design needs to consider the local hydrological conditions over the years.
- It is recommended that the minimum height of the foundation be 800mm.
- The entire RISE should be installed on a concrete foundation
- Ensure that the upper surface of the entire foundation is on the same horizontal plane (with an error not exceeding 5mm).
- Place the RISE cabinet correctly behind the bridge pier and fix 8 M12 * 120 expansion bolts.
- Reserve cable conduits according to the model and quantity of cables.

- According to the conventional grounding grid construction of the transformer station, set up grounding conductors and grounding electrodes. The grounding resistance should be less than $4\ \Omega$. It is recommended to use $50 * 4\text{mm}$ galvanized flat steel to form the grounding grid, with the length determined according to the site conditions. Pre embed galvanized flat steel along the cable trench. Before starting the excavation of the proposed foundation, soil treatment, compaction, and foundation reinforcement should be carried out first.
- The installation pier should be made of concrete, and its bearing capacity should not be less than $2000\text{kg}/\text{m}^2$.
- According to the conventional grounding grid construction of the substation, set up grounding conductors and grounding electrodes. The grounding resistance should be less than $4\ \Omega$. It is recommended to use $40 * 4\text{mm}$ galvanized flat steel to form a grounding grid. Determine the length based on the on-site situation. Pre embed galvanized flat steel along the cable trench.
- Testing should be conducted before foundation construction. When excavating the foundation, slope or deep foundation pit support should be carried out according to the site conditions and geological survey to ensure construction safety.
- Please refer to the electrical drawings for unspecified embedded components, grounding, and embedded pipelines. Strictly follow the electrical diagram and related drawings provided by the manufacturer to construct the foundation and avoid secondary excavation.
- Once excavated, do not stack loads within 5 meters of the edge of the pit to avoid landslides.

- All cable supports must be reliably connected to the grounding grid within the cable trench.

2.12.3 space requirements

Sufficient space must be reserved around RISE to meet heat dissipation and maintenance needs, with spacing as shown in the following diagram.

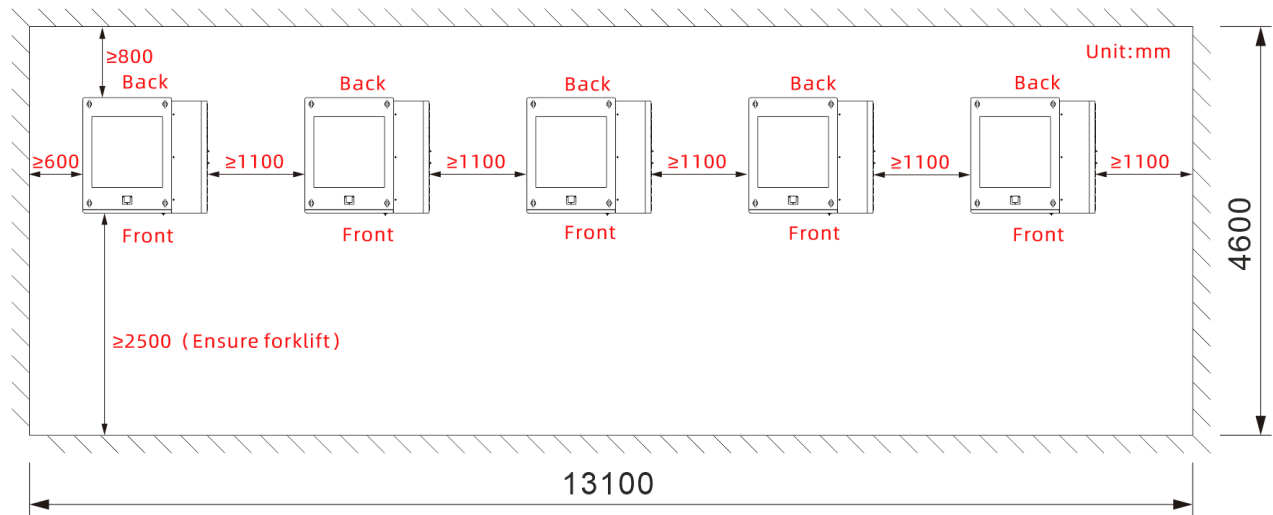
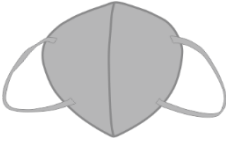
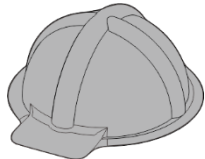
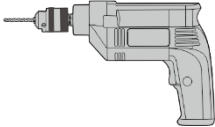
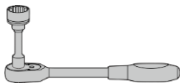
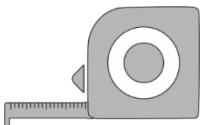
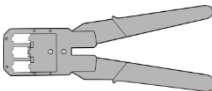
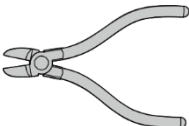
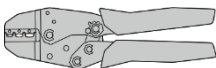
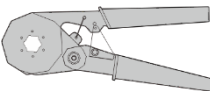
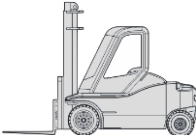


Figure 2.25 Installation Space Requirements Diagram

2.13 Installation Tools

Please bring your own installation tools, including but not limited to the ones listed below, which must comply with electrical safety regulations.

				
Safety gloves	Goggles	Mask	Safety shoes	Helmet
				
Hammer drill	Drilling bit (Φ=10mm)	Hammer	Level	Cross-head screwdriver

				
Socket Wrench	Marker	Measuring tape	Heat gun	Multimeter
				
Slanted	mouth plier	Wire stripper	Crimping plier	Forklift

2.14 Floor installation

After using a forklift or crane to move the equipment to the installation position, if the cabinet is unstable, please use a horizontal plate to level it and then fix it with an anchor bracket.

Step 1: Align the anchor bracket with the bottom screw hole position;

Step 2: Mark the drilling location;

Step 3: Drill holes at the marked locations;

Step 4: Insert expansion bolts into the drilling position;

Step 5: Use screws to secure the anchor bracket to the integrated cabinet and tighten the expansion bolts.

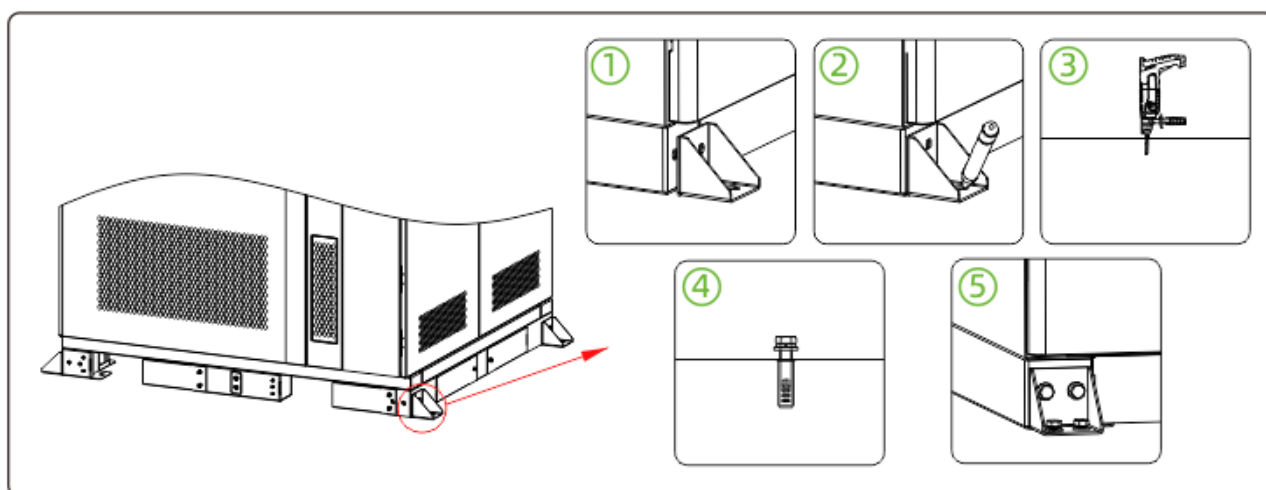


Figure 2.26 Base Installation Guide Diagram

2.15 Sealing Plate

After completing the installation of the base, it is necessary to install the base baffle.

Step 1: Use the M6 screw in the attachment to install the right side baffle, and tighten the screw with a socket tool;

Step 2: Install the left side baffle according to the above steps.

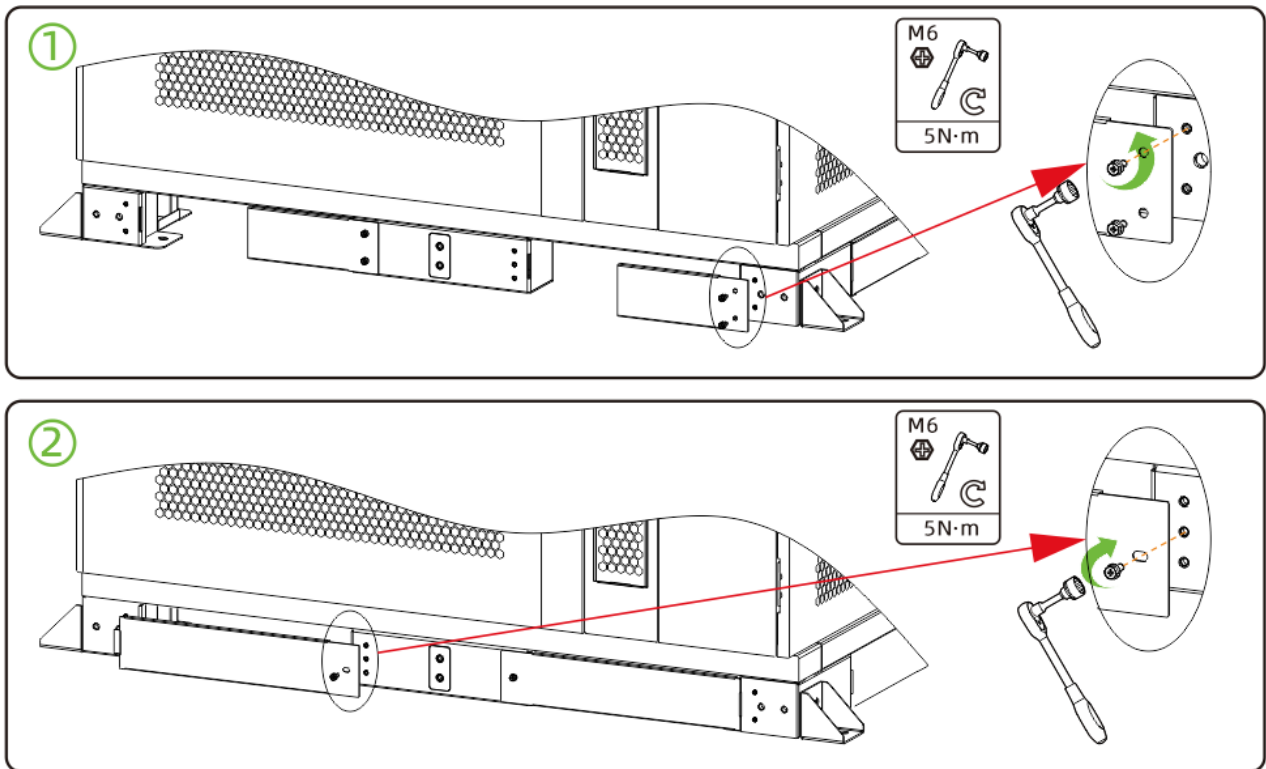


Figure2.27 Sealing guidance diagram

3 Electrical Connections

3.1 Precautions

 DANGER	- Before electrical connection, it is necessary to wear insulated gloves and use insulated tools that meet the specifications to avoid electric shock injury. - Before electrical connection, it is necessary to ensure that all switches are in the disconnected state.
 WARNING	- Electrical connection operations must be carried out by technical personnel who have received professional training and passed the assessment. - Electrical connections must be strictly carried out in accordance with the wiring instructions in this document. Equipment damage caused by improper wiring is not covered by the warranty.
 CAUTION	The cable colors shown in this document are for reference only, and the selection of cables must comply with the regulations and standards of the installation location.

3.2 Prepare cables

Table3.1 cable specification

No.	Cable	Type	Recommended	Source
1	Grounding cable	Outdoor copper core cable	1AWG	customer-provided
2	PV input cable	Outdoor copper core cable	10AWG	
3	AC side power output cable	Outdoor copper core cable	2/0AWG	
	AC side power grounding cable		2AWG	
4	communication cable	Outdoor shielded twisted pair cable	Cat 6A STP Cable	

5	Generator start, EPO signal cable	Outdoor copper core cable	18AWG	
6	Meter communication cable	Outdoor double-layer shielded multi-core cable	20AWG	

3.3 Connecting the protective grounding wire of the shell

Precondition

 DANGER	● Please ensure that the grounding cable is securely connected to prevent the risk of electric shock. ● It is strictly prohibited to use the neutral wire (N wire) as a protective ground wire and connect it to the RISE enclosure to prevent the risk of electric shock. ● Machine safety grounding and lightning protection grounding should be separated and kept as far away as possible.
 WARNING	● The PE connection point at the RISE AC output interface is only used as an equipotential connection point and cannot replace the protective grounding point on the casing. ● After the wiring is completed, apply silicone or paint around the grounding terminal to prevent corrosion. ● The lightning protection measures of the PV system should comply with international standards or IEC standards. Failure to comply may result in damage to PV modules, accessories, RISE, and distribution facilities, and the company shall not be held responsible for any consequences arising therefrom.

Shell grounding

Step 1: Users should bring their own hot-dip galvanized flat steel or cables. The recommended specifications are flat steel $\geq 40 \times 4 \text{ mm}$ and protective grounding wire $\geq 25 \text{ mm}^2$. The specific size and wire diameter need to be determined according to the on-site standards.

Step 2: Connect the grounding flat steel or cable.

Explanation: The grounding resistance is required to be less than 4 Ω and meet regulatory requirements.

Prepare cables

grounding	Type	Specification	Terminal	Remark
Grounding outside the cabinet	Hot dip galvanized flat steel grounding	Recommended size ≥ 40x4mm, user provided	/	Choose one of two grounding methods
	Single core outdoor copper core	Cross sectional area ≥ 25mm ²	M10 OT/DT terminal, user provided	

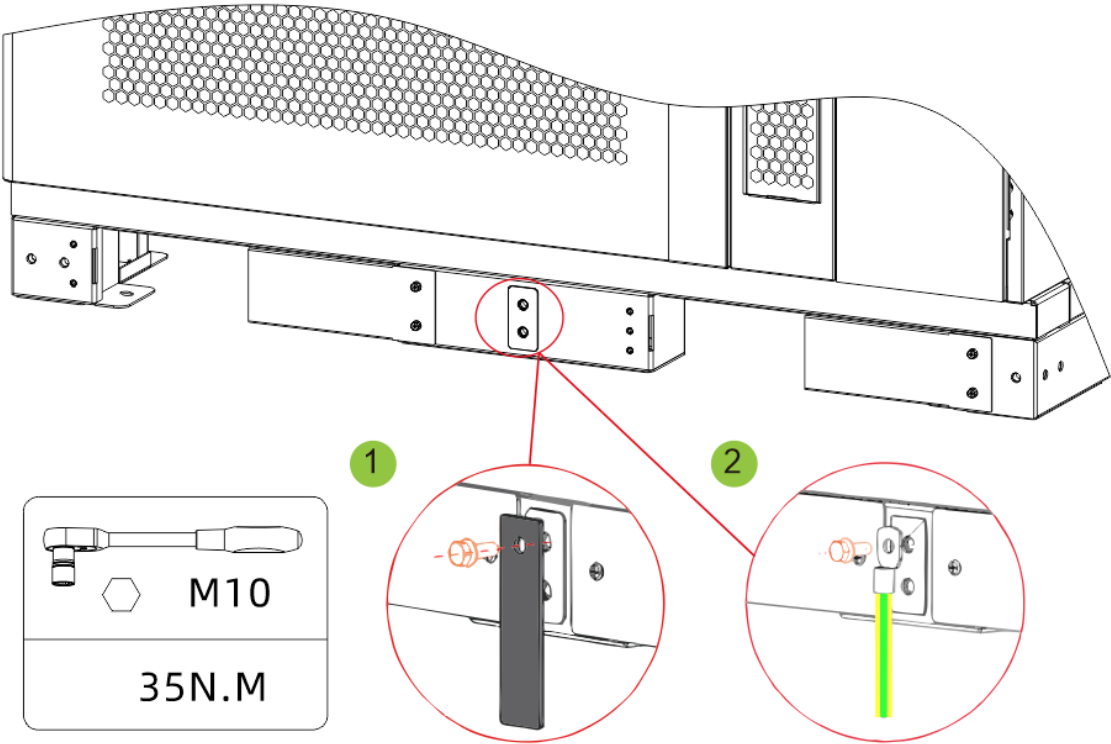


Figure 3.1 Connecting Grounding Flat Steel

 CAUTION	● Be careful not to damage the wire core when stripping. ● After crimping the wire with the OT terminal, the terminal cavity must completely wrap around the entire wire core and ensure a tight and secure connection.
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	● To ensure safety, the terminal crimping point must be wrapped with heat shrink tubing or insulating tape. ● When using a hot air gun, effective protective measures must be taken to avoid equipment burns.
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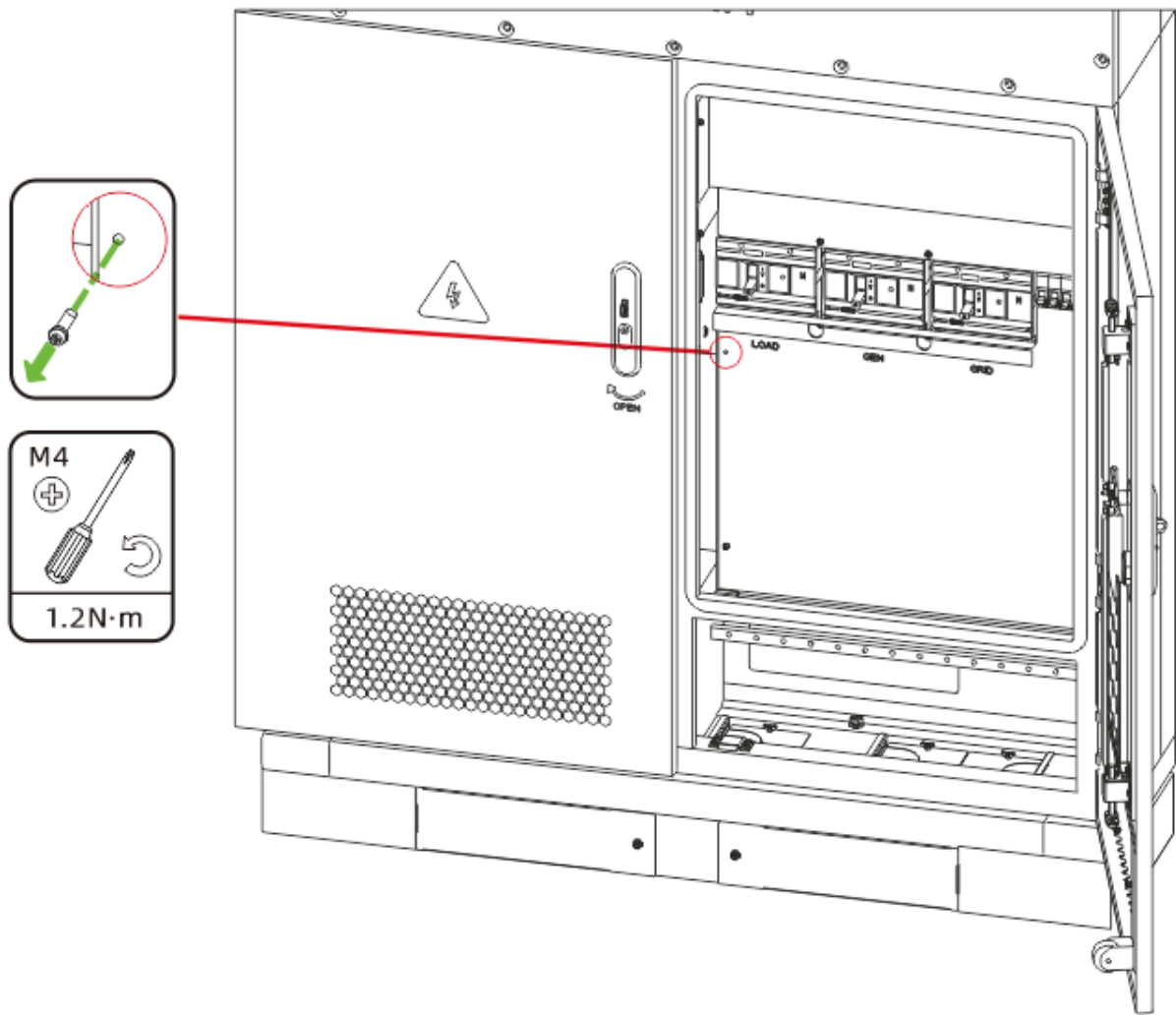
3.4 Connecting AC cables

Preconditions for communication side wiring

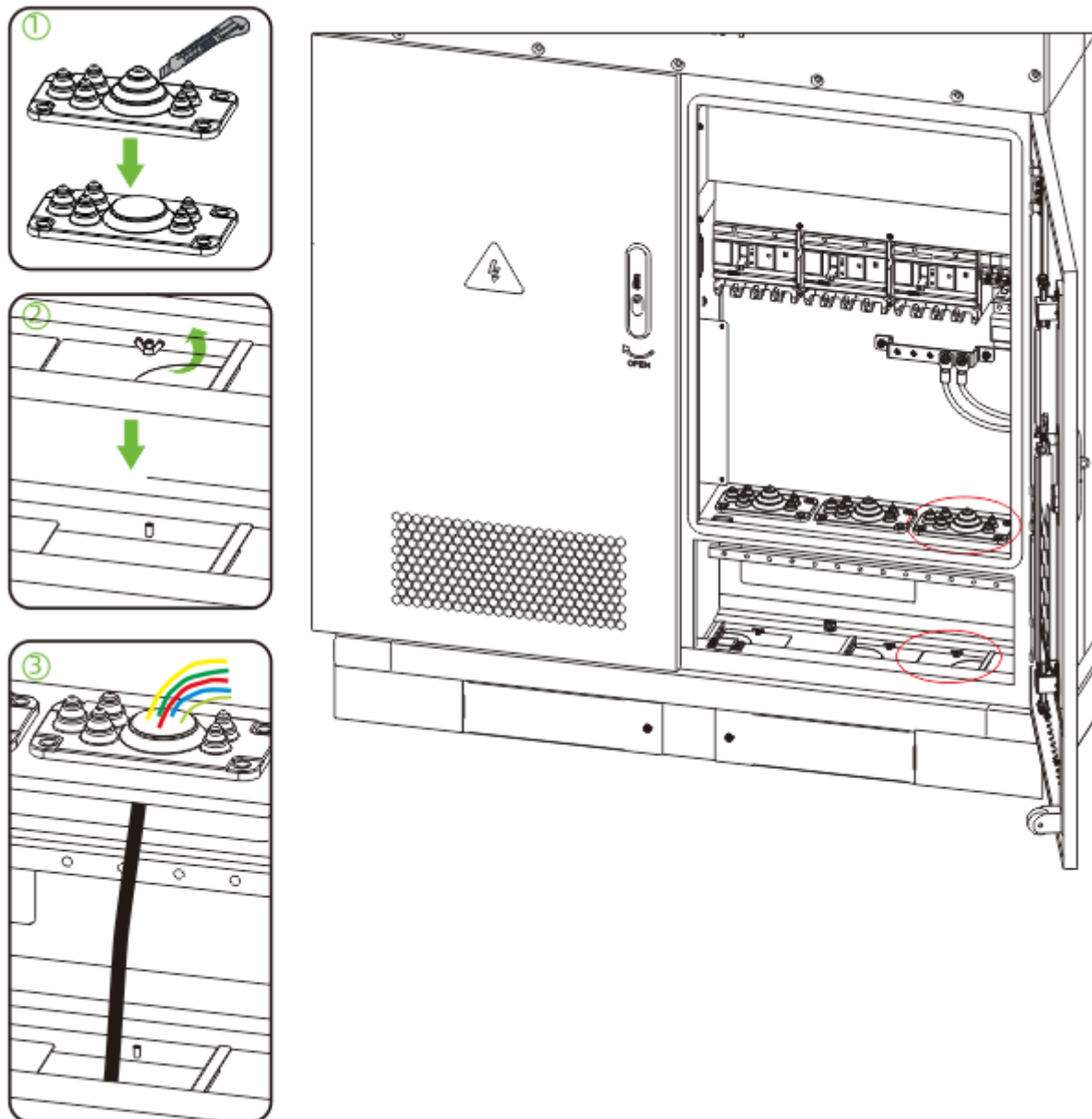
 DANGER	● Before making electrical connections, please ensure that the PV switch of RISE is in the "OFF" state and disconnect the AC and battery side switches, otherwise the high voltage of RISE may pose a risk to life. ● It must be operated by well-trained professional electrical technicians and comply with this manual and local regulations. ● High voltage danger, please do not touch RISE casually. ● Do not place flammable and explosive materials around RISE.
 WARNING	● If the cable is thick, do not shake it forcefully after tightening the cable terminals. Please ensure that the terminals are well connected before starting RISE. To prevent loose terminals from causing overheating and damage. ● After the wiring is completed, please apply the fireproof mud evenly and tightly at the waterproof gasket inside the AC junction box to prevent water from entering. ● Single stranded wires are strictly prohibited from being used for communication output cables. ● Aluminum wires are strictly prohibited from being used for communication output cables.

Operation steps for communication side wiring

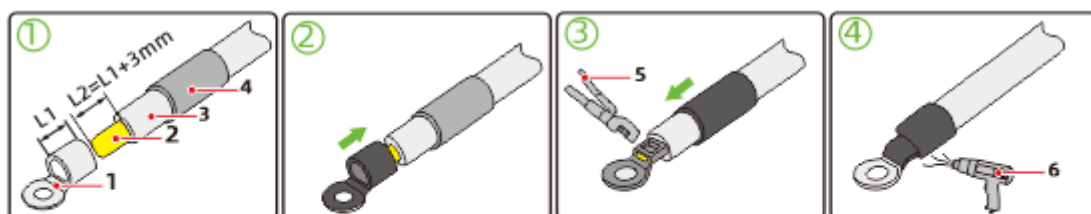
Step 1: Open the distribution cabinet door and remove the AC side cover plate.



Step 2: Use a tool to cut open the rubber cover on the wiring board, rotate the screw to remove the bottom cover plate, and then thread the power ground wire and AC cable in;



Step 3: Create the communication side cable. Please refer to the following diagram for specific steps;



(1) OT terminal
(4) Heat shrink tubing

(2) Core wire
(5) Hydraulic pilers

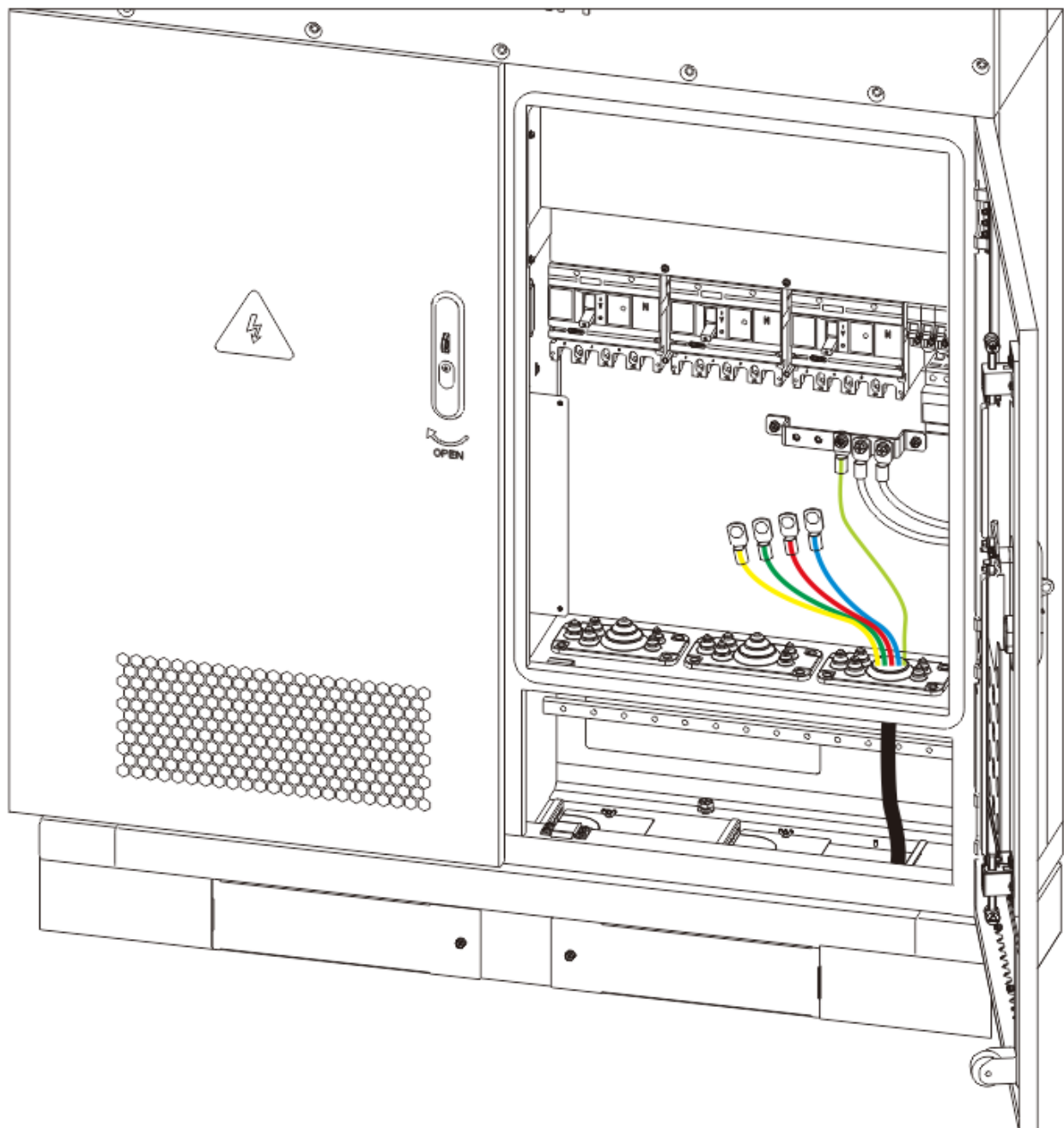
(3) Cable
(6) Heat gun



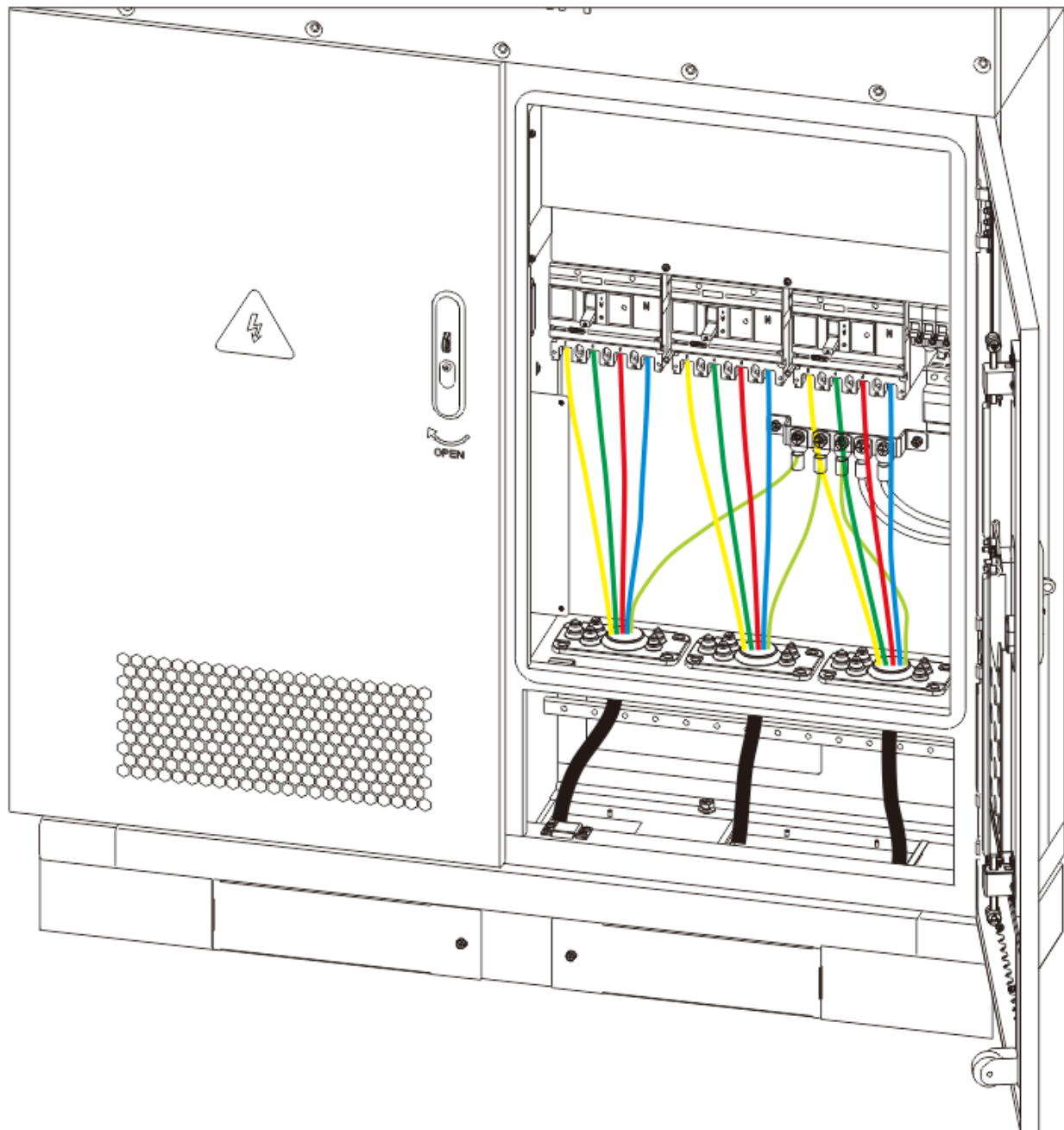
CAUTION

- Be careful not to damage the wire core when stripping.
- After crimping the wire with the OT terminal, the terminal cavity must completely wrap around the entire wire core and ensure a tight and secure connection.
- To ensure safety, the terminal crimping point must be wrapped with heat shrink tubing or insulating tape.
- When using a hot air gun, effective protective measures must be taken to avoid equipment burns.

Step 4: After the cable production is completed, connect the power ground wire first;



Step 5: Connect the power cables of each phase in sequence;



CAUTION

- Please ensure that the sequence of the connected phase wires is consistent with the silk screen.

3.5 Connecting PV input cables

Precondition

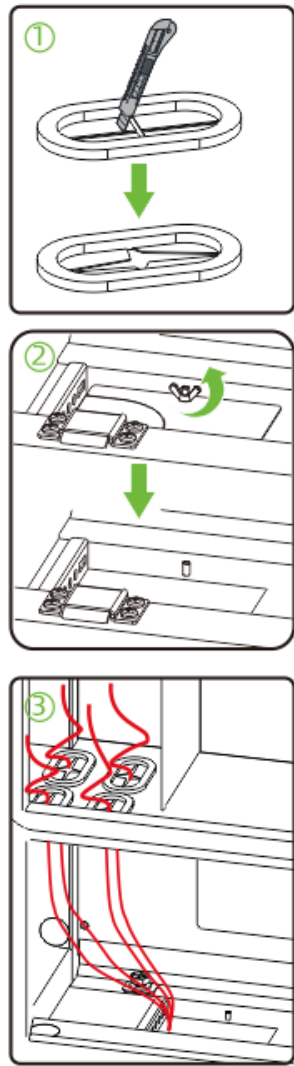
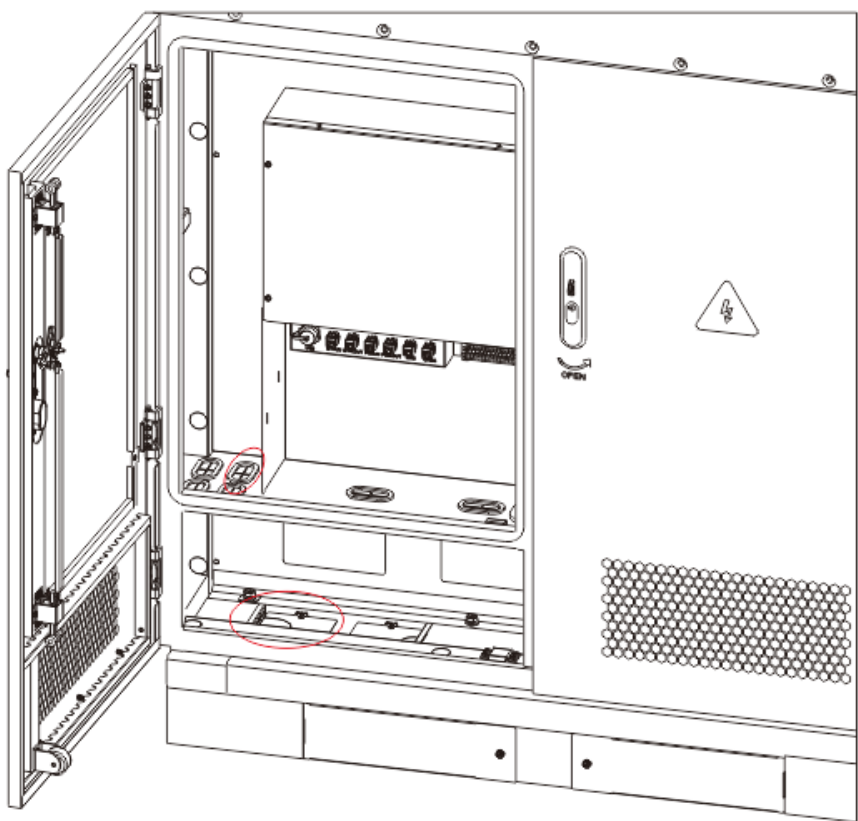
 Information	RISE 261H-XH has 10 MPPT interfaces and a total of 20 photovoltaic string inputs.
 DANGER	● Before connecting the PV input cable, ensure that the PV switch is in the "OFF" state, and ensure that the battery switch and the AC switch of the distribution cabinet are in the disconnected state. Prevent high-voltage electric shock. ● During RISE operation, it is strictly prohibited to perform maintenance operations or touch the PV input cable at will. ● Please confirm the positive and negative poles before docking the photovoltaic module with RISE. ● It is strictly prohibited to remove the dust cover of the PV input interface that is not connected to the photovoltaic string to prevent water vapor or dust from entering and causing equipment damage. ● It must be operated by well-trained professional electrical technicians and comply with this manual and local regulations.
 WARNING	● Please ensure that the following conditions are met, otherwise it may damage RISE or cause a fire. The company shall not be held responsible for any consequences arising from this. ● Under any conditions, the maximum open circuit voltage of each PV string shall not exceed 1100 Vdc. ● When the voltage of each PV string exceeds 1000 Vdc, RISE will stop power output. ● The PV modules in each PV string should have the same specifications and models. ● Under any conditions, the maximum short-circuit current of each PV string shall not exceed 50A. ● RISE's inverter module is a non-isolated inverter, and it is strictly prohibited to ground the PV system.
 CAUTION	If the PV input cable is found to be reversed, do not operate immediately. Wait for the PV string current to drop below 0.5A before disconnecting the DC switch and reconnecting the PV input cable with the correct polarity.

 NOTICE	● To optimize system configuration, it is recommended to connect the same number of photovoltaic modules to each input.
 WARNING	● Please use the PV terminal core and PV terminal in the inverter module shipping attachment and use a dedicated crimping tool for crimping. Equipment damage caused by failure to follow the requirements will not be covered by the warranty. ● Do not use high rigidity cables for PV input cables to avoid poor terminal contact caused by cable bending stress. ● When installing PV terminals, please ensure that the polarity is correct and mark the positive and negative cables. ● After crimping the positive and negative PV terminal cores, gently pull back the cable to ensure a secure connection. ● After inserting the positive and negative terminals in place, gently pull back the cable to ensure that the terminals are securely in place. ● When connecting PV input cables, at least 50mm of unbent length should be reserved at the base of the cable. ● The axial tension of the PV input cable on the PV terminal shall not exceed 80N, and long-term axial cable stress on the terminal should be avoided during on-site wiring. ● It is strictly prohibited to apply radial stress or torque to PV terminals to avoid waterproof failure of the terminals.

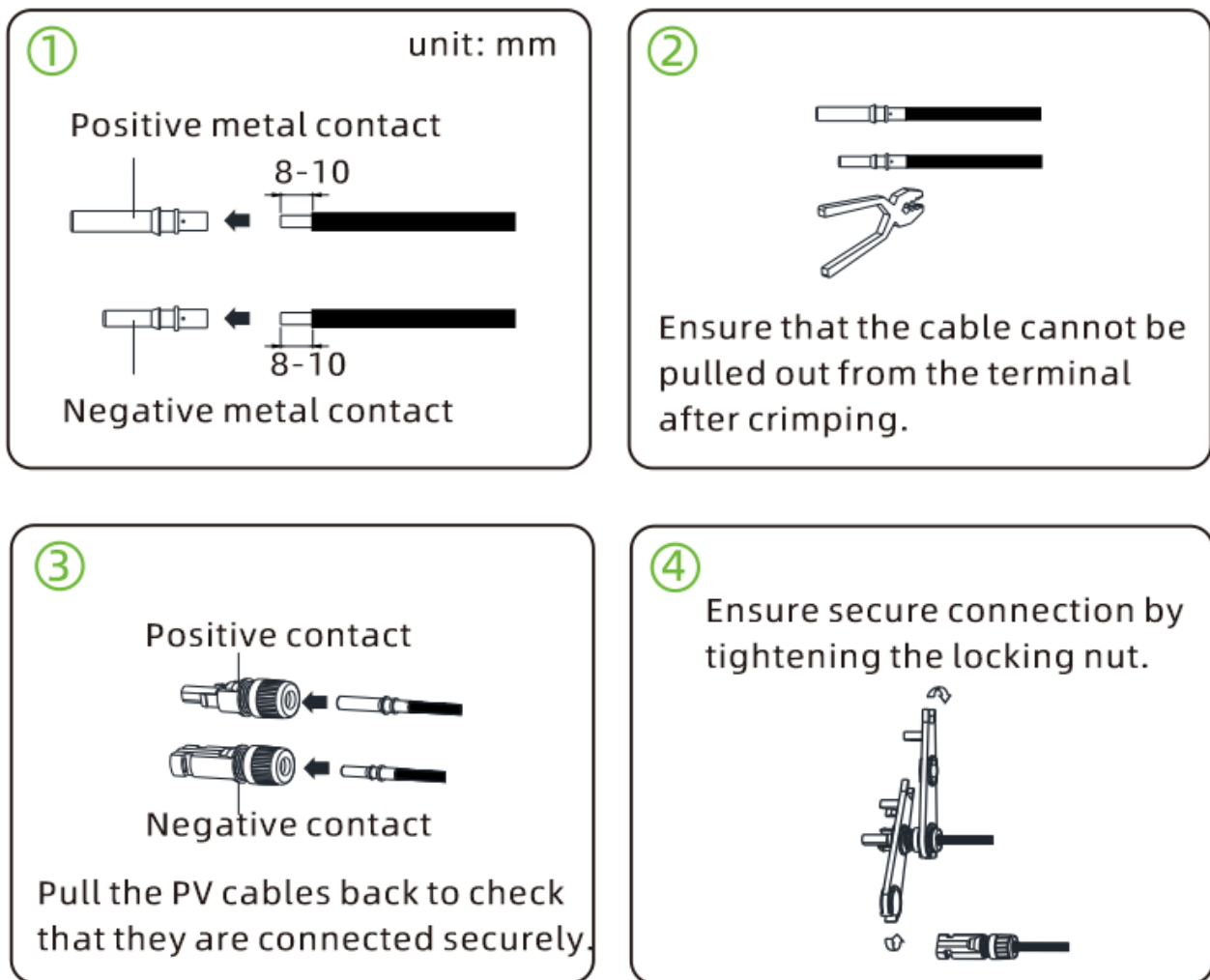
PV wiring operation steps

Step 1: Open the door of the distribution cabinet, use a tool to cut open the rubber cover on the wiring board, rotate the screw to remove the bottom cover plate, and then thread the PV

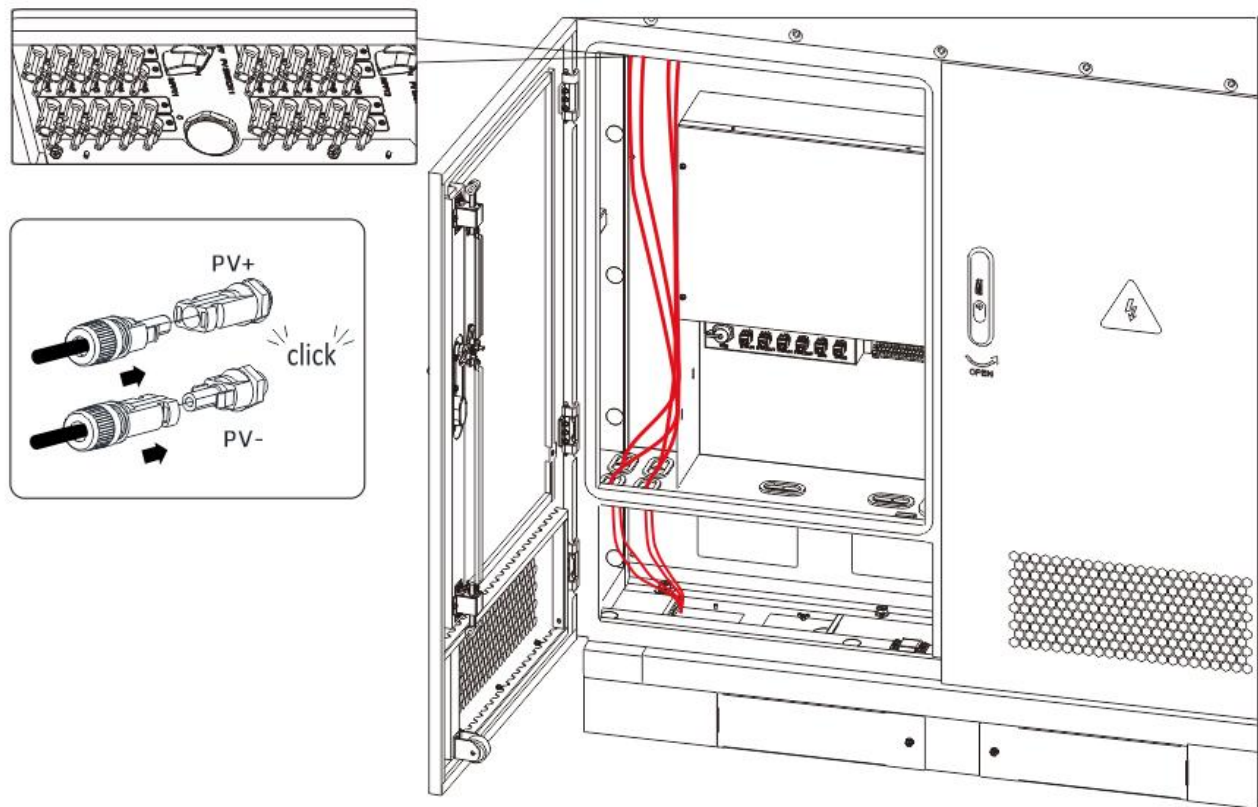
cable in;



Step 2: Refer to the following figure for terminal crimping of the inserted PV cable;



Step 3: After the terminal crimping is completed, connect the PV cables in sequence, and then use zip ties to tie and fix the wires;



3.6 Communication cables connection

Precondition

 WARNING	When arranging communication cables, they should be separated from power cables and kept away from strong interference sources to avoid communication interruptions.
--	--

Definition of Communication Interface

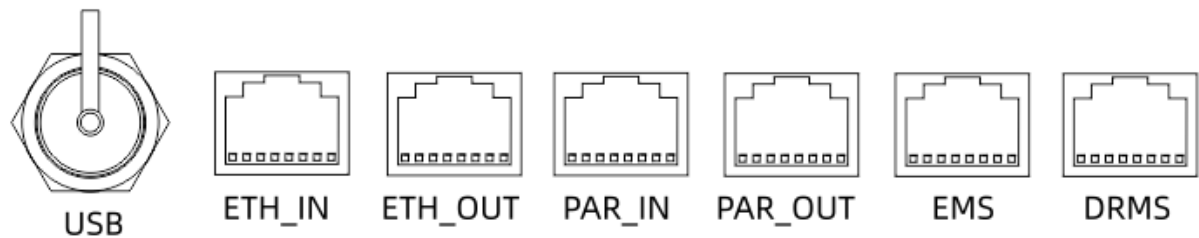


Figure3.2 Schematic diagram of communication interface

No.	Interface silk screen printing	Interface Description	USE
A	USB	USB port	USB flash drive and ShineWiLan-X2 pro collector interface for hybrid inverters
B	ETH_IN	Grid connected and parallel communication input	Communication connection interface for grid connection and parallel operation
C	ETH_OUT	Grid connected and parallel communication output	
D	EMS	Network communication interface	Customer third-party EMS communication connection interface/customer network communication connection interface
E	PAR_IN	Off-grid parallel communication input	Off-grid parallel communication connection interface
F	PAR_OUT	Off-grid parallel communication output	
G	DRMS	DRMs functional interface	External DRMs control output interface

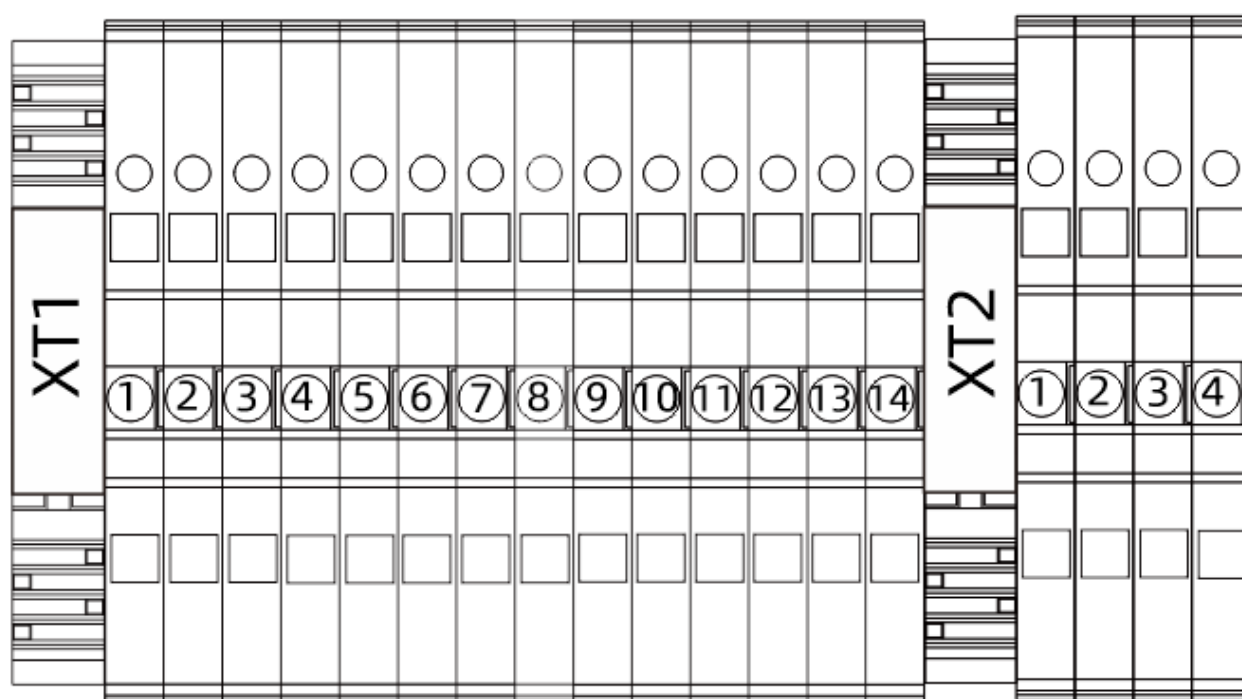
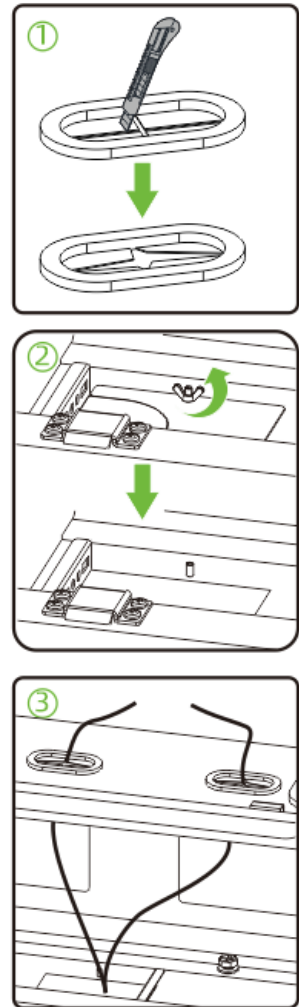
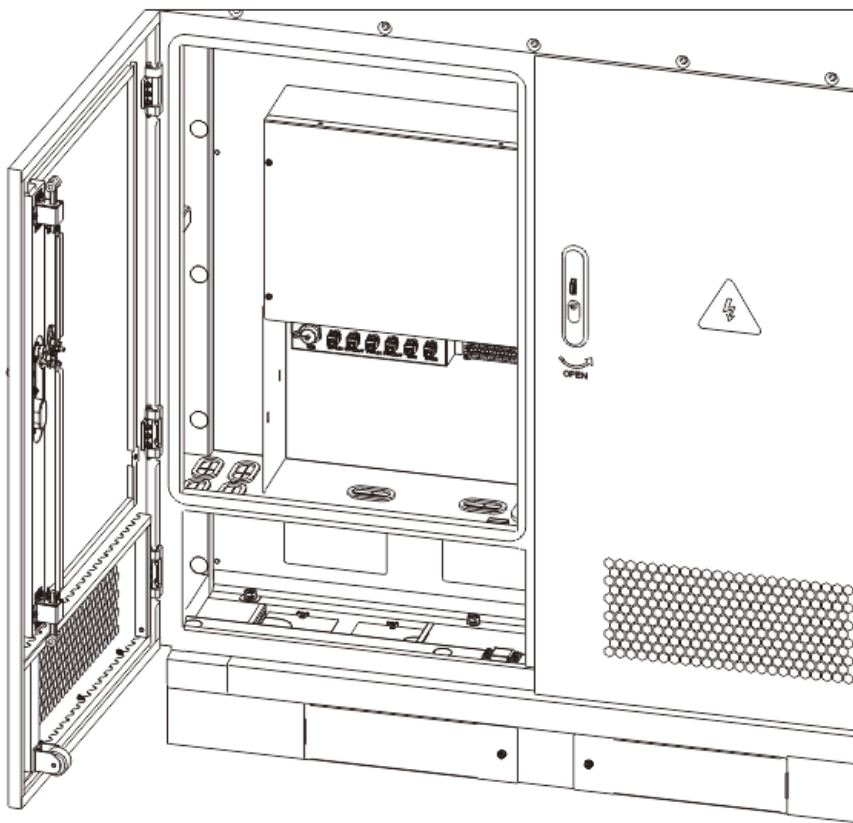


Figure 3.3 Schematic diagram of rail terminal interface

No.	designation	introduce	标号	名称	介绍
XT1①	DC24V+		XT1⑨	REPO1	EPO interface
XT1②	DC24V-		XT1⑩	REPO2	
XT1③	RS485_1A	Meter 1 communication interface	XT1⑪	Service Port	Only for factory use
XT1④	RS485_1B		XT1⑫		
XT1⑤	DG START+	Diesel generator start and stop signal interface	XT1⑬	RS485_3A	Meter 2 communication interface
XT1⑥	DG START-		XT1⑭	RS485_3B	
XT1⑦	RS485_2A	Debugging interface	XT2 ①~④	PE	PE
XT1⑧	RS485_2B				

Operation steps for communication wiring and cable production

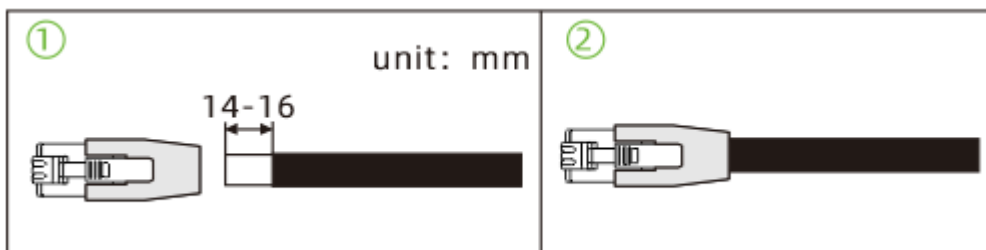
Step 1: Use a tool to cut open the protective cover at the corresponding position at the bottom of the communication compartment, and rotate the screw to remove the bottom cover plate. Remove the communication cable from its original position Insertion;



Step 2: After passing in, proceed with the production of communication cables, which include network cables and rail terminal cables

- Network cable production:

- ① Remove the insulation layer of 14-16mm at the front end of the cable, arrange the cables in order and trim them neatly;
- ② After threading the cable into the crystal head and checking for accuracy, use a tool to tighten the crystal head.



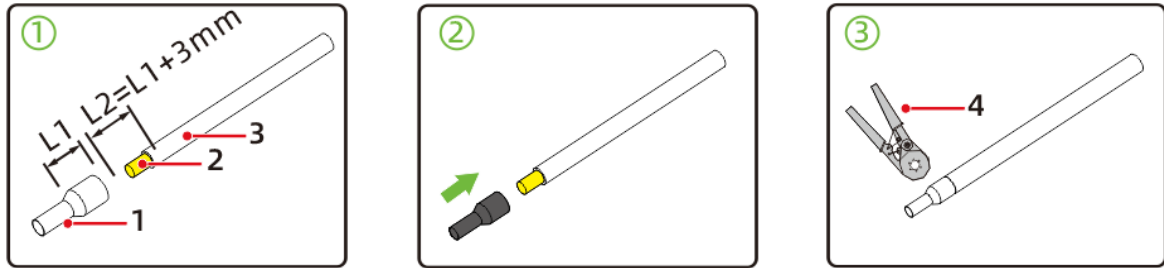
- Manufacturing of rail terminal cables:

- ① Remove the insulation layer of L1+3mm length at the front end of the cable as shown

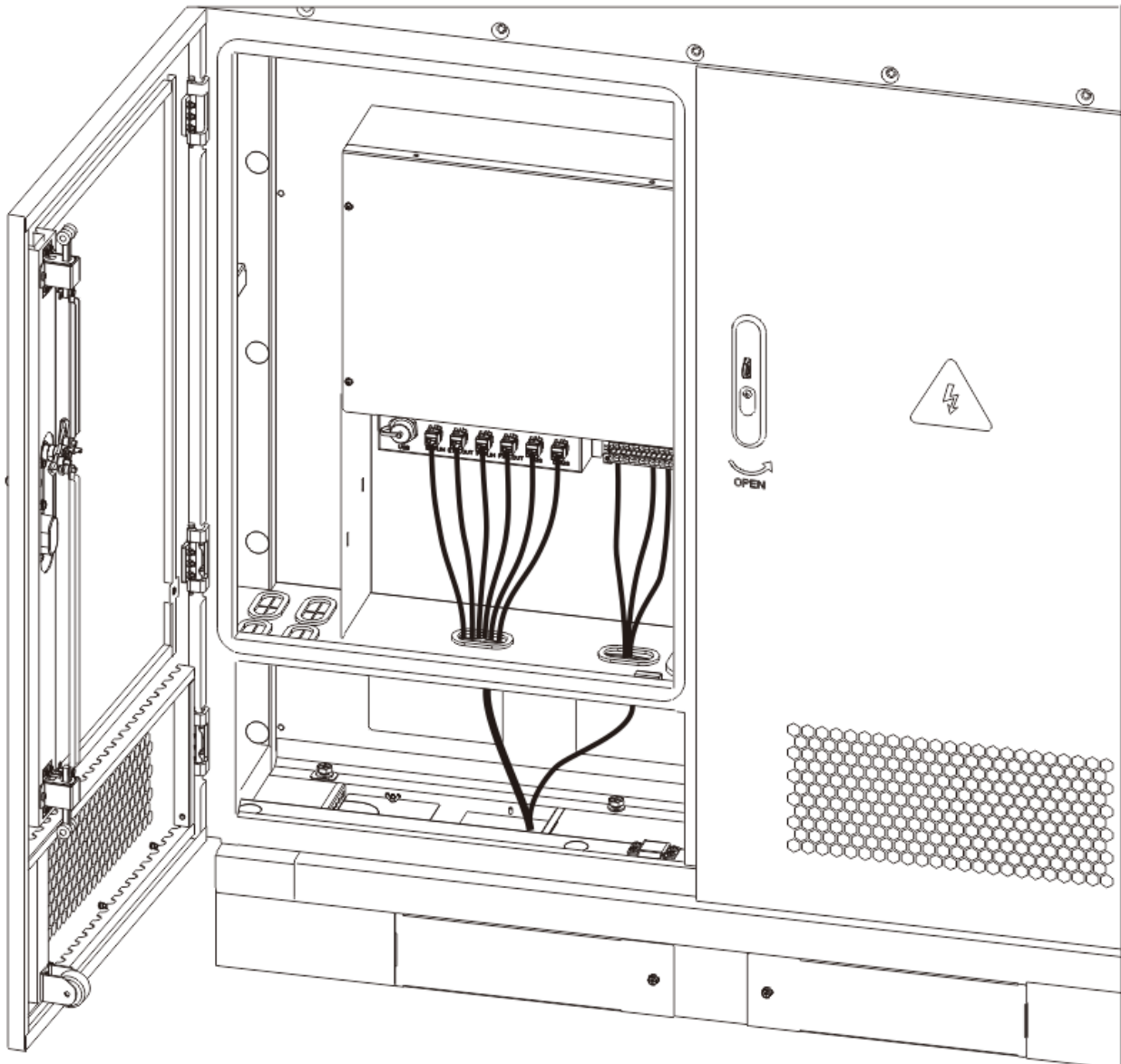
in the figure;

② Insert the tubular terminal into the stripped cable in the direction shown in the figure below;

③ Use tools to tighten the front end of the tubular tube.



Step 3: Connect the corresponding communication cables according to actual needs;



3.7 Meter connection

RISE's shipping attachments come with built-in electric meters and CT components, supporting functions such as power limitation, operation mode setting, and self-consumption power monitoring.



CAUTION

- The phase sequence of the electricity meter must be consistent with the output phase sequence of RISE, otherwise the anti-backflow function and TOU mode cannot be used.

RISE comes standard with CHINT electric meters, with a communication address of 4. Please refer to the following diagram for meter wiring:

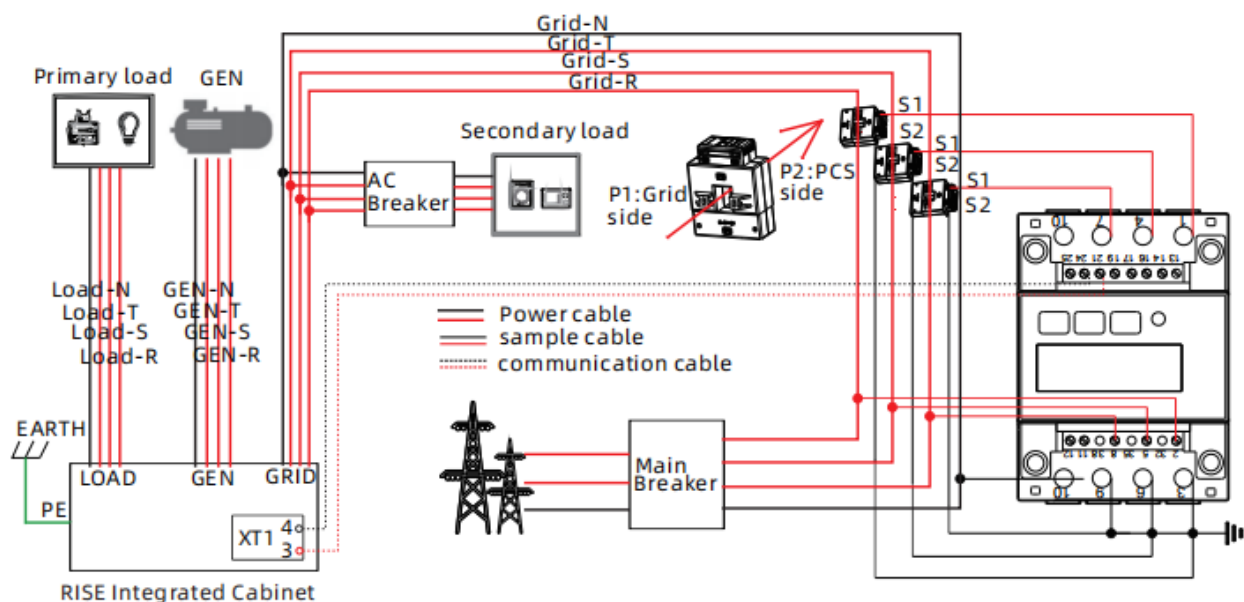


Figure3.4 Schematic diagram of electric meter wiring

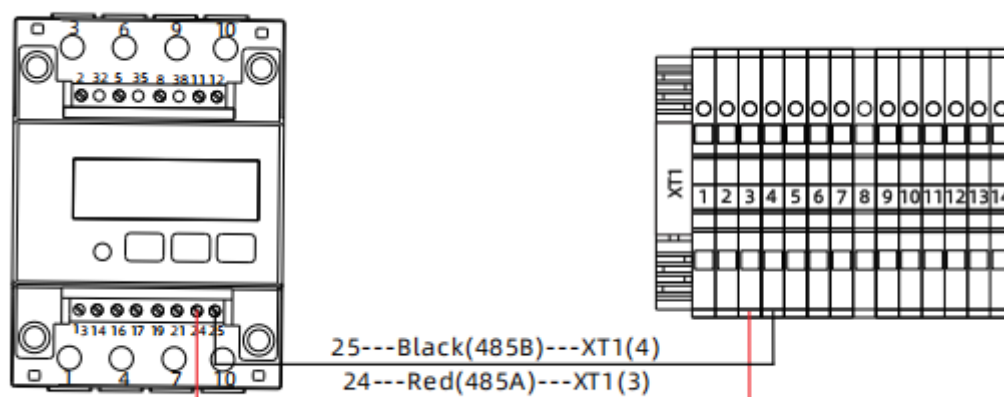
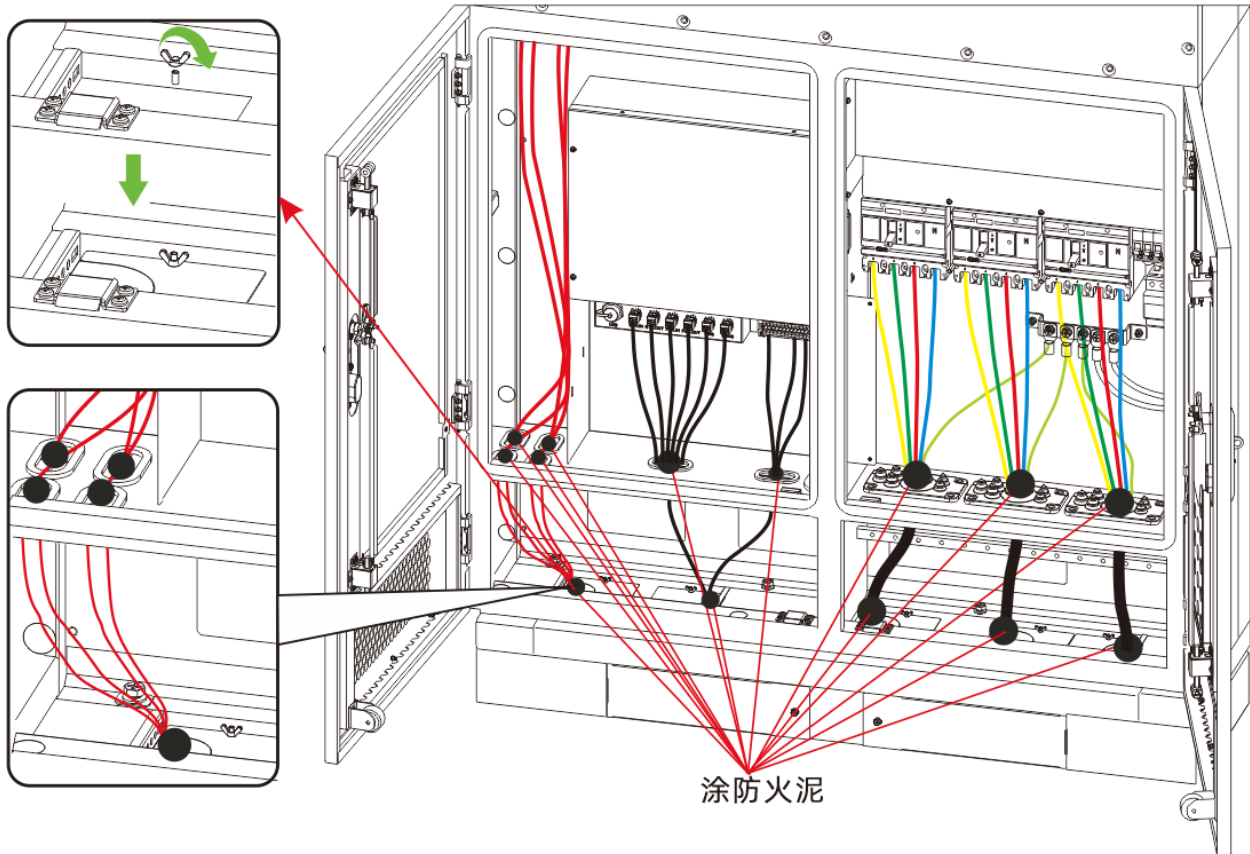


Figure3.5 Electricity Meter Communication Wiring Diagram

3.8 Installation of cover plate and fireproof mud

After completing the connection of all communication side, PV side, and communication cables, reinstall all bottom cover plates and apply fireproof mud uniformly at the wiring positions.



3.9 Wiring Inspection

After completing the electrical connection, please refer to the following table to confirm whether all cables have been connected:

Table 3.2 Wiring Inspection Comparison Table

No.	Checklist	Check position	Check content	Wiring reference chapter
1	Grounding cable	Shell grounding	Confirm whether the grounding cable is firm	3.3

			and reliable	
2	AC side wiring	Power side grounding	Confirm whether the grounding cable is firm and reliable	3.4
3		AC side power cable	● Confirm if the phase sequence is correct ● Confirm whether the cable connection is firm and reliable	
4	PV cable	PV side power cable	Confirm whether the PV cable connection is firm and reliable	3.5
5	communication cable	System communication cable	Confirm if the cable connection is correct and reliable	3.6
6	Electric meter cable		● Confirm whether the sampling cable sequence of the electricity meter is correct Confirm if the meter communication is	3.7

			connected correctly and reliably	
7	Fireproof mud application	AC side wiring holes in the distribution cabinet	Confirm if all cable holes for connecting cables have been coated with fireproof mud	3.8

4 Power on the system

4.1 Pre-power-on inspection

Before powering on, please carefully read "1 Safety Precautions" and confirm each item according to the following checklist.

 DANGER	During inspection, it is necessary to wear insulated gloves and use insulated tools that comply with regulations to avoid electric shock injuries.
---	--

表 4.1 Inspection Items

No.	inspection items	Standard
1	RISE installation	RISE is securely installed.
2	Cable laying	Communication cables and power cables are routed separately.
3	grounding	The DC switch and all circuit breakers connected to RISE are in the open state.
4	Switch	The DC switch and all circuit breakers connected to RISE are in the open state.
5	Cable connection	PV/AC/meter cables are connected correctly and securely.
6	threading hole	All used threading holes are sealed with fireproof mud.
7	Installation environment	The installation environment meets all the requirements specified in this document and ensures that the ventilation valve is not obstructed.

4.2 Power on steps

 DANGER	Please wear insulated gloves and use insulated tools to avoid electric shock or short circuit accidents.
 CAUTION	Before closing the AC circuit breaker, please use a multimeter to check if the AC voltage is within the allowable range.



Information

After the system is powered on, if there is a malfunction or alarm, an error code/warning code will be displayed on the APP. For detailed troubleshooting suggestions, please refer to "6.4 Troubleshooting".

Step 1: Rotate the PV side knob to the ON position to power on the photovoltaic side of the system.

Step 2: Close the AC side circuit breaker in the RISE distribution cabinet according to the actual needs on site.

Step 3: Rotate the battery switch knob to the ON position and close the DC circuit breaker.

Step 4: Observe the status of the RISE indicator light and the alarm/fault codes on the screen.

Step 5: View RISE related operational information through the APP/Grominder.



Information

Please refer to "2.2 Product Appearance" for the status description of LED indicator lights.

5 System debugging

After connecting to the data collector (ShineMaster 4G-X2), RISE supports monitoring system operation status and configuring functions through the built-in interface and Grominder of ShineMaster-X2.



Information

When setting some parameters, a password is required. Please contact the after-sales operation and maintenance team of Growatt to provide it.

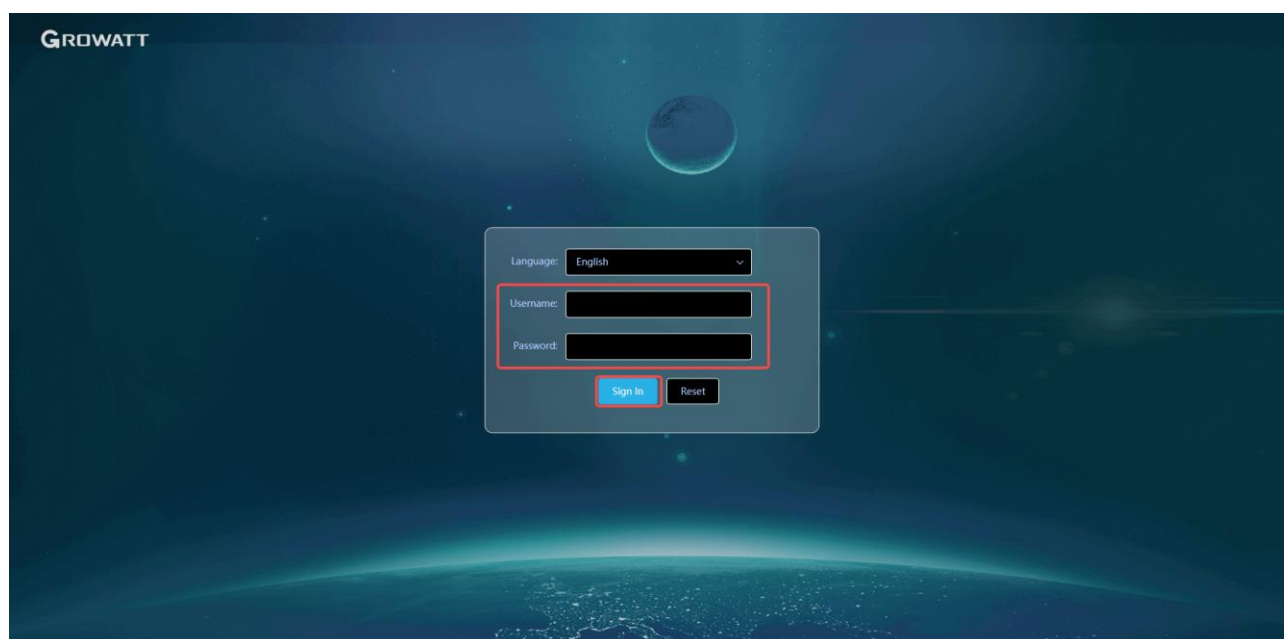
5.1 Establishment of Grominder Power Station

5.1.1 Login to ShineMaster-X2 Built-in Page

Step 1: Use Ethernet cables to directly connect the EMS port of the RISE communication warehouse to the computer, and modify the Ethernet IP network segment of the computer to 192.168.110.X;

Step2: Open the browser and enter the IP address 192.168.110.200 to access it;

step3: After entering your account and password (both admin), you can log in to the built-in page of ShineMaster-X2.



5.1.2 Add Devices

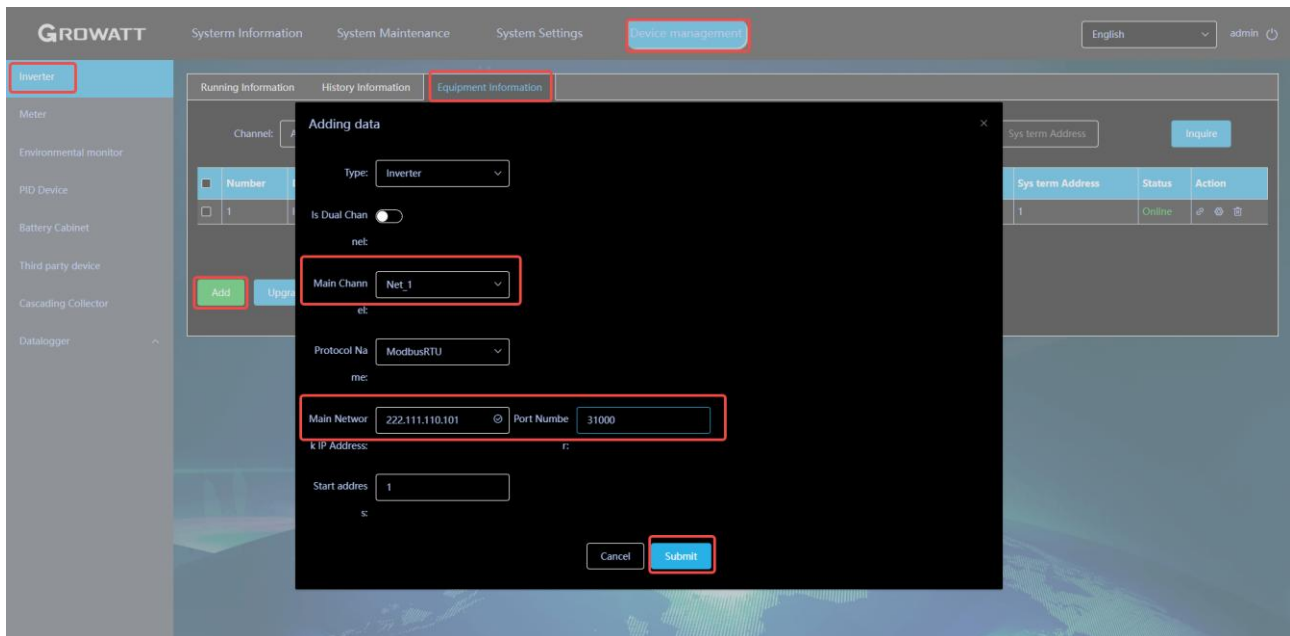
Add hybrid inverter

Step 1: After logging into the built-in interface of ShineMaster-X2, click on Device

Management>Inverter>Device Maintenance>Add in sequence;

Step 2: Select "Net_1" as the channel, set the main network IP address to "222.111.112.101", and set the port number to "31000";

Step 3: Click submit, refresh and the device will appear online, indicating successful addition.

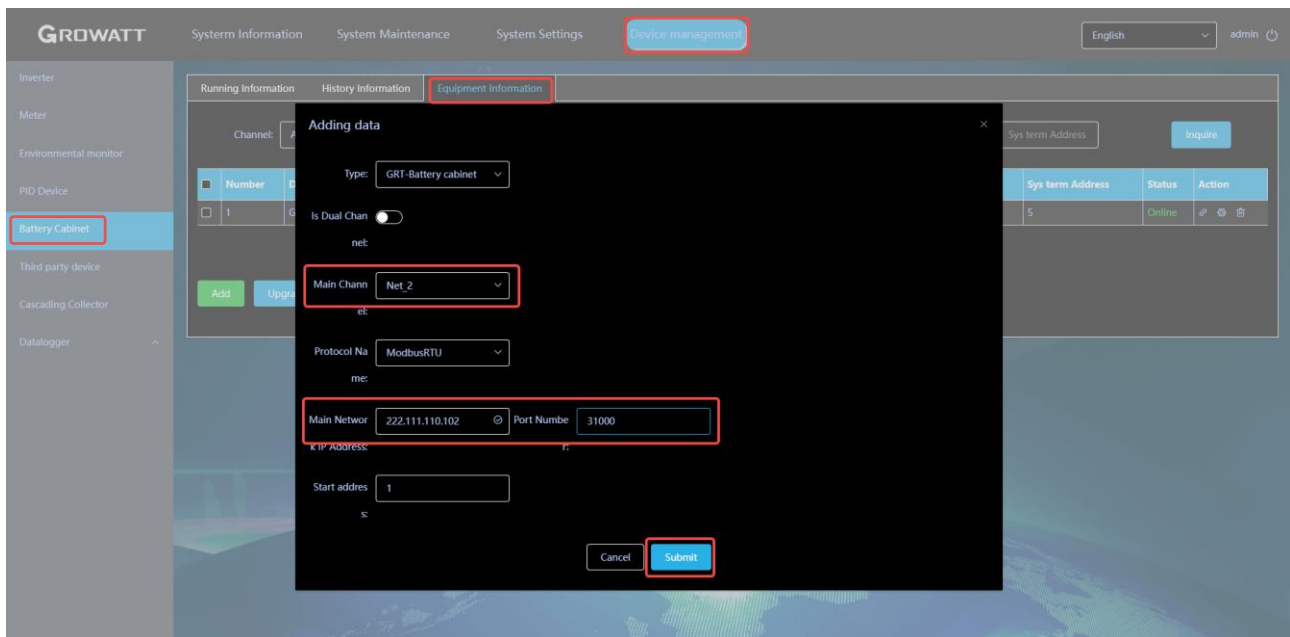


Add battery

Step 1: After logging into the built-in interface of ShineMaster-X2, click on Device Management>Battery Cabinet>Device Maintenance>Add in sequence;

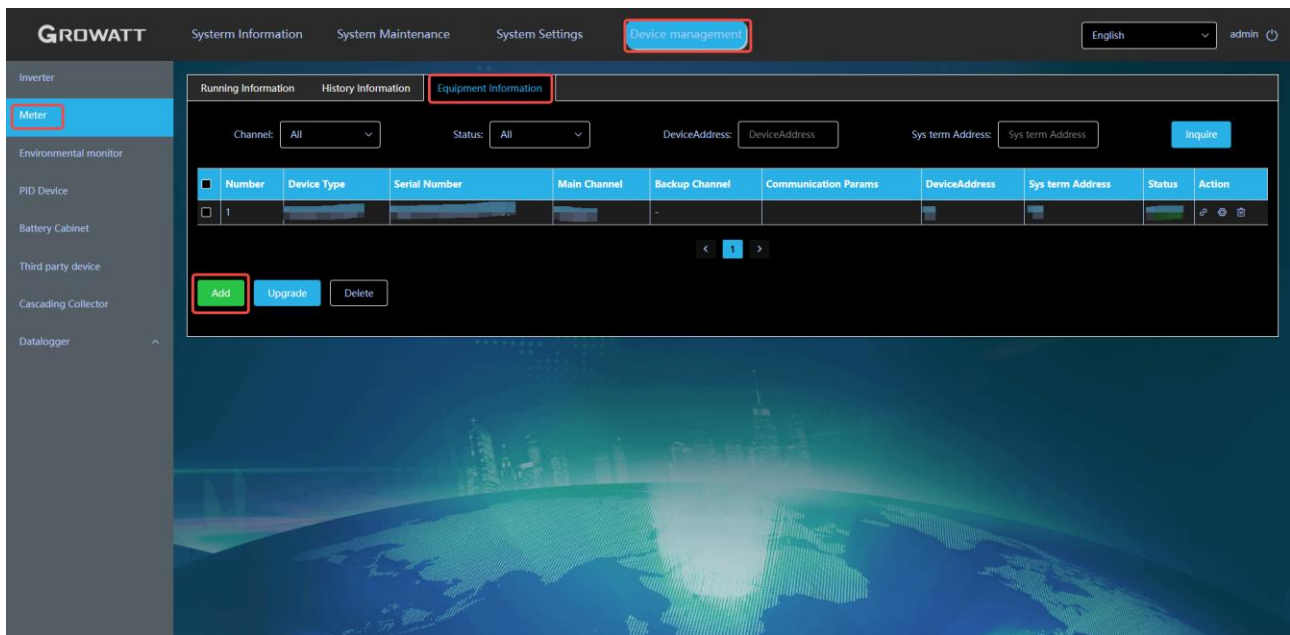
Step 2: Select "Net_2" as the channel, set the main network IP address to "222.111.112.102", and set the port number to "31000";

Step 3: Click submit, refresh and the device will appear online, indicating successful addition.

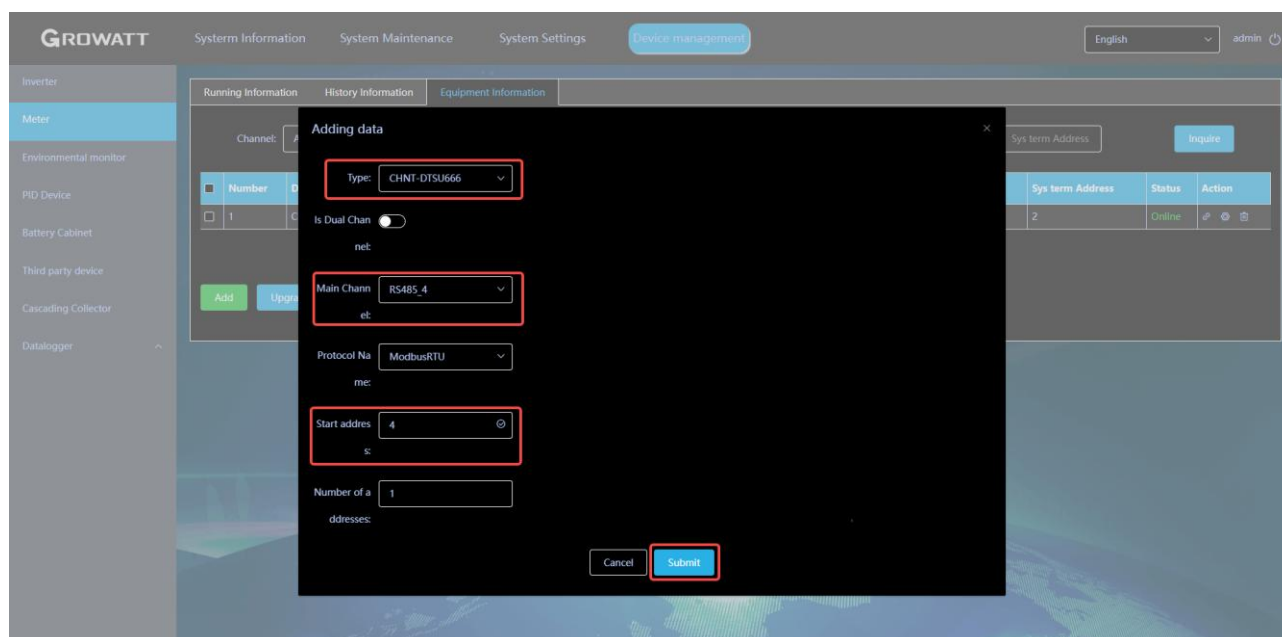


Add meter and configuration

Step 1: After logging into the built-in interface of ShineMaster-X2, click on Device Management>Meter>Equipment Information>Add;



Step 2: Enter the channel and address of the meter that needs to be added to successfully add it (default is CHINT meter, address 4).

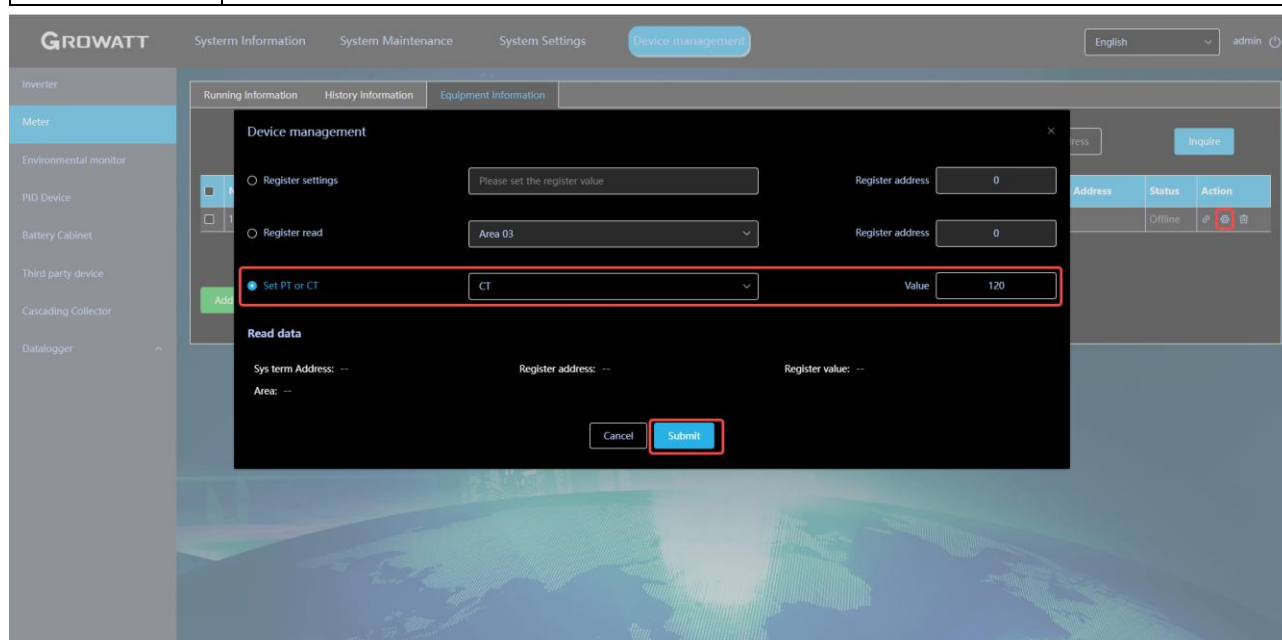


Step 3: Click on the settings on the right side of the meter to set the CT ratio.



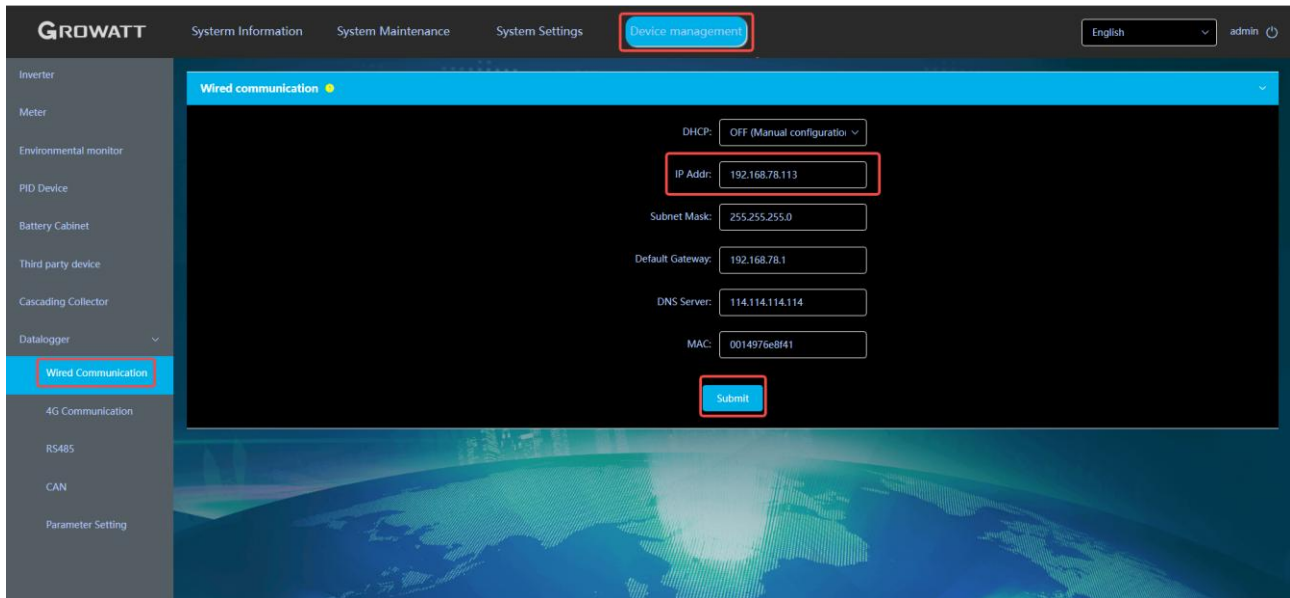
Information

The CT transformation ratio can be queried on the CT side label.

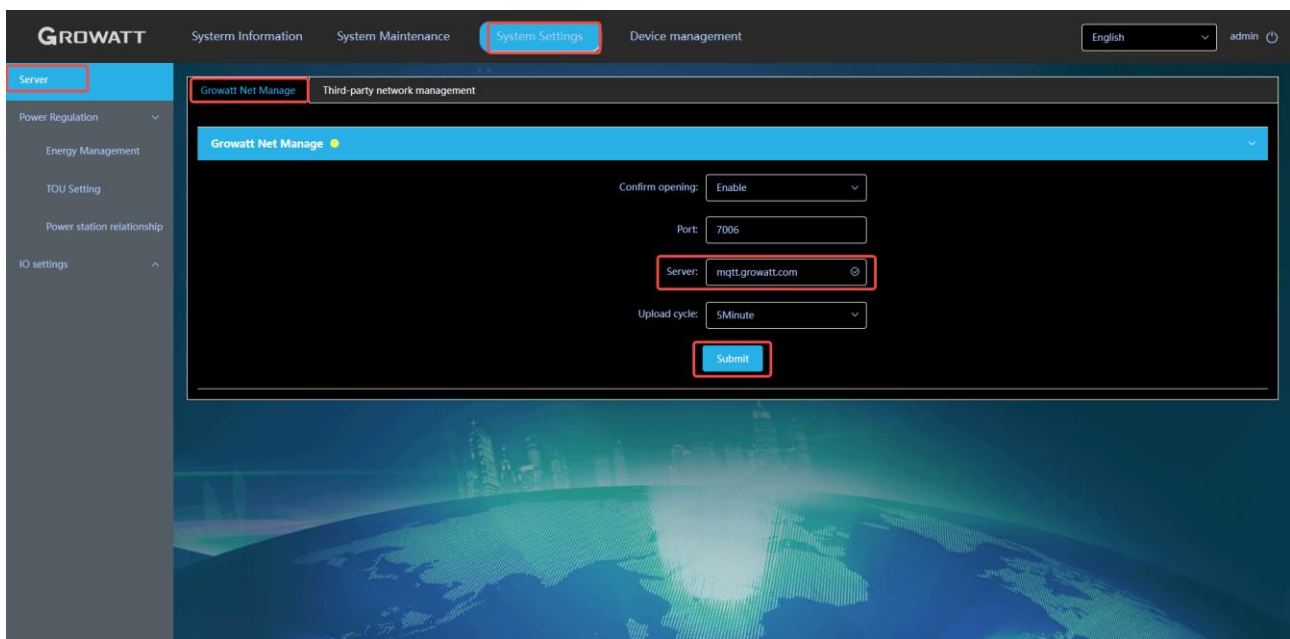


5.1.3 Modify ShineMaster-X2 Network and IP

Step 1: After completing the device addition, click on Device Management>Datalogger-Wired Communication>IP Address, and then modify the IP of ShineMaster-X2 to the same network segment as the on-site router, and keep the gateway consistent with the on-site router;



Step 2: Confirm or modify the server URL to mqtt.growatt.com (global server) in System Settings>Server>Growatt Network Management;



Step3 Connect the router and the EMS port in the RISE communication cabin using Ethernet cable, and the LAN indicator light of ShineMaster-X2 is always blue and on

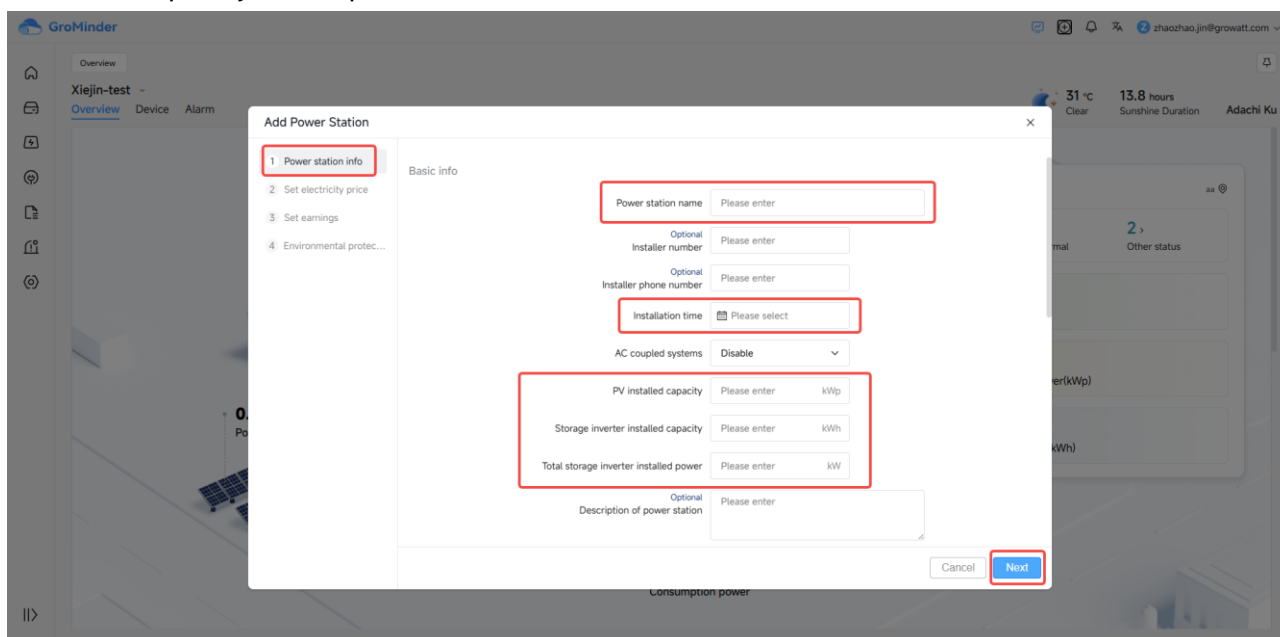
After successfully connecting to the network, you can remotely view relevant information about the power station and equipment.

5.1.4 Establishing a power station

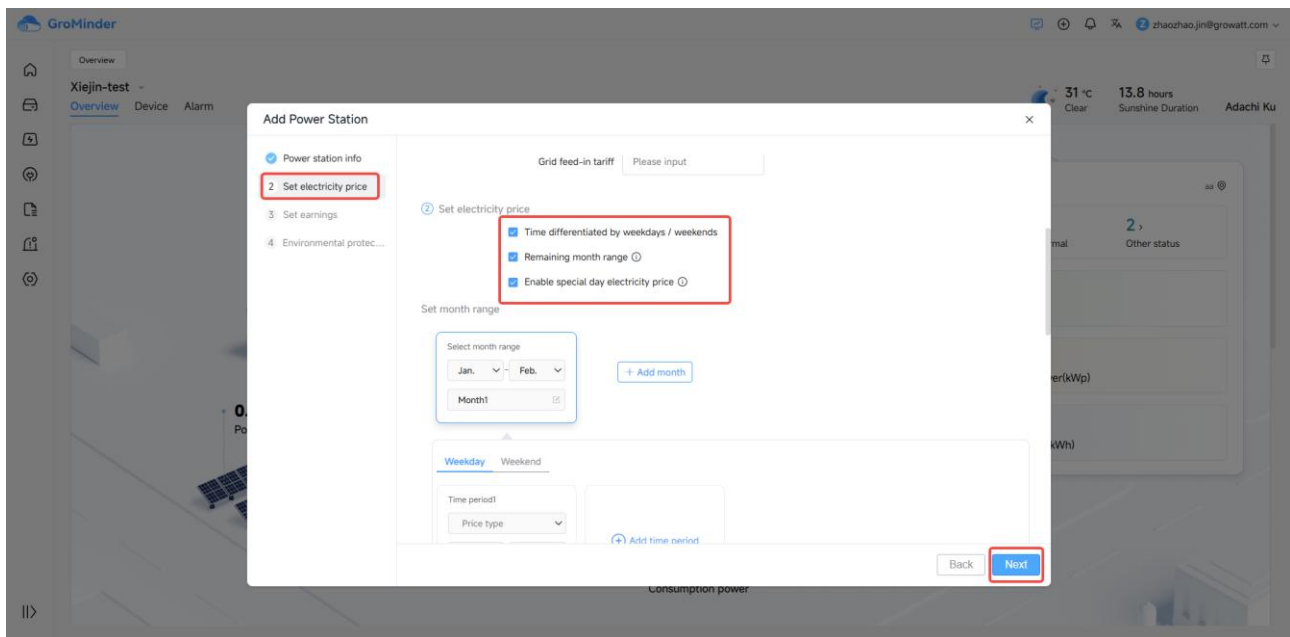
Step 1: Enter the Grominder webpage (URL: <https://grominder.growatt.com>) Register an account and log in afterwards;



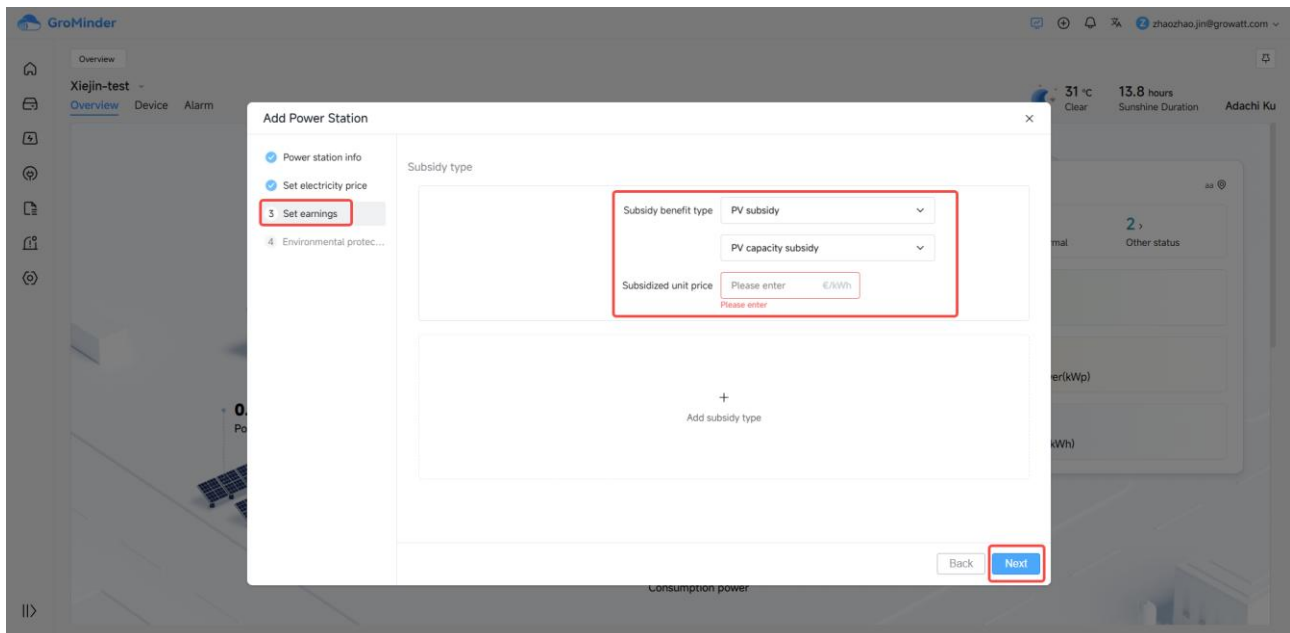
Step 2: Click on the "+" in the upper right corner, fill in the name, installation time, and installed capacity of the power station, and then click "Next";



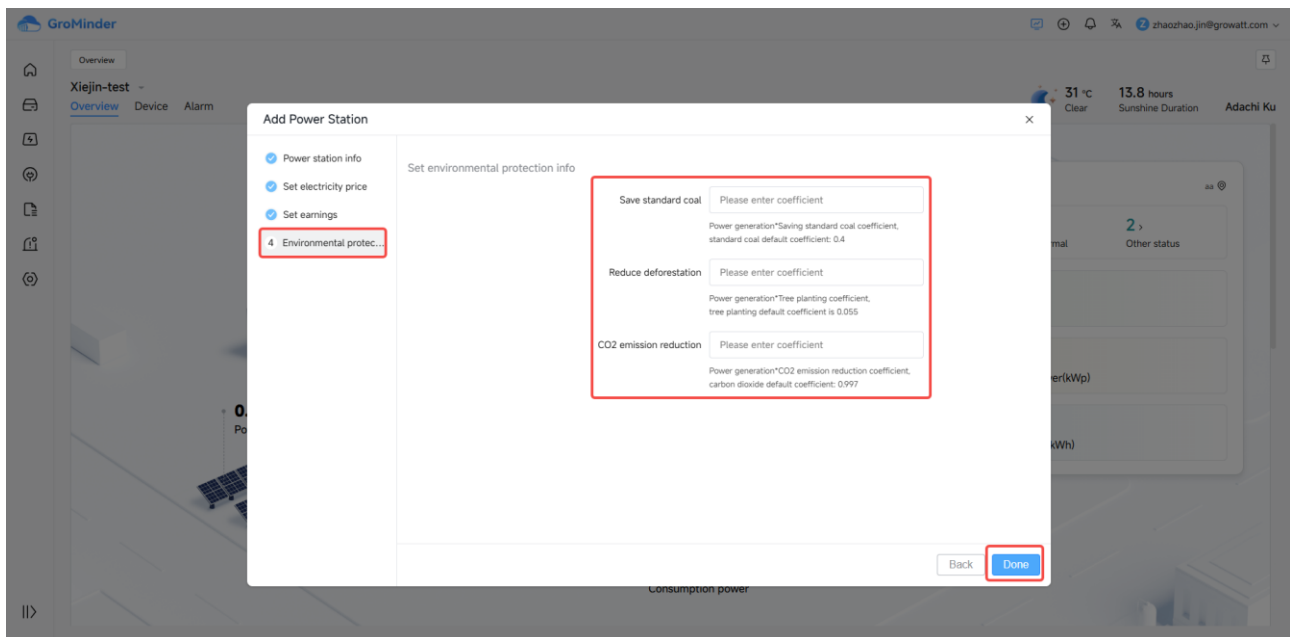
Step 3: This step will fill in the electricity price, which can be set based on the actual electricity price of each month, weekend/working day, and time period in the local area;



Step 4: This step requires filling in the local electricity price subsidy;



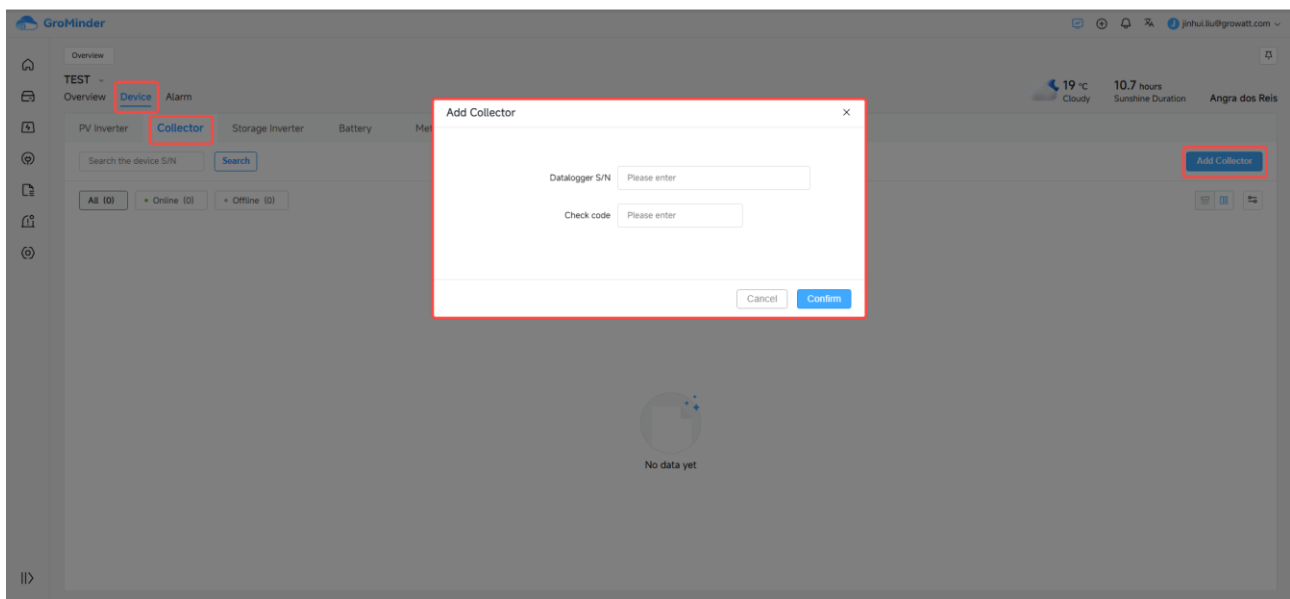
Step 5: This step is to fill in the environmental protection configuration, which can refer to the default values given below.



5.1.5 Add Collector to Power Station

Step 1: After the establishment of the power station is completed, click to enter New Power Station>Device>Add Collector

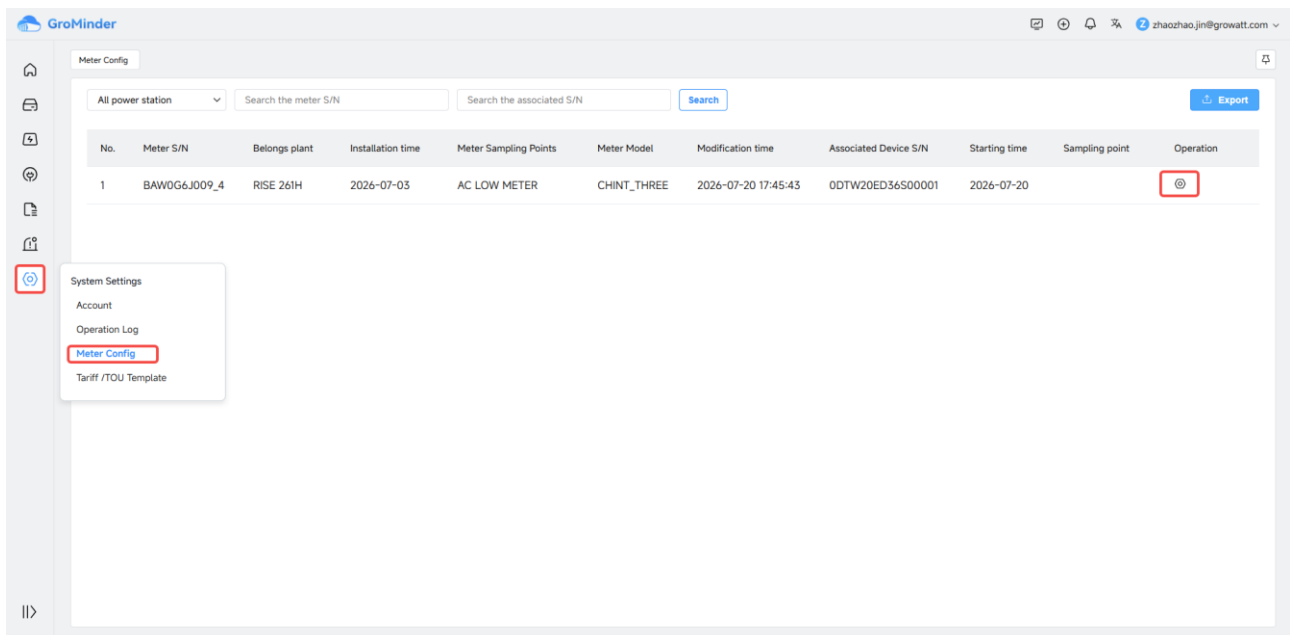
Step 2: Fill in the collector SN and verification code and submit to successfully add.



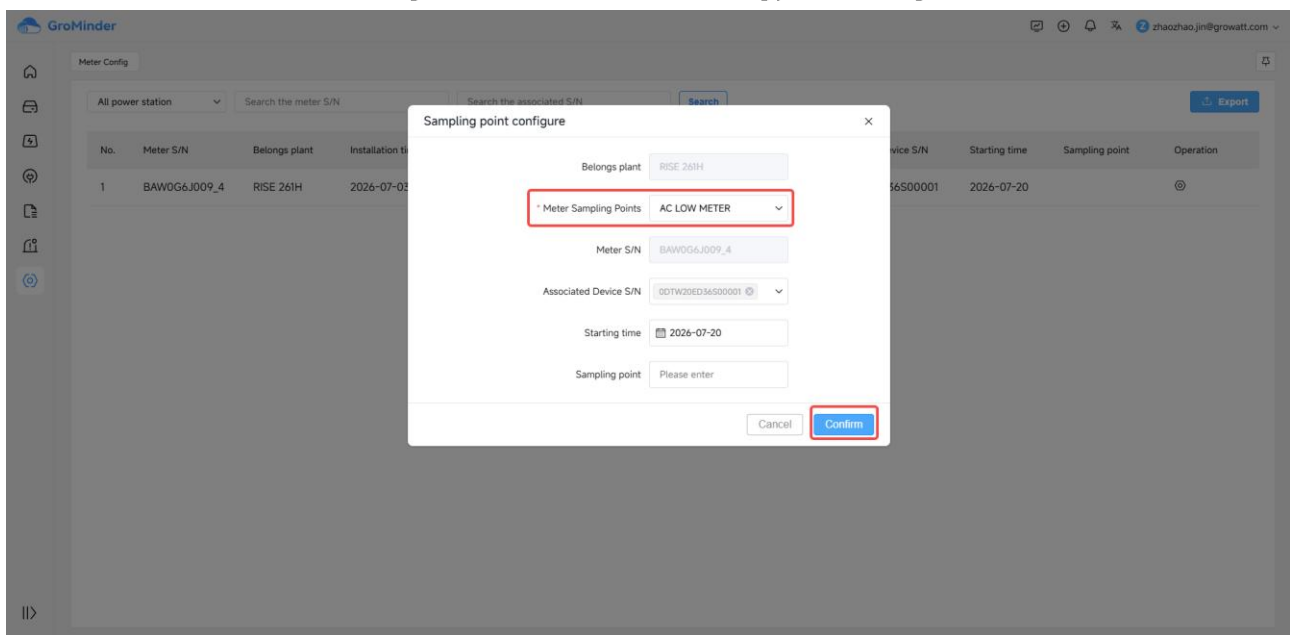
Step 3: After adding, refresh the ShineMaster-X2 built-in page to successfully refresh the data.

5.1.6 Meter Configuration

Step 1: Click to enter System Management>Meter Configuration>Settings icon on the right side of the meter that needs to be configured;



Step 2: Set the sampling point of the electricity meter to "AC low-voltage side electricity meter", and submit the settings to see the correct energy flow diagram.

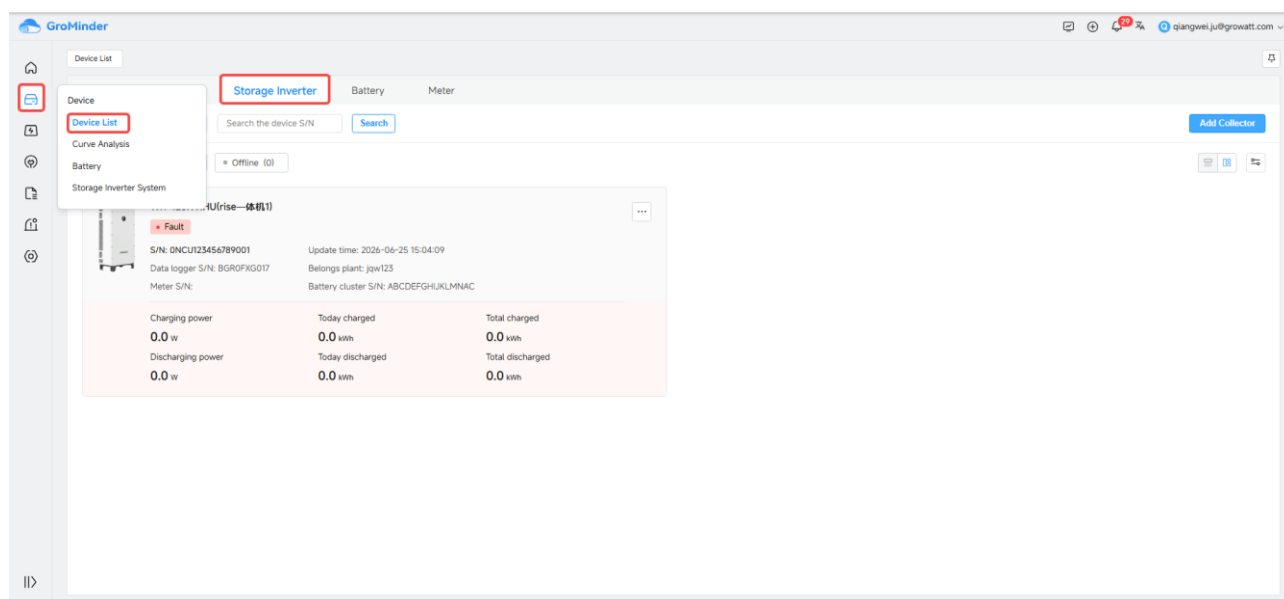


5.2 Parameter Settings

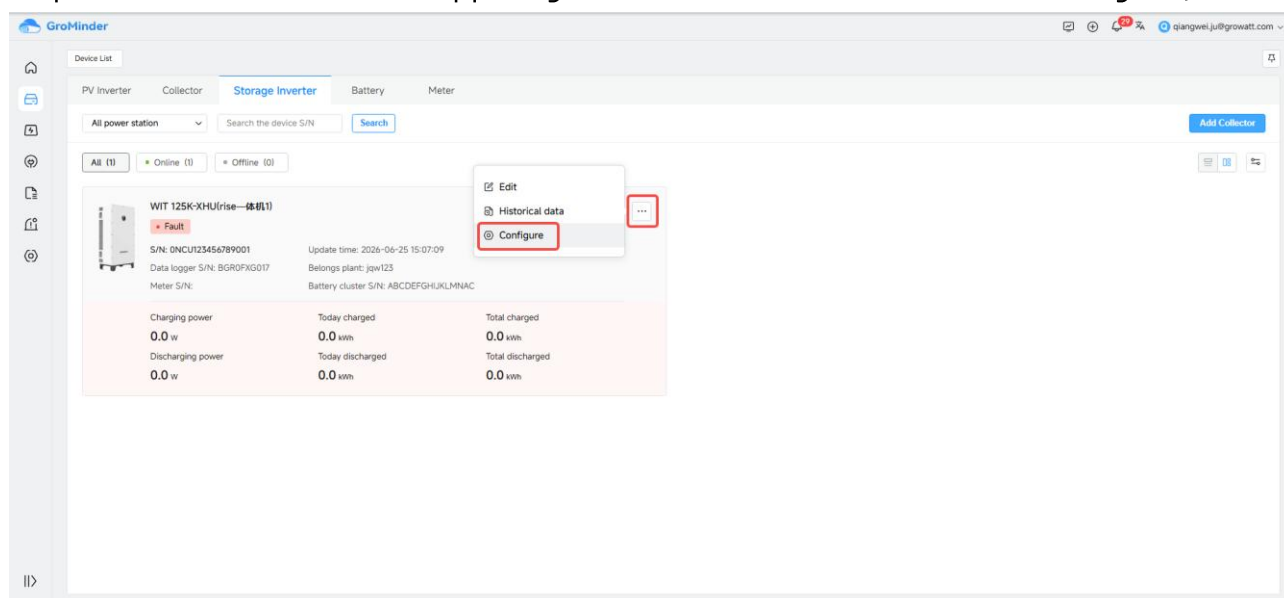
5.2.1 Setting Hybrid Inverter Parameters

Parameter setting location

Step 1: After logging into Grominder, click on Device Management>Device List>Storage Inverter, and find the Hybrid inverter that needs to be set with parameters;



Step 2: Click on the icon in the upper right corner of the device and select 'Configure';

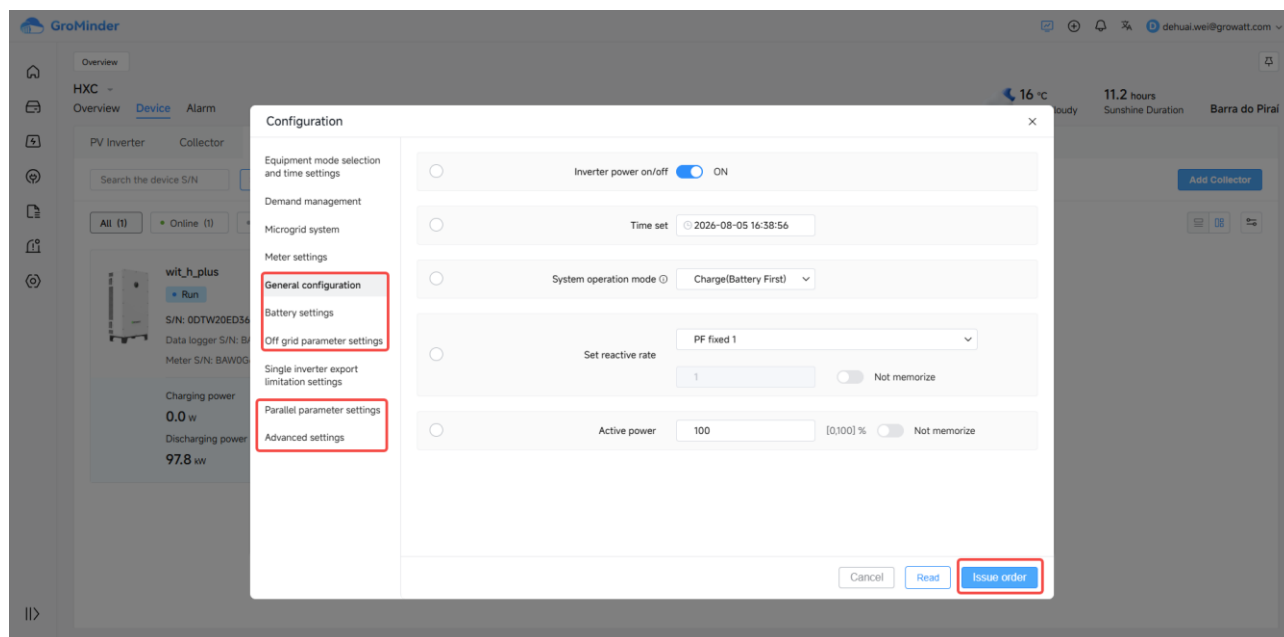


Step 3: Click on the sidebar to switch and set the relevant parameters of the hybrid inverter.



NOTICE

- This page can only set the parameters in the red box, please do not set other parameters, otherwise it may cause machine errors.
- The on/off operation of WIT can be performed in the general configuration>Inverter power on/off in this step.



Parameter Setting List

 NOTICE	If the WIT parallel system has inconsistent settings for all parameters except for the communication address, it will cause the machine to malfunction and fail to operate normally.
--	---

Table 5.1 Reference Table for Parameter Setting of Hybrid Inverter

Parameter classification	Parameter Name	Factory default value (for reference only)
National and safety regulations	National and safety regulations	There are differences according to different regions
Relevant parameters of municipal power supply	Electricity Charging Enable	Enable
	Percentage of mains charging power	100%
	Percentage of mains discharge power	100%
N-line setting	Power grid N-line enable	Enable
Off grid related parameters	Off grid enablement	Enable
	off-grid voltage	230V

	off-grid frequency	50Hz
--	--------------------	------

5.2.2 System Function Settings

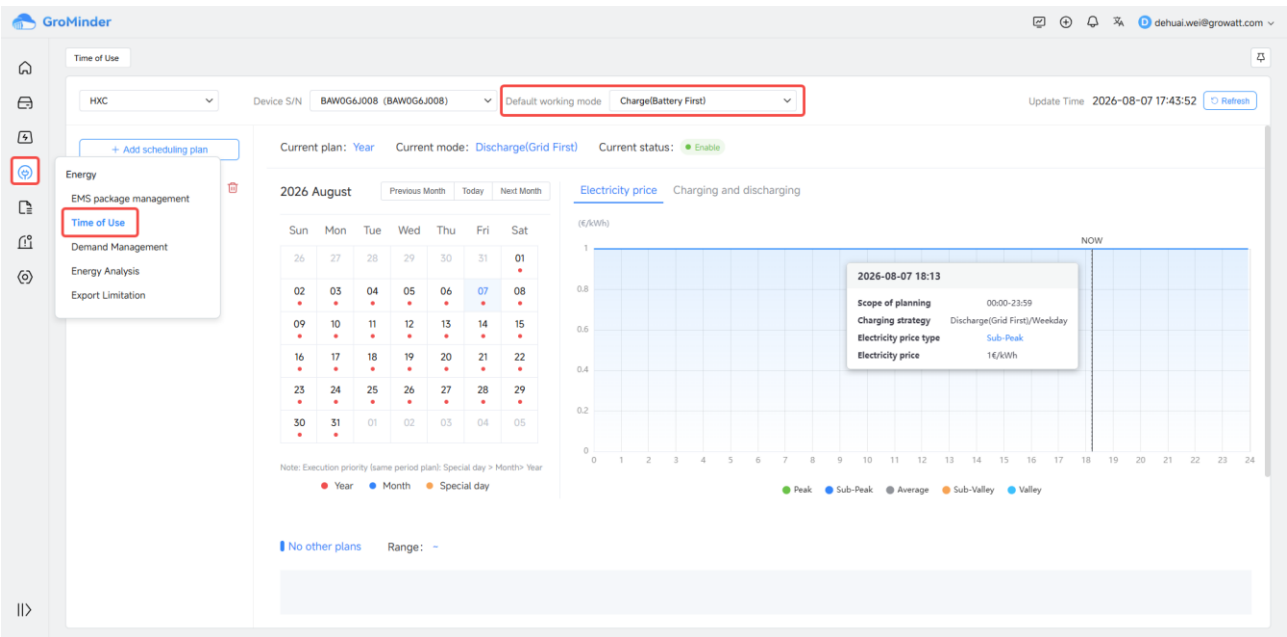
5.2.2.1 Default Working Mode Settings



WARNING

- The system runs in default working mode outside the TOU mode time period or when TOU is not enabled.

Step 1: After logging in to Grominder, click on Energy Management>Time of Use>Default Working Mode in the sidebar to set it up;



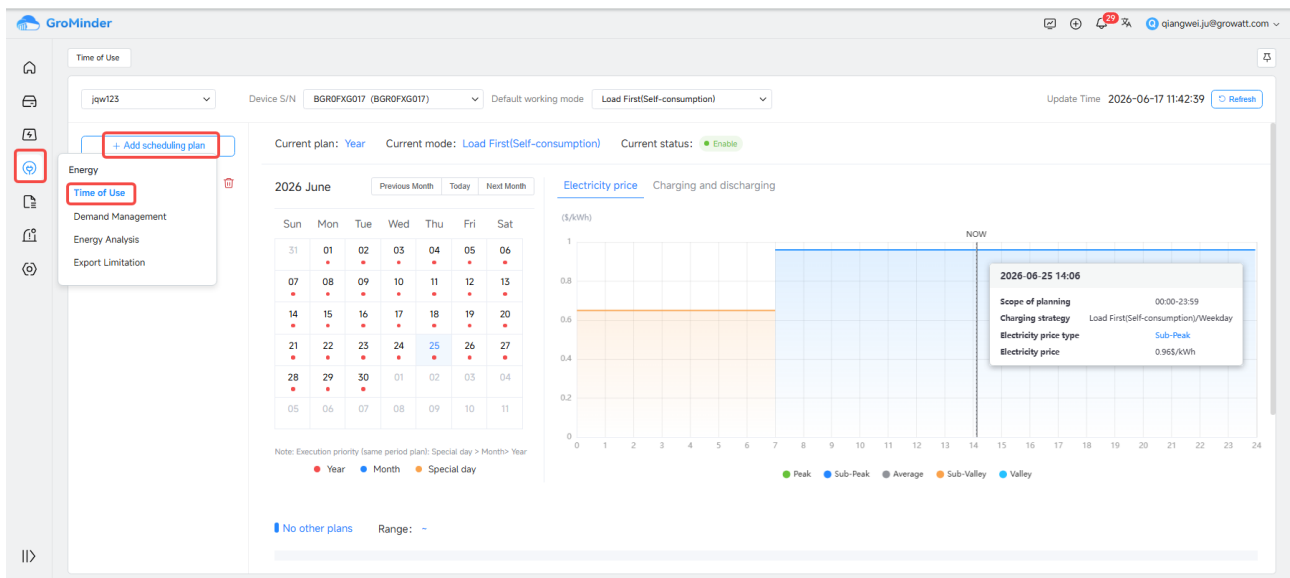
5.2.2.2 TOU Mode Settings



WARNING

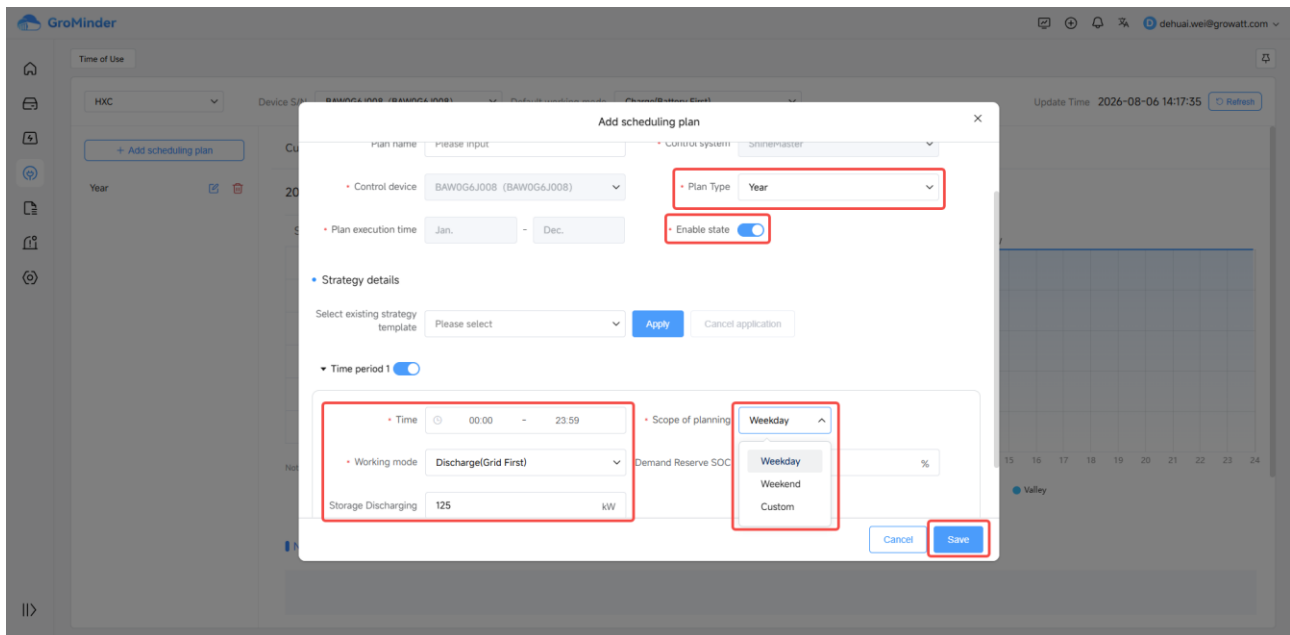
- The time periods set by TOU must not overlap, otherwise the configuration will fail.
- After completing the parameter settings, please confirm that the parameter changes have been successful and the time period has been enabled.
- If there are duplicate plan types, they will be executed according to priority, from high to low: special days>monthly>annual.

Step 1: After logging into Grominder, click on Energy Management>Time of Use>Add Scheduling Plan in the sidebar;



Step2 Set the plan type, time period, and corresponding mode, enable parameter issuance, and run different tasks at different time periods pattern;

➤ Set the plan type to annual and select weekend/workday/custom plan time range to execute this TOU mode on weekends/workdays/custom dates throughout the year;



➤ If the plan type is set to monthly, you can choose which month to execute the set TOU mode, and you can also choose to execute only on weekend, workday, or custom time;

The screenshot shows the 'Add scheduling plan' dialog in the GroMinder interface. The dialog is titled 'Add scheduling plan' and has a close button (X) in the top right corner. It contains several sections:

- Plan name:** Please input
- Control device:** BAWOG6J008 (BAWOG6J008)
- Plan Type:** Month1
- Plan execution time:** Jan. - Feb.
- Enable state:** ☒
- Strategy details:**
 - Select existing strategy template: Please select
 - Apply button
 - Cancel application button
 - Time period 1: ☒
 - Time: 00:00 - 23:59
 - Working mode: Load First(Self-consumption)
 - Storage Discharging: 0-5000 kW
 - Scope of planning: Please select
 - Demand Reserve SOC: Weekday, Weekend, Custom

Red boxes highlight the 'Plan execution time', 'Plan Type', 'Enable state', 'Time', 'Working mode', 'Storage Discharging', and 'Scope of planning' fields. The 'Save' button is also highlighted.

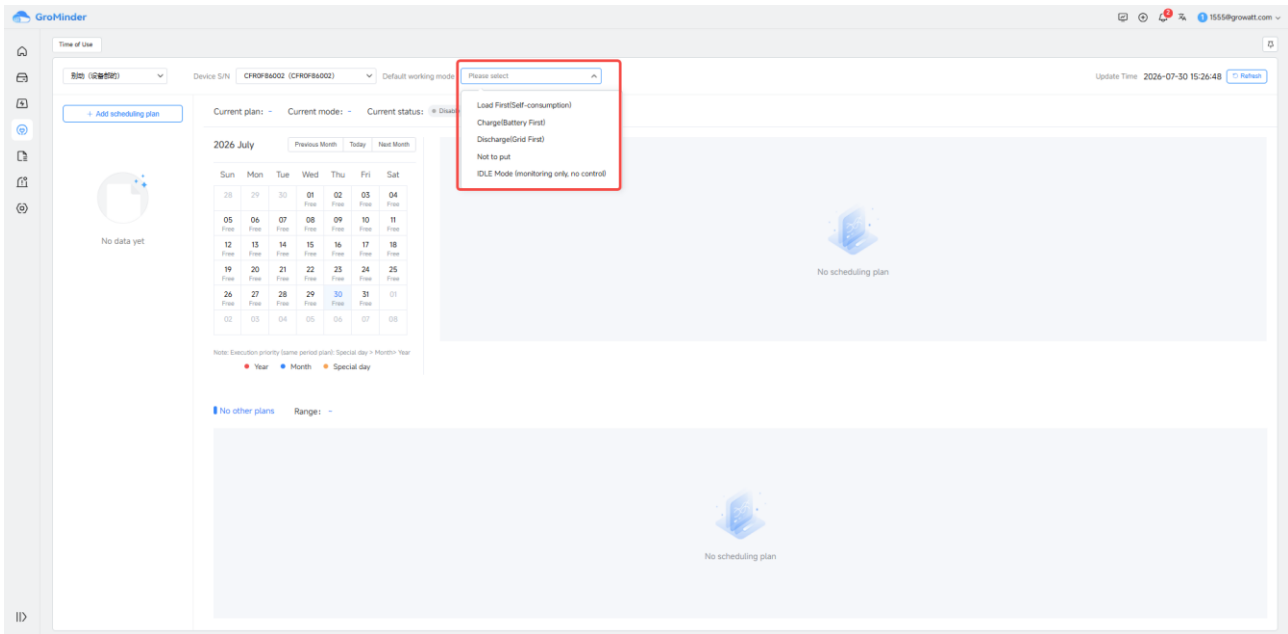
➤ If the plan type is set as a special day, you can choose to execute the set TOU mode at any time within a certain month (not supported across months);

The screenshot shows the 'Add scheduling plan' dialog in the GroMinder interface. The dialog is titled 'Add scheduling plan' and has a close button (X) in the top right corner. It contains several sections:

- Control device:** BAWOG6J008 (BAWOG6J008)
- Plan Type:** Special day1
- Plan execution time:** 08-01 - 08-31
- Enable state:** ☒
- Strategy details:**
 - Select existing strategy template: Please select
 - Apply button
 - Cancel application button
 - Time period 1: ☒
 - Time: 00:00 - 23:59
 - Working mode: Charge(Battery First)
 - Storage charging: 20 kW
 - Charging Stop SOC: 20%

Red boxes highlight the 'Plan execution time', 'Plan Type', 'Enable state', 'Time', 'Working mode', 'Storage charging', and 'Charging Stop SOC' fields. The 'Save' button is also highlighted.

Step 3: If there is no need to set TOU, the device needs to run in the same working mode at all times. Simply set the default working mode.



5.2.2.3 Anti backflow function setting

When RISE is connected to the electricity meter and communication is normal, the anti-backflow function can be used. Please refer to "3.8 Meter connection".



CAUTION

Please use the electricity meter purchased from Growatt, otherwise there may be communication protocol mismatch issues.

Feature Introduction

Standard three-phase anti backflow function

When the anti-backflow regulation mode is set to synchronous regulation and the anti-backflow power is set to a positive value, it means that feeding to the grid is allowed, and the feeding power is the set grid feeding power.

For example, if the grid feeding power of RISE is set to 3kW, the maximum allowable power fed into the grid is 3kW. If the load of L1 phase is 1kW and there is no load on L2 and L3 phases, the output allocation of RISE is L1: 1.33kW, L2: 1.33kW, L3: 1.33kW. Subtracting the load, the power fed into the grid at this time is L1: 0.33kW, L2: 1.33kW, L3: 1.33kW.

Phase level anti backflow function

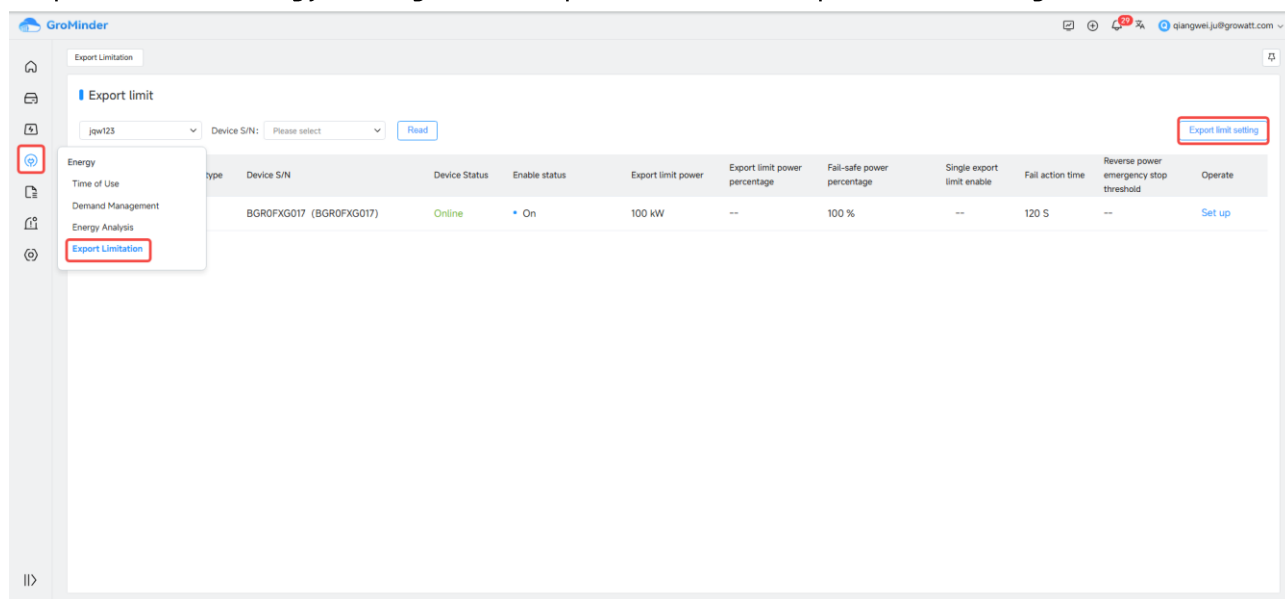
When the anti-backflow regulation mode is set to adjust separately for each phase and the anti-backflow power is set to a positive value, it means that feeding to the grid is allowed, and the feeding power is the set grid feeding power.

For example, if the grid feed power of RISE is set to 3kW, the maximum allowable power fed into the grid is 3kW. If the load of L1 phase is 1kW and there is no load on L2 and L3 phases, the output distribution of RISE is L1: 2kW, L2: 1kW, L3: 1kW, and the power fed into the grid

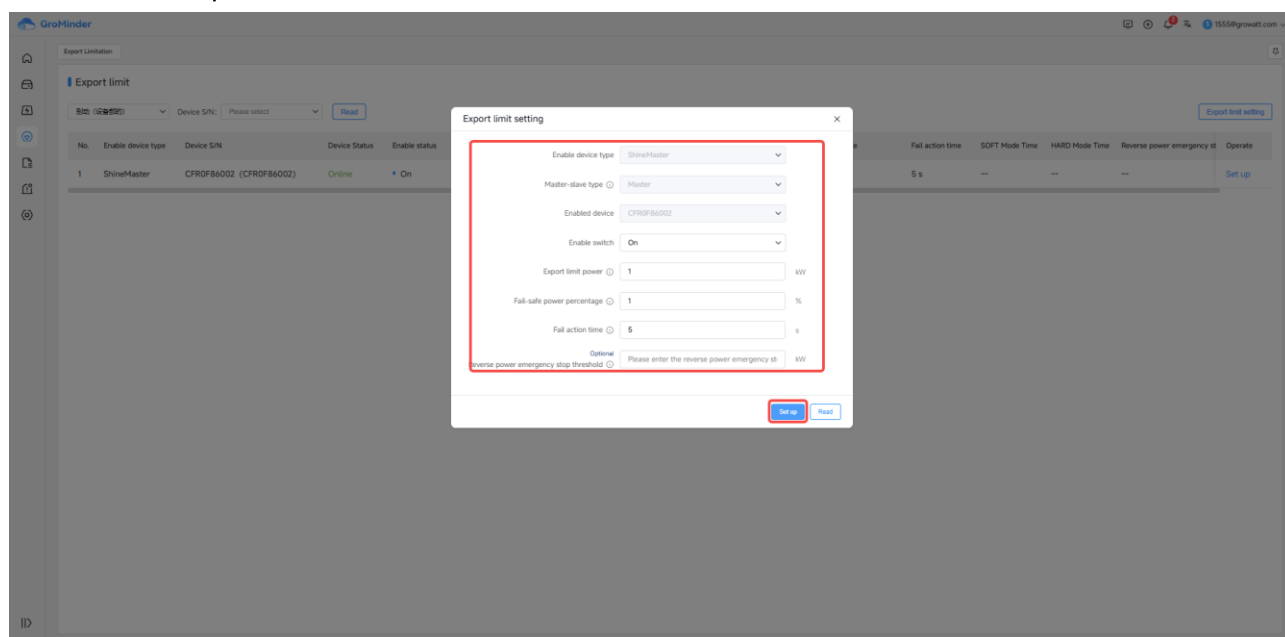
for each phase is 1kW.

Setting steps

Step 1: Click on Energy Management>Export Limitation>Export limit setting in the sidebar;



Step 2: Select the ShineMaster device that needs to be set, enable it, set parameters such as anti-backflow power, and then issue it to take effect.



5.2.2.4 Peak shaving and valley filling function settings

Feature Introduction

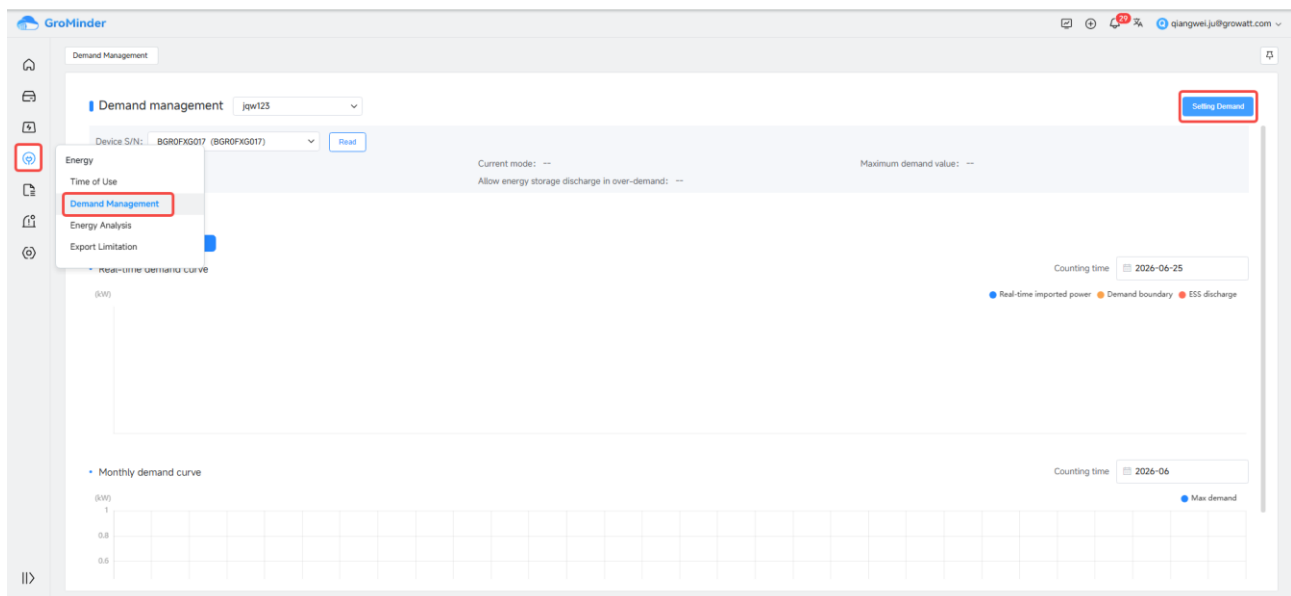
It is common for the electricity load to show clear peaks and valleys throughout the day. In areas where time of use electricity pricing policies are implemented, grid operators charge higher fees during high load periods. The peak shaving and valley filling function

automatically adjusts the battery charging and discharging strategy based on fluctuations in electricity load, thereby reducing dependence on grid power during peak hours and lowering overall electricity costs.

RISE ensures that the power drawn from the grid does not exceed the maximum demand value set by the user, and maintains electricity balance by charging during low peak periods and discharging during peak periods. By combining peak shaving and valley filling functions with spontaneous self-use, TOU and other modes, a more optimal power consumption plan can be achieved.

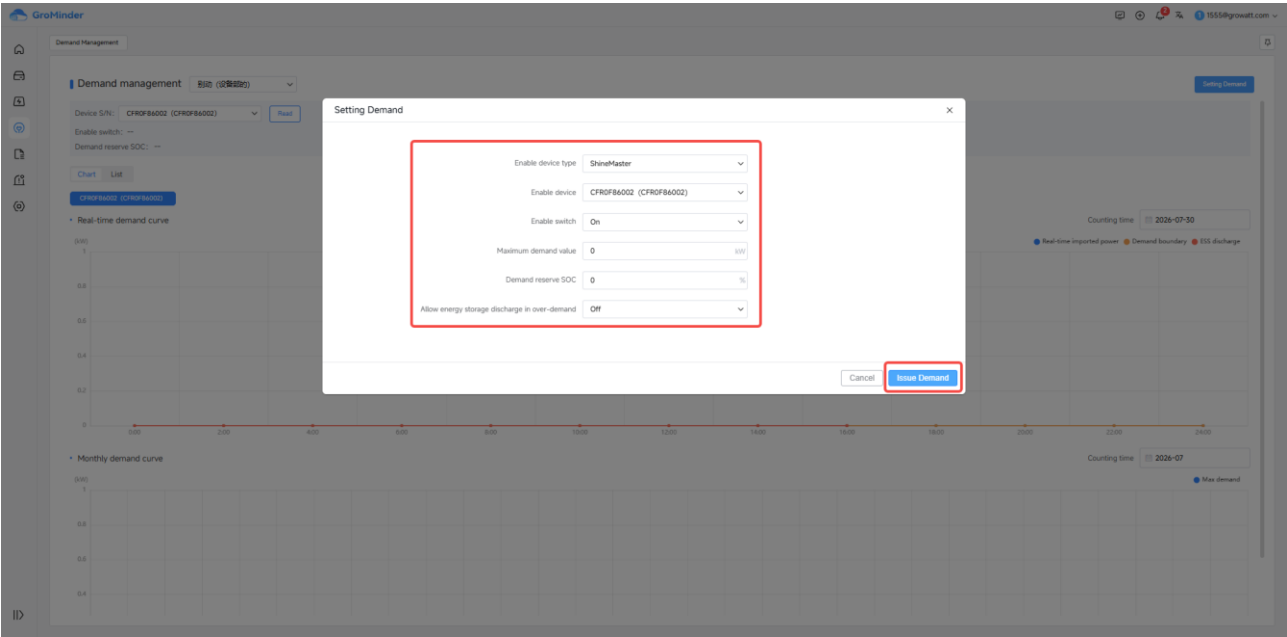
Setting steps

Step 1: Click on Energy Management>Demand Management>Set Demand in the sidebar to set the relevant parameters for demand management;



Step 2: Select the ShineMaster device that needs to be set, enable it, set parameters such as maximum demand value and reserved SOC, and then proceed to the next step

Once sent, it will take effect.



5.3 Factory reset

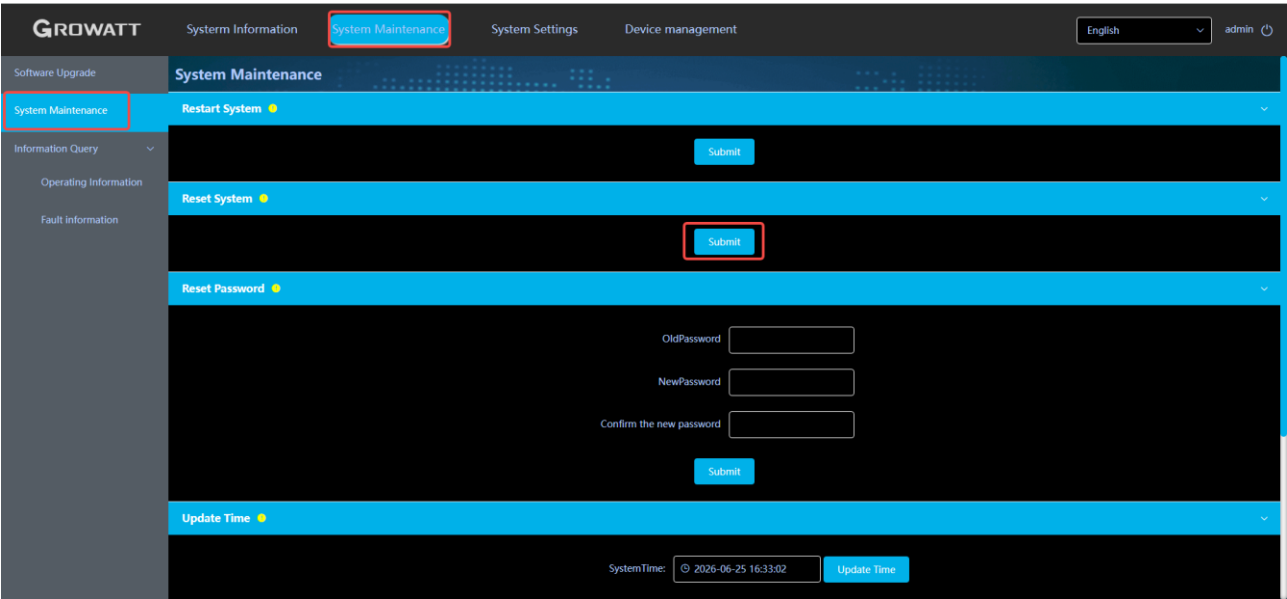


Information

After performing this operation, all parameters except for time and date will be reset to factory settings.

5.3.1 ShineMaster-X2 Factory Reset

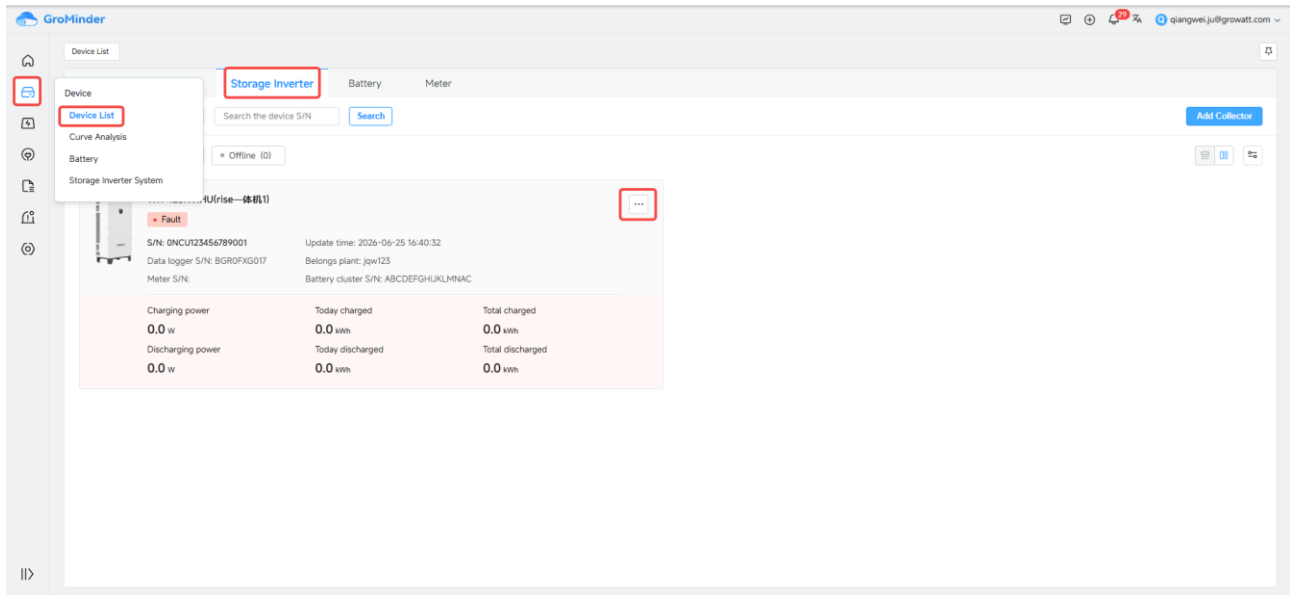
Step 1: After logging into the built-in page of ShineMaster-X2, click on System Maintenance>System Maintenance>Reset System>Submit. The parameters set in ShineMaster-X2 will be reset to their factory default values.



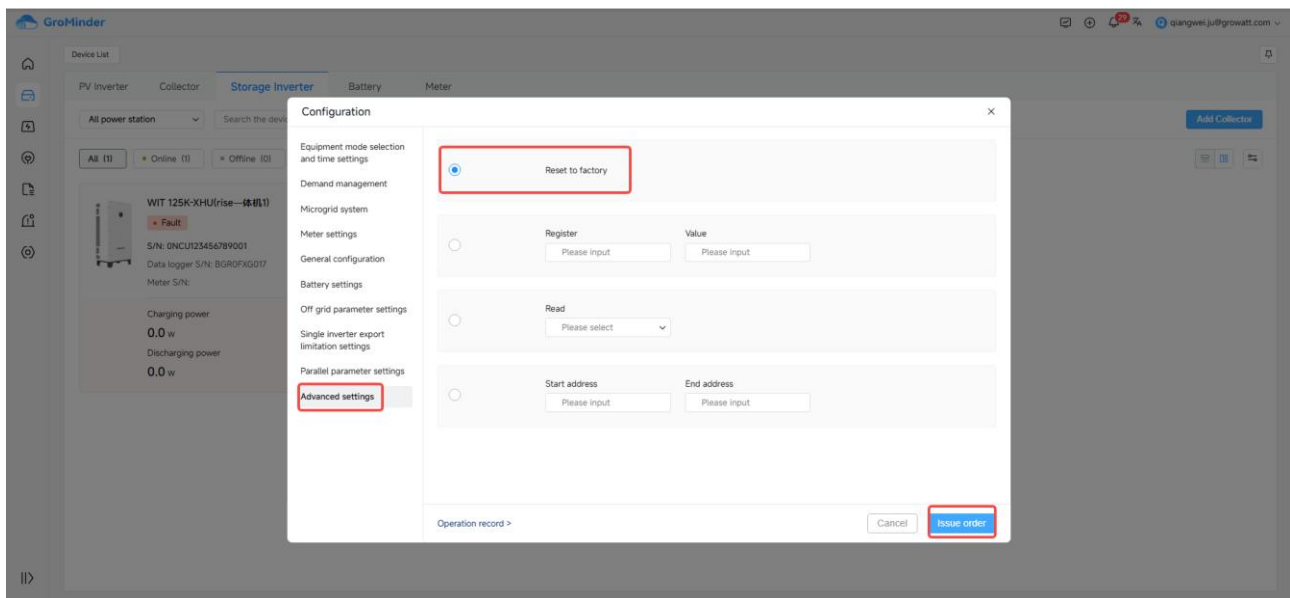
5.3.2 Factory reset of hybrid inverter

Step 1: After logging into Grominder, click on Device Management>Device List> Storage Inverter>Find the device that needs to be reset to factory settings

Click on the icon in the upper right corner;



Step 2: Click on Configuration>Advanced Settings>Reset to factory>Issue Command>Enter Password (Date of the Day, e.g. 20260625), and the parameters of the hybrid inverter will be reset to their factory default values.



6 System maintenance

6.1 System power off

Before equipment maintenance, please strictly follow the following steps for power-off operation, and live operation is strictly prohibited:

Step 1: Use the control software to turn off RISE. For specific steps, refer to section "5.2.1 Setting Hybrid Inverter Parameters".

Step 2: Disconnect the QF21 DC circuit breaker in the battery section and turn the battery switch knob to the OFF position.

Step 3: Disconnect the QF11~QF13 AC circuit breakers and AC power supply on the AC side.

Step 4: Rotate the PV knob in the integrated cabinet to the OFF position to disconnect the energy on the photovoltaic side.

6.2 RISE Maintenance

To ensure the long-term reliable operation of the system, please strictly follow the instructions in this chapter for regular maintenance.

 DANGER	● Before maintenance, please ensure that the AC circuit breakers, PV modules, and DC switches of the battery modules between RISE and the grid are all in the OFF state. ● After the system is powered off, there is still residual power and heat inside the RISE. It must be left idle for at least 5 minutes, and the mixed inverter indicator light and battery indicator light must be observed to turn off. Then, qualified and authorized personnel should wear protective gloves to operate the RISE. ● When carrying out maintenance work, do not leave metal parts such as screws and washers inside the energy storage system, otherwise it may damage the equipment!
 WARNING	● Do not open the RISE equipment cabinet door during the sandstorm season or when the relative humidity in the surrounding environment is greater than 95%. The entry of sandstorms and moisture may

	damage the electrical equipment inside RISE or affect its operational performance! Please start all maintenance work only when there is no wind or sand and the weather is clear and dry. ● Please do not open the RISE cabinet for maintenance during rainy, humid, or windy weather. If this is not avoided, Growatt will not be held responsible for any losses caused. ● Avoid opening the cabinet door on rainy, snowy, or foggy days with high humidity. At the same time, after the cabinet door is closed, it is necessary to confirm that the sealing strips around the cabinet door cannot curl. ● To reduce the risk of electric shock, do not perform any maintenance or repair operations beyond this manual. If necessary, contact the customer service personnel of Growatt for maintenance and repair.
 NOTICE	● The table only shows the recommended routine maintenance cycle for the product. The actual maintenance cycle should be reasonably determined based on the specific installation environment of the product. ● The scale, location, and on-site environment of the power station will all affect the maintenance cycle of the product. If the operating environment is windy or dusty, it is very necessary to shorten the maintenance cycle and increase the maintenance frequency.

6.2.1 Maintenance work (once every two years)

Table 6.1 Maintenance Schedule Every Two Years

No.	Maintenance project	Inspection method
1	System status and cleaning	Check the following items, and if they do not meet the requirements, please correct them immediately: 1) Check if RISE and internal equipment are damaged or deformed. 2) Check if there is any abnormal noise during the operation of RISE.

		3) Check if the temperature inside RISE is too high. 4) Check if the humidity and grayscale inside RISE are within the normal range. If necessary, it needs to be cleaned. 5) Check if the RISE air inlet and outlet are blocked. If the blockage affects the operation of the equipment, use a vacuum cleaner to clean or rinse with clean water.
2	Warning sign	Check if warning signs and labels are clearly visible and free from stains. If necessary, it needs to be replaced.
3	Cable shielding grounding	Check if the cable shielding layer is in good contact with the insulation sleeve; Is the grounding copper bar fixed in place
4	Lightning protection equipment and fuses	Check if the cable shielding layer is in good contact with the insulation sleeve; Is the grounding copper bar fixed in place
5	Corrosion situation	Check if the cable shielding layer is in good contact with the insulation sleeve; Is the grounding copper bar fixed in place

6.2.2 Maintenance work (once a year)

Table 6.2 Annual Maintenance Schedule

No.	Maintenance project	Inspection method
1	Maintenance outside the cabinet	Check the following items, and if they do not meet the requirements, please correct them immediately: 1) Check if RISE contains flammable materials. 2) Check whether the welding points between RISE and the foundation steel plate are firm and whether there is rust. 3) Check if there are any damage, paint peeling, oxidation, or other issues with the RISE casing.

		4) Check if the cabinet door lock can be flexibly opened. 5) Check if the sealing strip is securely fastened.
2	Maintenance inside the cabinet	Check for foreign objects, dust, dirt, and condensation inside the RISE cabinet
3	Maintenance of air inlet and outlet	Check the dust at the inlet and outlet of the RISE cabinet. If necessary, a vacuum cleaner can be used to clean the RISE cabinet.
4	Wiring and Cable Layout	We need to wait until the internal equipment of RISE is completely powered off before starting the inspection work! During the inspection, if any non-conformities are found, please correct them immediately: 1) Check if the cable layout is standardized and if there are any short circuits or other issues. If there are any abnormalities, they need to be corrected immediately. 2) Check if all inlet and outlet holes of the RISE cabinet are well sealed. 3) Check if there is any water leakage inside the RISE cabinet. 4) Check if the power cable connection is loose and tighten it again according to the previously specified torque. 5) Check for damage to power cables and control cables, especially if there are any cut marks on the skin in contact with metal surfaces. 6) Check if the insulation wrapping tape of the power cable terminal is loose.
5	fan	1) Check the operating status of the fan. 2) Check if the fan is blocked.

		3) Check if there is any abnormal noise during the operation of the fan.
6	Grounding and equipotential connection	Check if the grounding connection is correct, and the grounding resistance should not exceed 4 Ω . Check if the equipotential connections inside the RISE cabinet are correct.
7	screw	Check if there are any screws falling off inside the RISE cabinet

6.2.3 Maintenance work (once every six months to one year)

Table 6.3 Maintenance Schedule Every Six Months

No.	Maintenance project	Inspection method
1	Safety function	1) Check the stop function of the emergency stop button. 2) Simulate shutdown. 3) Check the warning signs and other markings on the body. If they are found to be blurry or damaged, please replace them in a timely manner.
2	Appearance maintenance of liquid cooling unit	Check that the unit is clean and free of dust and dirt. If there is any, turn off the power for 1 minute and use a brush or cotton cloth to remove the dust and dirt from the unit.
3	Reliability of fan operation in liquid cooling units	1) Check that there is no dust or other foreign matter blocking the air outlet. If there is, turn off the power for 1 minute and use a brush to clean the dust from the fan. Clean up foreign objects at the air vent. 2) Check that the fan blades are not damaged and the fan rotates smoothly without any abnormal noise. If there is any, turn off the power for 1 minute and tighten the fan. Check for any internal cables or other

		interference with the fan rotation. If the fan malfunctions, please replace it.
4	Cleaning of liquid cooling unit condenser	1) Check the condenser for dust and foreign object blockage. If there is, turn off the power for 1 minute and rinse the condenser. Wait for the water discharged from the drain hole to become clear before ending the cleaning. 2) Check that the fins are not severely bent or deformed. If so, turn off the power for 1 minute and use tools such as a fin comb to calibrate them.
5	Maintenance of liquid cooled pipelines	1) Check the appearance of the pipeline for any damage, deformation, or corrosion. If any, turn off the power for 1 minute, drain the coolant, and replace the corresponding pipeline. 2) Check that the pipeline is securely fixed and the connection joints are not loose. If there are any, turn off the power for 1 minute and tighten the loose parts. 3) Check that the valve components are reliable and undamaged. If any, turn off the power for 1 minute, drain the coolant, and replace the corresponding valve components.
6	Dust proof cotton maintenance	1) Visually inspect the dust accumulation of the dust-proof cotton, and promptly clean or replace it if the dust coverage exceeds 2/3, the plate structure hardens, the cabinet heats up, the fan makes abnormal noise, or the pressure difference exceeds the standard; 2) The dust-proof cotton needs to be replaced immediately if it is damaged, moldy, detached, or has fibers falling off; 3) Adjust the inspection frequency dynamically based on the on-site environment: conduct monthly checks on regular environments; It is recommended to conduct inspections and maintenance every 2-4 weeks for high

		dust/industrial/coastal environments.
7	Device maintenance	1) Perform routine inspections on the corrosion of all metal components (every six months). 2) The annual inspection of the contactor (auxiliary switch and micro switch) ensures that its mechanical operation is good. 3) Check the operating parameters (especially voltage and insulation parameters).

6.3 System Cleaning

 DANGER	- Before performing any of the following operations, please disconnect the AC and DC power sources and wait for 5 minutes after the system is powered off. Wait for the capacitor to discharge completely before proceeding with the operation. - Only qualified and trained electrical technicians are allowed to operate. Technicians must follow the instructions in this manual and comply with local regulations.
 WARNING	Do not use an air pump to clean the fan. Otherwise, the fan may be damaged.

6.3.1 Fan Cleaning

Ventilation and heat dissipation are crucial for protecting WIT from performance degradation caused by overheating. When the temperature is too high, the fan in WIT will cool the components and radiator. If the internal temperature of RISE is too high and causes a decrease in output power, the possible reasons and measures are as follows:

1> When the fan is stuck by foreign objects or dust accumulates on the radiator, it is necessary to clean the fan cover, fan blades, and radiator.

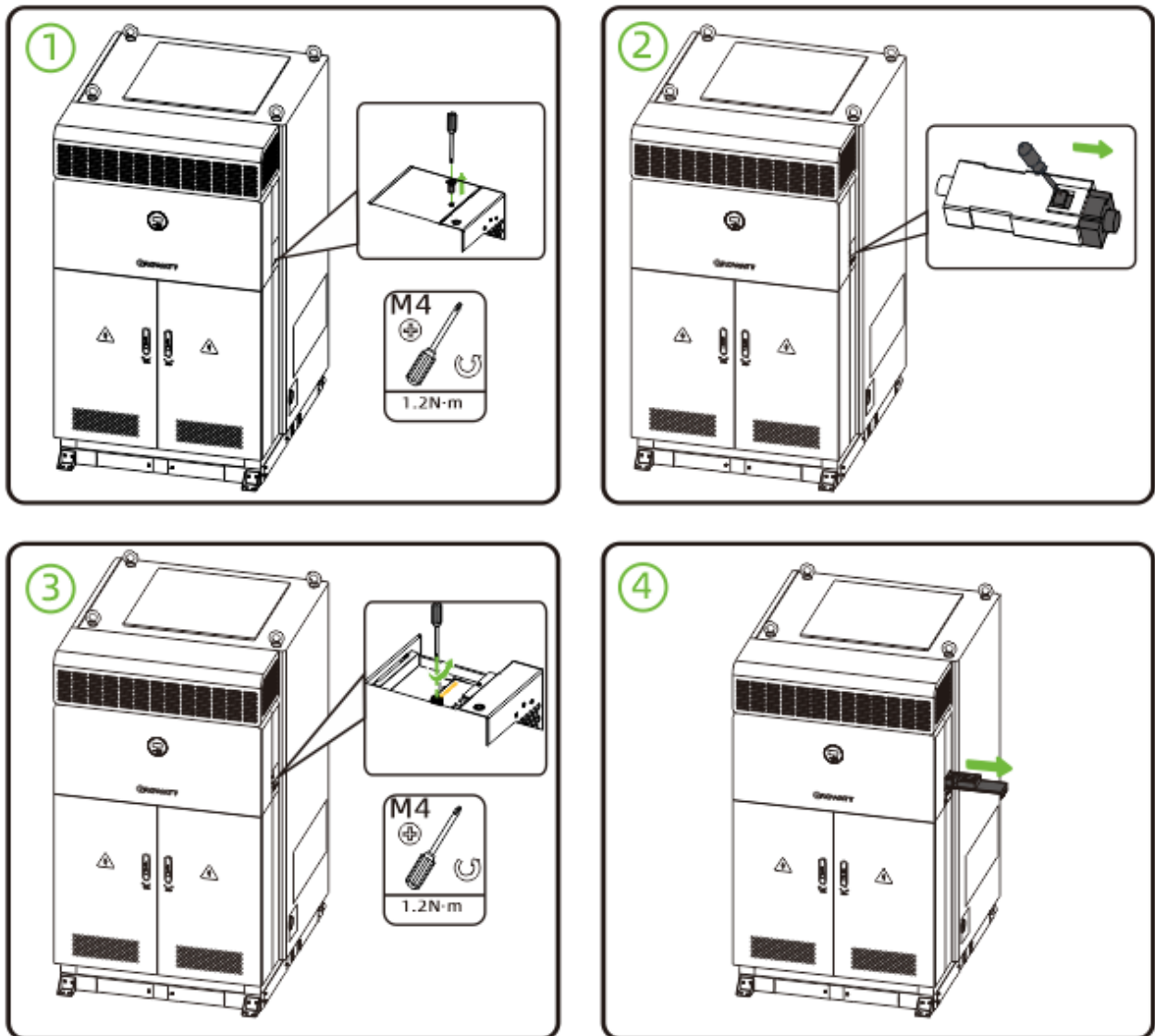
2> The fan is damaged and needs to be replaced.

3> The installation location of WIT has poor ventilation. Please select the appropriate installation location according to the installation requirements in this manual.

Clean and replace the fan

Step 1: Use a Phillips screwdriver to remove the fan mounting plate, as shown in Figure

below:



Step 2: Disconnect the fan connector, use a screwdriver to remove the fan mounting plate, and then remove the fan.

Step 3: Clean the fan cover, fan blades, and radiator, or replace the fan:

(1) Use an air pump to clean the radiator;

(2) Clean the fan and its cover with a brush or damp cloth, and if necessary, remove the fan for cleaning;

Step 3: Tie the cable and secure it with zip ties.

Step 4: Reinstall the fan, fan mounting plate, and WIT.

6.3.2 Cleaning of dust-proof cotton

Ventilation and dust prevention are crucial for preventing dust from entering equipment and ensuring normal heat dissipation. Blockage of dust-proof cotton will cause poor air

intake and overheating inside the cabinet, leading to a decrease in equipment power.

Possible inspection points and measures are as follows:

1> Regularly visually inspect the dust accumulation of the dust-proof cotton. When the dust coverage exceeds 2/3, the board structure hardens, the temperature inside the cabinet rises too high, the fan noise increases, or the pressure difference triggers an alarm, the dust-proof cotton should be cleaned or replaced in a timely manner.

2> The washable dust-proof cotton should be gently rinsed and dried before reuse, with a maximum of 3-5 cycles.

3> When the dust-proof cotton has problems such as damage, mold growth, delamination, and fiber detachment, it needs to be replaced immediately.

4> Adjust the inspection cycle dynamically based on the on-site environment: conduct monthly checks on the regular environment; Inspect high dust, industrial, and coastal environments every 2-4 weeks.

Location diagram of dust-proof cotton

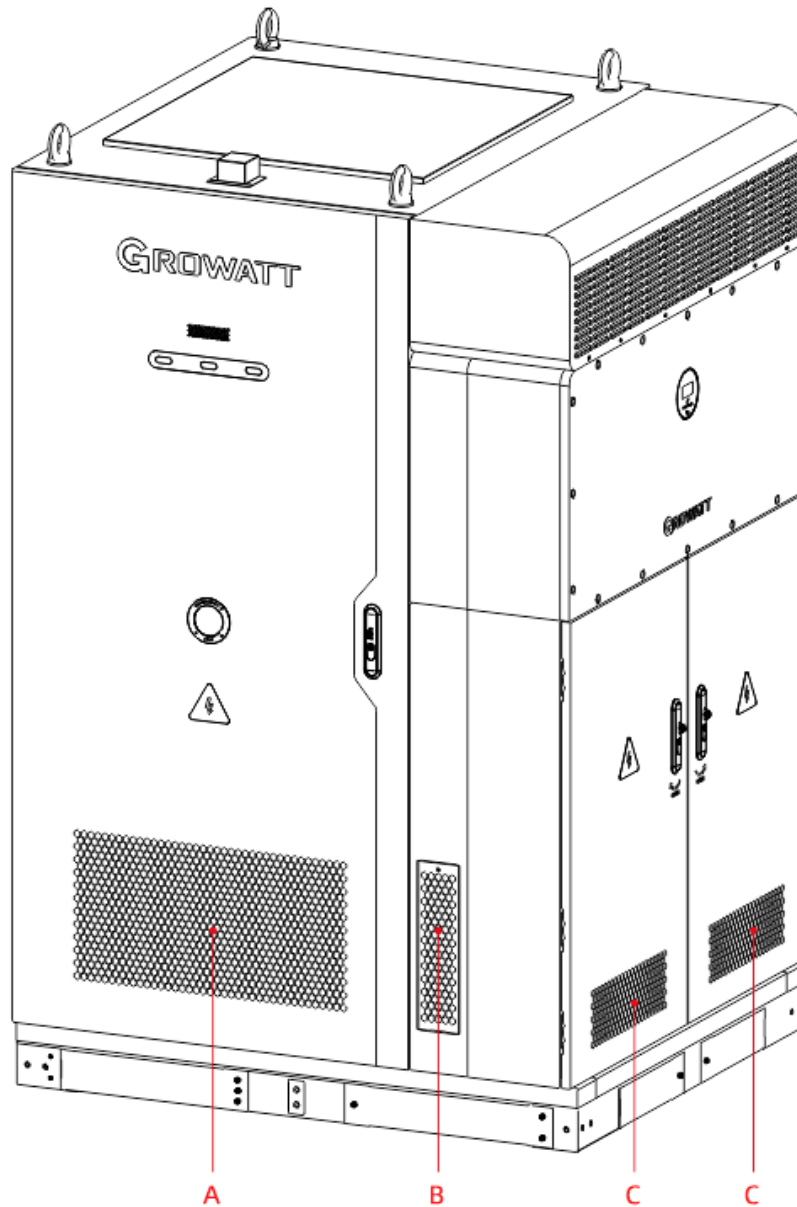
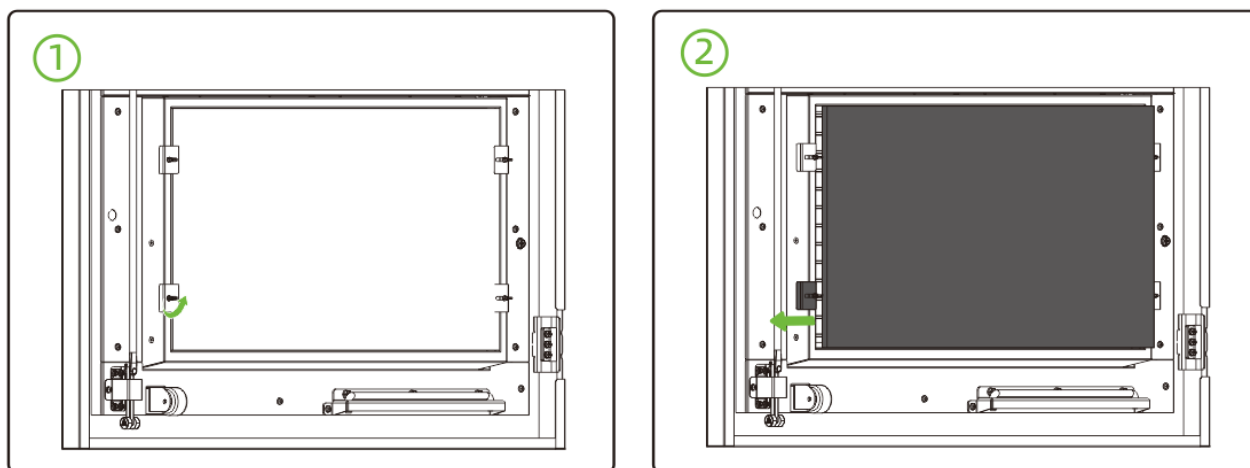


Figure 6.1 Schematic diagram of dust-proof cotton position

Maintenance of dust-proof cotton for battery cabinet

Step 1: Open the battery cabinet door and unscrew the butterfly nut;

Step 2: Remove the fixed sheet metal and take out the dust-proof cotton for maintenance.

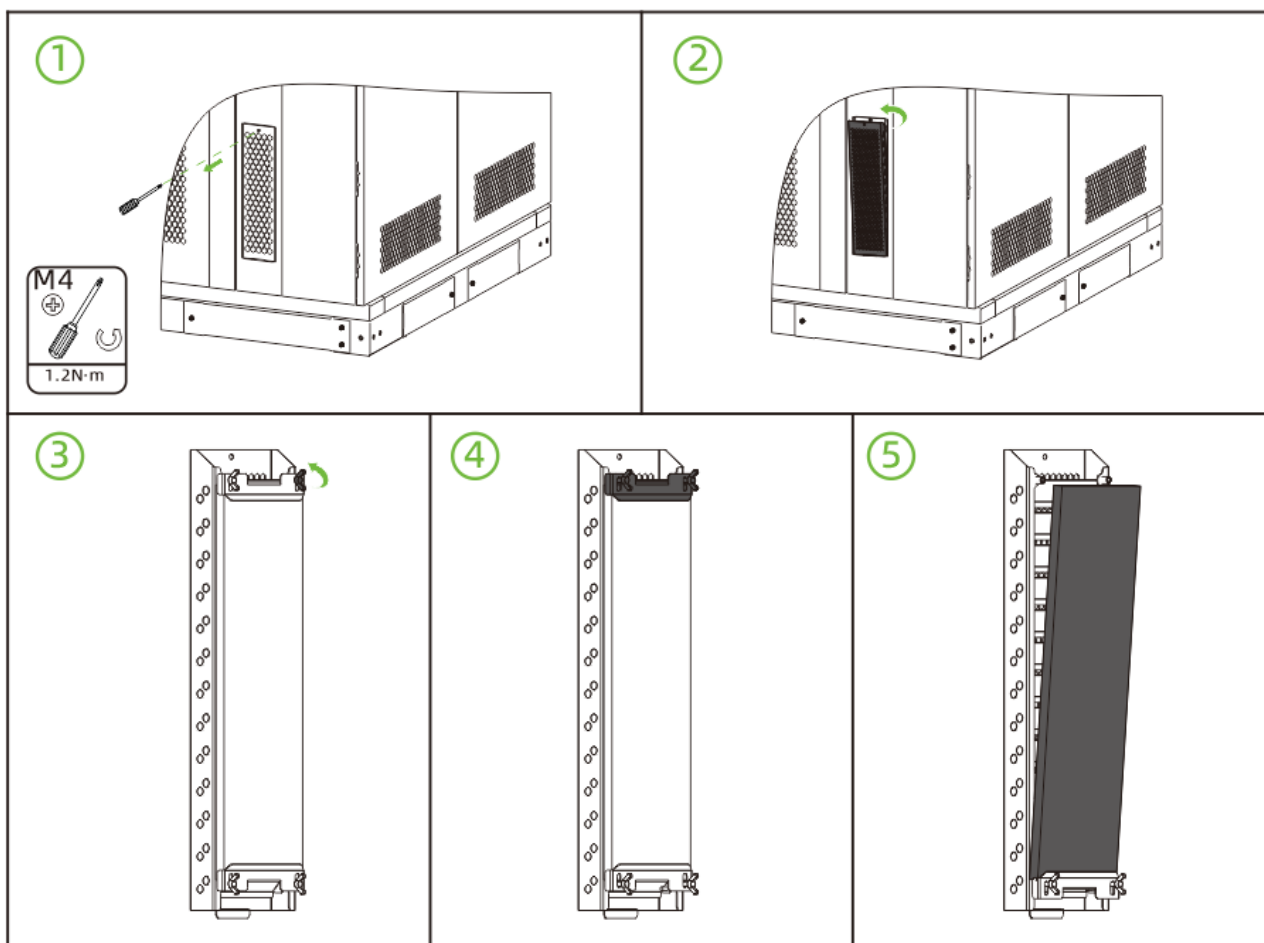


Maintenance steps for dust proof cotton in the air duct of hybrid inverter

Step 1: Use a screwdriver to unscrew the screws;

Step 2: Remove the dust-proof cotton fixing component;

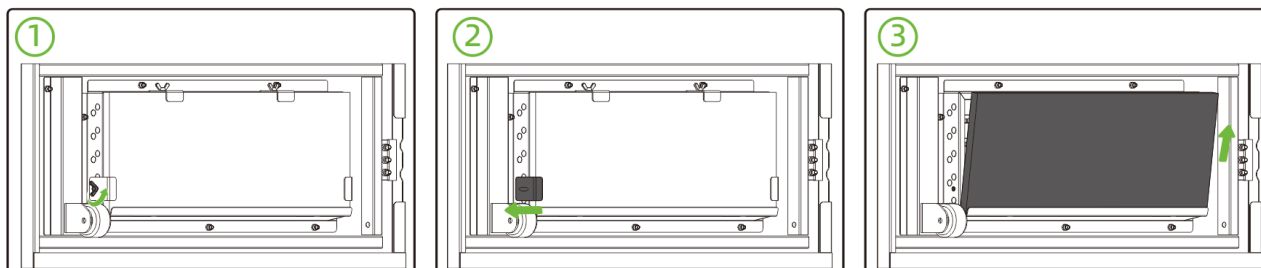
Step 3: Remove the dust-proof cotton from the dust-proof cotton fixing component for maintenance.



Maintenance of dust-proof cotton for distribution cabinet door panels

Step 1: Open the door of the distribution cabinet and unscrew the butterfly screw;

Step 2: Take out the dust-proof cotton for maintenance.



6.4 Fault Handling

When RISE malfunctions, the battery indicator light and WIT screen indicator light status will change (refer to "2.2 Product Appearance" for details). You can click on the hybrid inverter screen to view the fault and alarm codes, and also log in to the APP and Grominder to view the fault information.

6.4.1 System Protection Code

Table 6.1 List of Alarm Codes

Warning Code	Description	Suggestion
Warning 200	String fault	1.After shutdown, check the panel is normal. 2.If error message still exists, contact manufacturer.
Warning 201	String PID quick connect terminal detection error	1.After shutdown, check the string terminal wiring. 2. If the error message still exists, contact the manufacturer.

Warning 202	DC SPD function abnormal	1.After shutdown, check the DC SPD. 2.If error message still exists, contact manufacturer.
Warning 203	PV Circuit short	1.Check the PV1 or PV2 wiring is short-circuited 2.If error message still exists, contact manufacturer.
Warning 204	Dry connect function abnormal	1.After shutdown, check the dry connect wiring. 2.If the error message still exists, contact manufacturer.
Warning 205	PV Boost driver broken	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 206	AC SPD function abnormal	1.After shutdown, check the AC SPD. 2.If error message still exists, contact manufacturer.
Warning 207	U disk over- current protection	1.Unplug the U disk 2.Re-access U disk after shutdown 3.If the error message still exists, contact manufacturer.
Warning 208	DC Fuse Open	1.After shutdown, check fuse. 2.If error message still exists, contact manufacturer.

Warning 209	The DC input voltage is exceeding the maximum tolerable value.	1.Immediately disconnect the DC switch and check the voltage 2.If the fault code still exists after the normal voltage is restored, contact manufacturer
Warning 210	PV Reversed	1.Check PV input terminals 2.If error message still exists, contact manufacturer.
Warning 211	PV Reversed	1.Check the wiring at the input terminal of the panel 2.If the fault information persists, contact the manufacturer
Warning 212	PV Short Circuit	1.Check the wiring at the input terminal of the panel 2.If the fault information persists, contact the manufacturer
Warning 213	PV Voltage Low	1.Check whether the panel is connected; 2.Check whether the wiring at the input terminal of the panel is correct

Warning 217	BDC Abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 218	BDC Bus Disconnect	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 219	PID function abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 220	Sting Disconnect	1.Check string Connect is normal 2.If error message still exists, contact manufacturer.
Warning 221	Sting Current Unbalanced	1.Check PV panel is normal. 2.If error message still exists, contact manufacturer.

Warning 300	No Utility	1.Please confirm grid is lost or not. 2.If error message still exists, contact manufacturer.
Warning 301	Grid voltage outranges	1.Check the AC voltage is in the range of standard voltage in specification. 2. If error message still exists, contact manufacturer.
Warning 302	Grid frequency outranges	1.Check the frequency is in the range of specification or not. 2.If error message still exists, contact manufacturer.
Warning 303	EPS mode, over load	1.Please reduce the load of EPS output. 2.If error message still exists, contact manufacturer.

Warning 304	CT Open or Wrong	1.Check if AC current sensor is connected well 2.If error message still exists, contact manufacturer.
Warning 305	CT line reversed or Ground fail	1.Check the L line and N line of SP-CT is reversed or not. 2.If error message still exists, contact manufacturer.
Warning 306	Communication fault, M3 didn't receive SP-CT data	1.Check communication wire 2.If error message still exists, contact manufacturer.
Warning 307	Communication fault	1.Check communication wire 2.If error message still exists, contact manufacturer.
Warning 308	Meter Open or Wrong	1.Check if Meter is connected well 2.If error message still exists, contact manufacturer.
Warning 309	Meter line reversed or Ground fail	1.Check the L line and N line of Meter is reversed or not. 2.If error message still exists, contact manufacturer.

Warning 310	NE abnormal	1.Check PE, to ensure that the PE line contact good. 2.If error message still exists, contact Manufacturer
Warning 311	Sequence Err	No operation is required, the PCS automatically adjusts the phase sequence
Warning 313	Abnormal generator condition	1.Check the generator status. 2. If the error message persists, please contact Growatt support.
Warning 400	Fan function abnormal	1.After shutdown, check the fan connection. 2. replace the fan. 3. If the error message still exists, contact manufacturer.
Warning 401	Meter abnormal	1: Check if the meter is on 2: Check the machine and the meter connection is normal
Warning 402	Optimizer and inverter communication is abnormal	1. Check if the optimizer is on. 2. Check whether the connection between the optimizer and the inverter is normal.

Warning 403	String communication	1.After shutdown, check the string panel wiring. 2. If the error message still exists, contact manufacturer.
Warning 404	EEPROM abnormal.	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 405	DSP and COM firmware version unlatch	1.Check the firmware version. 2.If error message still exists, contact manufacturer.
Warning 406	Boost module error	1.Restart inverter 2.If error message still exists, contact manufacturer.
Warning 407	NTC Temperature too high or NTC is broken	1.Restart inverter 2.If error message still exists, contact manufacturer.
Warning 408	NTC broken	1.Restart inverter 2.If error message still exists, contact manufacturer.

Warning 409	Reactive power scheduling No response warning	1.Check if shinemaster is open 2.If error message still exists, contact manufacturer.
Warning 410	CPU Run abnormal	1.Restart inverter 2.If error message still exists, contact manufacturer.
Warning 411	synchronization signal Abnormal	1、 check the synchronizing signal is abnormal. 2.If error message still exists, contact manufacturer.
Warning 412	The grid- connected startup condition of the inverter is not met	1. Check whether the grid voltage is out of range or whether the grid-connected voltage setting of the inverter is correct; 2. Check whether the PV voltage is too high or too low; 3. Check battery voltage and the BMS EOD voltage setting; 4. Check battery BMS is OK; 5. Check off-grid setting; 6. Check M3 and DSP versions; 7. Restart the inverter. If error message still exists, contact manufacturer.

Warning 413	Abnormal load current resampling	1: Restart the inverter 2: If the fault information still exists, contact the manufacturer
Warning 414	Parallel ATS current imbalance	1. Check the parallel equipment to ensure that some machines have mains power and some machines do not have mains power; 2. Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 415	Duplicate device IDs for parallel devices	1. Check if the monitoring communication address set for the inverter in the parallel system is duplicated; 2. Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 416	Fault of inconsistency between online	1. Check if the number of parallel inverters set in the parallel system matches the actual number of inverters;

	and set number of parallel devices	2. Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 417	Inconsistent off grid parameter fault during parallel operation	1. Check if the parameter settings of the parallel equipment are consistent 2. Restart the machine 3. If the fault information still exists, contact the manufacturer
Warning 418	Fan reverse alarm	1. Shut down and check if the fan is blocked 2. If the fault information still exists, contact the manufacturer
Warning 419	Abnormal external power supply	1. Check if the maintenance switch is disconnected 2. Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 421	Abnormal circuit breaker	1. Manually close AC and DC circuit breakers 2. Restart the inverter, if the fault message still exists, contact the manufacturer

Warning421	Excess demand value	Detecting load power
Warning422	Battery AC wake-up failed	1. Restart the inverter; 2. If the fault information still exists, contact the manufacturer.
Warning 500	Battery communication fault	1.Check the lithium Battery is open or not. 2.Check the connection of lithium Battery and inverter is good or not.
Warning 501	Battery terminal open (No battery connection)	1: Check the battery is connected 2: If error message still exists, contact manufacturer.
Warning 502	Battery Voltage high	1.Check the voltage of battery is in the range of specification or not. 2.Check the battery connection is right or not. 3.If error message still exists, contact manufacturer.
Warning 503	Battery Voltage Low	1.Check the voltage of battery is in the range of specification or not. 2.Check the battery connection is right or not.

		3.If error message still exists, contact manufacturer.
Warning 504	Battery terminals reversed	1: Check the positive and negative of battery is reversed or not. 2: If error message still exists, contact manufacturer.
Warning 505	Lead-acid battery temperature sensor was open	1.Check the temperature of lead-acid battery is installed or not. 2.Check the temperature of lead-acid battery is connected well or not. 3: If error message still exists, contact manufacturer.
Warning 506	Battery temperature outranges	1: Check the environment temperature of battery is in the range of specification or not. 2: If error message still exists, contact manufacturer.
Warning 507	BMS failure and neither charge and discharge is allowed	1: Depend on BMS error code 2: If error message still exists, contact manufacturer.

Warning 508	Lithium battery Over Load Fault	1: Check whether output load over Lithium battery rate power; If load too large, please reduce load 2: If error message still exists, contact manufacturer.
Warning 509	BMS Battery Msg Failure	1.Restart inverter 2.If error message still exists, contact manufacture.
Warning 510	BAT SPD function abnormal	1.After shutdown, check the BAT SPD. 2.If error message still exists, contact manufacturer.
Warning 600	DCI bias abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 601	DC Voltage High Fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 602	Off-grid output voltage is too low	1.Restart inverter 2.If error message still exists, contact manufacturer.

Warning 603	The off-grid output voltage is too high	1.Restart inverter 2.If error message still exists, contact manufacturer.
Warning 604	The off-grid output current is overcurrent	1.Check whether the load exceeds the inverter specification 2.Restart inverter, if error message still exists, contact manufacturer.
Warning 605	The off-grid Bus voltage is too low	1.Check whether the load exceeds the inverter specification 2.Restart inverter, if error message still exists, contact manufacturer.
Warning 606	The off-grid output is overloaded	1.Check whether the load exceeds the inverter specification 2.Restart inverter, if error message still exists, contact manufacturer.
Warning 607	Abnormal communication alarm with off-grid box	1.Check and off-grid box communication wiring after shutdown. 2.If error message still exists, contact manufacturer.

Warning 608	Off-grid box abnormal alarm	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Warning 609	Balance Circuit Overload	1.Reduce unbalanced loads 2.If error message still exists, contact manufacturer.
Warning 700	The off-grid box fan is faulty	1.Check the fan wiring after powering it down. 2.If error message still exists, contact manufacturer.
Warning 701	The generator started abnormally	1.Check the generator and wiring after shutdown. 2.If error message still exists, contact manufacturer.
Warning 800	The ambient temperature /SPS temperature is too high	1. Check whether the fan is abnormal. 2. Check whether the PID box is properly installed. 3. Check whether the air inlet and outlet of the PID box are unblocked. 4. If the fault persists, contact the manufacturer.

Warning 801	PID Boost input overvoltage	1: Shutdown and restart. 2: If the fault information still exists, contact the manufacturer.
Warning 802	Fan Abnormal Alarm	1. Shut down the device and check whether the fan is blocked. 2. If the fault persists, contact the manufacturer.

6.4.2 System fault codes

Table 6.2 List of Fault Codes

Error Code	Description	Suggestion
Error 200	AFCI Fault	1.After shutdown, check the panel terminal. 2.Restart inverter. 3.If error message still exists, contact manufacturer.
Error 201	Leakage current too high.	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 202	The DC input voltage is exceeding the maximum tolerable value.	1.Immediately disconnect the DC switch and check the voltage 2.If the fault code still exists after the normal voltage is restored, contact manufacturer

Error 203		
Error 204	PV Reversed	1.After shutdown, check the inverter terminal. 2.Restart inverter. 3.If error message still exists, contact manufacturer.
Error 300	AC V Outrange	1.Check grid voltage. 2.If the error message still exists despite the grid voltage being within the tolerable range, contact manufacturer.
Error 301	AC terminals reversed	1.Check AC terminals 2.If error message still exists, contact manufacturer.
Error 302	No AC Connection	1.After shutdown, check AC wiring. 2.If error message still exists, contact manufacturer.
Error 303	NE abnormal	

Error 304	AC F Outrange	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 305	Over Load Fault	1.Check whether output load over range; If load too large, please reduce load 2.If error message still exists, contact manufacturer.
Error 306	CT LN Reversed	1.After shutdown, Check the SP-CT connection. 2.If error message still exists, contact manufacturer.
Error 307	Communication fault, M3 didn't receive SP-CT data	1.Check communication wire 2.If error message still exists, contact manufacturer.
Error 308	Communication fault; Pairing time too long	1.Restart pairing 2.If error message still exists, contact manufacturer.

Error 309	ROCOF Fault	1. Check grid frequency and restart inverter 2. If error message still exists, contact manufacturer.
Error 310	NE Fault	1: confirm whether the N line at the inverter side with PV negative grounding is short circuited with the ground wire, and whether the output side is isolated with a transformer. 2. If error message still exists, contact Manufacturer
Error 311	Backflow Fail	1: After shutdown, Check the CT or meter connection. 2: If error message still exists, contact manufacturer.
Error 312	Phase Sequence Error	1: Check whether the phase sequence of the grid-side connections for parallel-connected equipment is consistent 2. Restart the inverter 3: If the fault information still exists, contact the manufacturer

Error 313	Abnormal generator condition	1. After shutdown, check the generator status. 2. If the error message persists, please contact Growatt support.
Error 400	DCI bias abnormal	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 401	DC Voltage High Fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 402	Output DC current too high.	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 403	Output current unbalance	1: After shutdown, check the output current is not balanced. 2: If the error message still exists, contact manufacturer
Error 404	bus sample fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 405	Relay fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.

Error 406	Init model fault	1.Reset mode 2.If error message still exists, contact manufacturer.
Error 407	Self-check failure	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 408	NTC Temperature too high	1.After shutdown, check the temperature, normal restart the inverter 2. If the error message still exists, contact manufacturer
Error 409	Bus voltage abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 410	Communication board and control panel sampling battery voltage is inconsistent	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 411	Communication fault	1.After shutdown, check communication board wiring 2. If the error message still exists, contact manufacturer

Error 412	Temperature sensor connection is abnormal	1.After shutdown, check the temperature sampling module is connected properly 2.If the error message still exists, contact manufacturer
Error 413	IGBT drive fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 414	EEPROM fault	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 415	Internal power test fail (PV Power low)	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 416	Over current protected by software	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 417	System communication protocol does not match	1.Restart inverter 2.If error message still exists, contact manufacturer.

Error 418	DSP and COM firmware version unmatched	1.Check the firmware version. 2.If error message still exists, contact manufacturer.
Error 419	DSP software version and Hardware version unmatched	1.Check the firmware version. 2.If error message still exists, contact manufacturer.
Error 420	GFCI Module damage	1: After shutdown, check the leakage current module 2: If the error message still exists, contact manufacturer
Error 421	CPLD is abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 422	sampling is inconsistent	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 423	AC PWM Bypass Protect	1.Restart inverter. 2.If error message still exists, contact manufacturer.

Error 424	INV current abnormal	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 425	AFCI self-test fault	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 426	Communication board and control panel sampling battery voltage is inconsistent	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 427	Communication board and control panel sampling battery voltage is inconsistent	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 428	BOOST Short Out	contact manufacturer.
Error 429	Bus voltage soft-start failure	1.Restart inverter 2.If error message still exists, contact manufacturer.

Error 430	EPO Fault	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 431	Monitoring chip BOOT verification failed	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 432	The system battery model is not compatible	1.Replacing the System Battery Model 2.If error message still exists, contact manufacturer.
Error 433	The system battery software is not compatible	1.Update the System Battery Software 2.If error message still exists, contact manufacturer.
Error 434	High frequency synchronization fault	1.Check High frequency synchronization cable after shutdown 2.If error message still exists, contact manufacturer.
Error 435	System config fault	1.Check system config after shutdown 2.If error message still exists, contact manufacturer.

Error 436	Incompatible parameter settings	1.Check if the parameter settings of the parallel equipment are consistent. 2.Restart the inverter. 3.If the error message persists, please contact Growatt support.
Error 437	Incompatible serial number settings	1.Check if the serial number of the parallel equipment are consistent. 2.Restart the inverter. 3.If the error message persists, please contact Growatt support.
Error 500	BMS Communication fault	1.Check 485 cable between SP and battery 2.Check if battery is sleeping 3.If error message still exists, contact manufacturer.
Error 501	BMS failure and neither charge and discharge are allowed	1.Depend on BMS error code 2.If error message still exists, contact manufacturer.
Error 502	Battery voltage low	1.Check battery voltage 2.If error message still exists, contact manufacturer.

Error 503	Battery Voltage High	1.Check whether the battery voltage too high; if battery OK, please restart the inverter; if not, please replace battery 2.If error message still exists, contact manufacturer.
Error 504	Battery temperature out of specified range for charge or discharge	1.Check battery temperature 2.If error message still exists, contact manufacturer.
Error 505	Battery terminals reversed	1.Check battery terminals 2.If error message still exists, contact manufacturer.
Error 506	Battery terminal open (only for lithium battery)	1.Check battery terminal 2.If error message still exists, contact manufacturer.
Error 507	Lithium battery Over Load Fault	1.Check whether output load over Lithium battery rate power; If load too large, please reduce load 2.If error message still exists, contact manufacturer.

Error 508	BUS2 Volt Abnormal	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 509	Bat Charge Over- Current Fault	1.Check whether the PV voltage is over configured 2.If error message still exists, contact manufacturer.
Error 510	Bat Discharge Over-Current Fault	1.Check whether the battery discharge current is properly set 2.If error message still exists, contact manufacturer.
Error 511	Bat Soft-Start Fault	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 512	Bat Uncontrolled Rectification	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 600	EPS OP Short Fault	1.Restart inverter. 2 If error message still exists, contact manufacturer.

Error 601	Bus low	1.Check whether the battery works properly 2.If error message still exists, contact manufacturer.
Error 602	AC port volt Abnormal	1.Check whether the AC port has voltage 2.If error message still exists, contact manufacturer.
Error 603	Soft start run out of time	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 604	Off-grid output voltage is too low	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 605	Balance Circuit fault	1.Restart inverter 2.If error message still exists, contact manufacturer.
Error 606	DC Voltage High Fault	1.Restart inverter. 2.If error message still exists, contact manufacturer.
Error 607	EPS output over load	1.Restart inverter. 2.If error message still exists, contact manufacturer.

Error 608	Off-grid parallel signal abnormal	1、 Check off-grid parallel signal 2.If error message still exists, contact manufacturer.
Error 609	The off-grid box is not detected	1.Check the off-grid box after shutdown to identify the signal wiring 2.If error message still exists, contact manufacturer.
Error 610	The off grid split phase voltage is abnormal	1、 Powering off the System, Check whether the control relay of off-grid box split phase transformer is abnormal 2. Restart the system. If the fault persists, contact the manufacturer
Error 700	Abnormal communication with the inverter	1.Check and communicate with the inverter after shutdown 2.If error message still exists, contact manufacturer.
Error 701	Off-grid box grid-side relay failure	1.Restart the off-grid box 2.If error message still exists, contact manufacturer.
Error 702	Off-grid box generator access relay fault	1.Restart the off-grid box 2.If error message still exists, contact manufacturer.

Error 703	Off-grid boxes are overloaded	1.Restart the off-grid box 2.If error message still exists, contact manufacturer.
Error 704	Off-grid boxes are overloaded off-grid split-phase	1.Reduce the load 2.If error message still exists, contact manufacturer.
Error 705	Overheat inside the off-grid box	1.Restart the off-grid box 2.If error message still exists, contact manufacturer.
Error 800	PID communication fault	1.After shutdown, adjust the communication sequence between Master2.0; 2.Check the configurations of Master2.0 port 485.
Error 801	PID output overcurrent	1.Check whether PID output is short circuit after shutdown. 2.If the fault information still exists, contact the manufacturer.
Error 802	PID output overvoltage	1. Turn off the AC switch immediately and check whether the PID connection is abnormal.

		2. After the restart, if the fault persists, contact the manufacturer.
Error 803	SPS Input overvoltage	1. Check the power grid voltage. 2. If the power grid voltage is restored to the permissible range and the fault persists, contact the manufacturer.
Error 804	AC overvoltage/AC undervoltage	1. Check the power grid voltage. 2. If the power grid voltage is restored to the permissible range and the fault persists, contact the manufacturer.

7 Product Processing

7.1 Dismantling RISE

Step 1: Perform the system power off operation. For detailed steps, please refer to "6.1 System Power Off".

Step 2: Disconnect all electrical connections of RISE, including communication cables, DC input cables, AC output cables, and grounding wires.

Step 3: Remove the fixing screws between the integrated cabinet and the anchor bracket, as well as the fixing screws between each module.

7.2 Packaging RISE

- If there is an original packaging box, place the RISE modules into the original packaging box and secure them with packing straps.
- If there is no original packaging box, wooden boxes with appropriate size and load-bearing capacity should be selected for packaging.

 CAUTION	Please store all RISE modules in a dry environment, with an ambient temperature between -25 °C and +55 °C.
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7.3 Scrap RISE

After the RISE service life expires or malfunctions are replaced, please dispose of it in accordance with the applicable electronic waste disposal regulations in the installation location.

 CAUTION	It is strictly prohibited to dispose of this product together with household waste.
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8 Technical Parameters

	RISE 261H-2H 125kW&261kWh	RISE 261H-2.5H 99.9kW&261kWh	RISE 261H-3H 85kW&261kWh	RISE 261H-4H 63kW&261kWh	RISE 261H-5H 50kW&261kWh
Battery Parameters					
Cell Type	LFP 3.2V/314Ah				
Battery PACK configuration	52.24kWh/1P52S				
Battery system configuration	261kWh/1P260S				
Battery voltage range	728~936V				
PV Parameters					
Maximum input power of photovoltaic system	250kW	199.8kW	170kW	126kW	100kW
starting voltage	195V				
Maximum input voltage	1100V				
Maximum operating voltage	1000V				
MPPT operating voltage range	180~1000V				
Maximum input current per MPPT channel	42A				
Maximum short-circuit	50A				

current per MPPT channel					
Number of MPPT strings per channel	2				
MPPT quantity	10				
AC Input Parameters					
Maximum input current for communication	250A				
Communication output parameters (grid connected)					
Rated input power	125kW	99.9kW	85kW	63kW	50kW
Maximum apparent power	137.5kVA	99.9kVA	93.5kVA	69.3kVA	55kVA
Rated Voltage	380/400V				
AC voltage range	-15%~10%				
rated frequency	50/60Hz				
Communication frequency range	45-55Hz/55-65Hz				
Maximum output current	208.3A	151.36A	141.7A	105A	83.3A
Adjustable range of power factor	-1...+1				
THDi	<3% (Rated power)				
Communication wiring method	3P4W+PE				
AC Output Parameters(off-grid)					

Rated output power	125kW	99.9kW	85kW	63kW	50kW
Maximum apparent power	137.5kVA	99.9kVA	93.5kVA	69.3kVA	55kVA
Rated output voltage	220V/230V(L-N) 380V/400V(L-L)				
Rated output frequency	50/60 Hz				
Load connection type	3P4W+PE				
Maximum continuous output current	208.3A	151.36A	141.7A	105A	83.3A
THDv	<3% (Linear full load)				
Load imbalance degree	100% three-phase imbalance				
overload capacity	1.1 times continuous; 1.6 times of rated power, 10s				
Off grid switching time	≤10ms				
GEN Port Parameters					
Rated Voltage	380/400V				
rated frequency	50/60 Hz				
rated input power (GEN/grid connected inverter)	125kW	99.9kW	85kW	63kW	50kW
rated output power	125kW	99.9kW	85kW	63kW	50kW

(Intelligent load)					
Line type	3P4W+PE				
System Parameter					
Charge-discharge rate	≤0.5P				
Depth of Discharge	95%DOD				
Working temperature range	-25~55℃				
relative humidity	0~95% RH, No condensation				
altitude	≤3000m				
Size	1300/1400/2150mm				
Weight	2.6t				
Protection Rating	IP55				
cooling method	Battery liquid-cooling + hybrid inverter air cooling				
Fire protection system	Aerosol + water fire extinguishing				
Communication interface	RS485/USB/LAN				

9 Contact Us

If you have any questions, please contact the customer service hotline of Growatt. To better assist you in resolving the issue, we need you to provide the following information:

Table 9.1 Problem Information Table

Information Name	Information Name
Integrated cabinet serial number	System indicator light status
Specific model of integrated cabinet	PV module output power and open circuit voltage
Error codes and alarm codes displayed by the system	On site matching scheme and wiring diagram

Shenzhen Growatt New Energy Co.,Ltd.

Room 101, Building 1, Smart Green Energy Industrial Park,
Buildings 1 to 7, No. 291 Yunchang Road, Sanwei Community,
Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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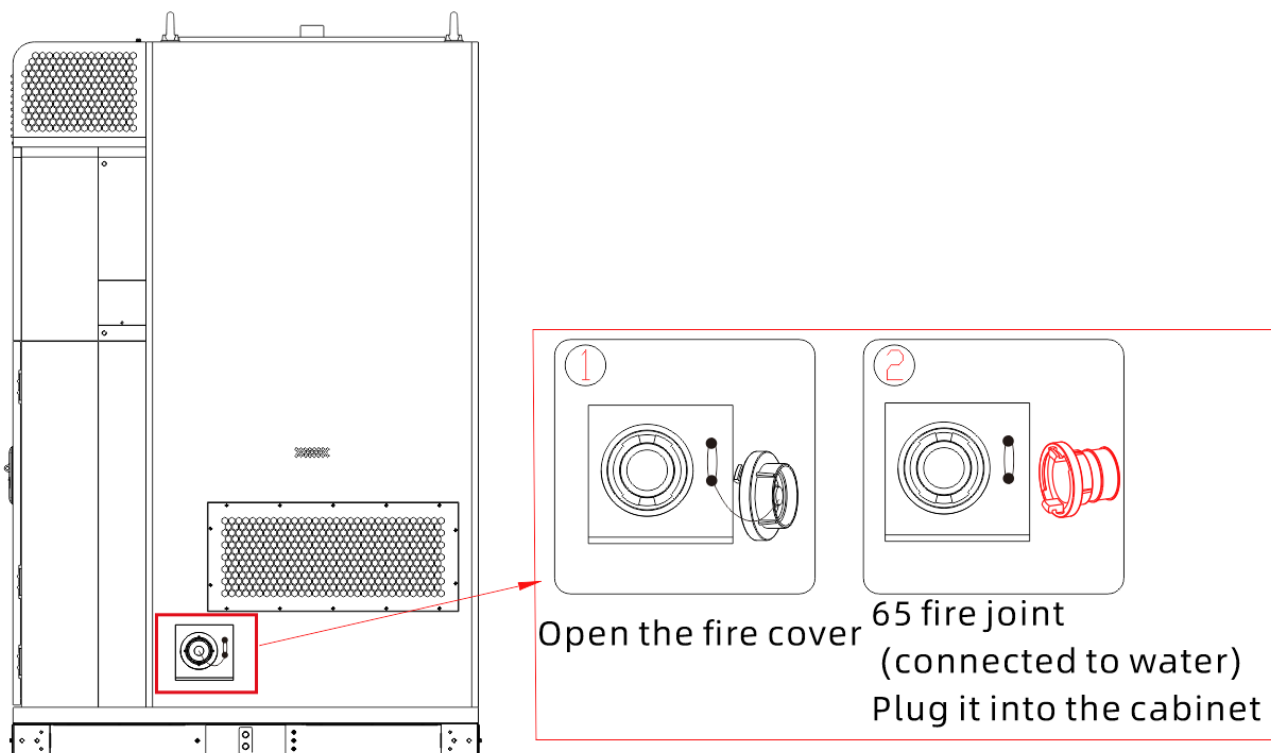
For local customer support, please visit <https://en.growatt.com/support/contact>

10 Appendix

10.1 Water Fire Protection

After the fire extinguishing system is activated, if the fire continues to spread, customers can use the backup system to extinguish the fire after the outdoor cabinet is powered off. The pipeline outside the outdoor cabinet can be designed according to the actual situation of the project site:

- If there are fire trucks or other mobile devices on site: The reserved interface on the outside of RISE can be connected to the fire truck or other mobile devices, and the fire can be extinguished by manual watering by personnel.
- For the situation where there is a fire water pool on site: one end of the water supply pipeline is connected to the reserved interface outside RISE, and the other end is connected to the fire water pool. When a fire occurs, turn on the switch of the water fire protection pipeline outside the cabinet. When the temperature around the sprinkler head inside the cabinet reaches 68 ° C, the water in the fire water pool will automatically flow into the water supply pipeline for extinguishing the fire.





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